

Closing The Gap

DECEMBER, 2008/JANUARY, 2009
VOLUME 26 - NUMBER 5

A MODEL OF AN ASSISTIVE TECHNOLOGY PROGRAM TO INCREASE PERSERVICE TEACHERS' AWARENESS AND SKILLS

SPEECH RECOGNITION TRIAL PROTOCOL

INCLUDING ACCESSIBLE TECHNOLOGY-RICH ACTIVITIES IN AN EXISTING SUMMER CAMP

123 - HEY LOOK AT ME!

COLLECTIONS ARE AN EASY, AGE-APPROPRIATE AND FUN WAY TO FACILITATE SOCIAL INTERACTIONS

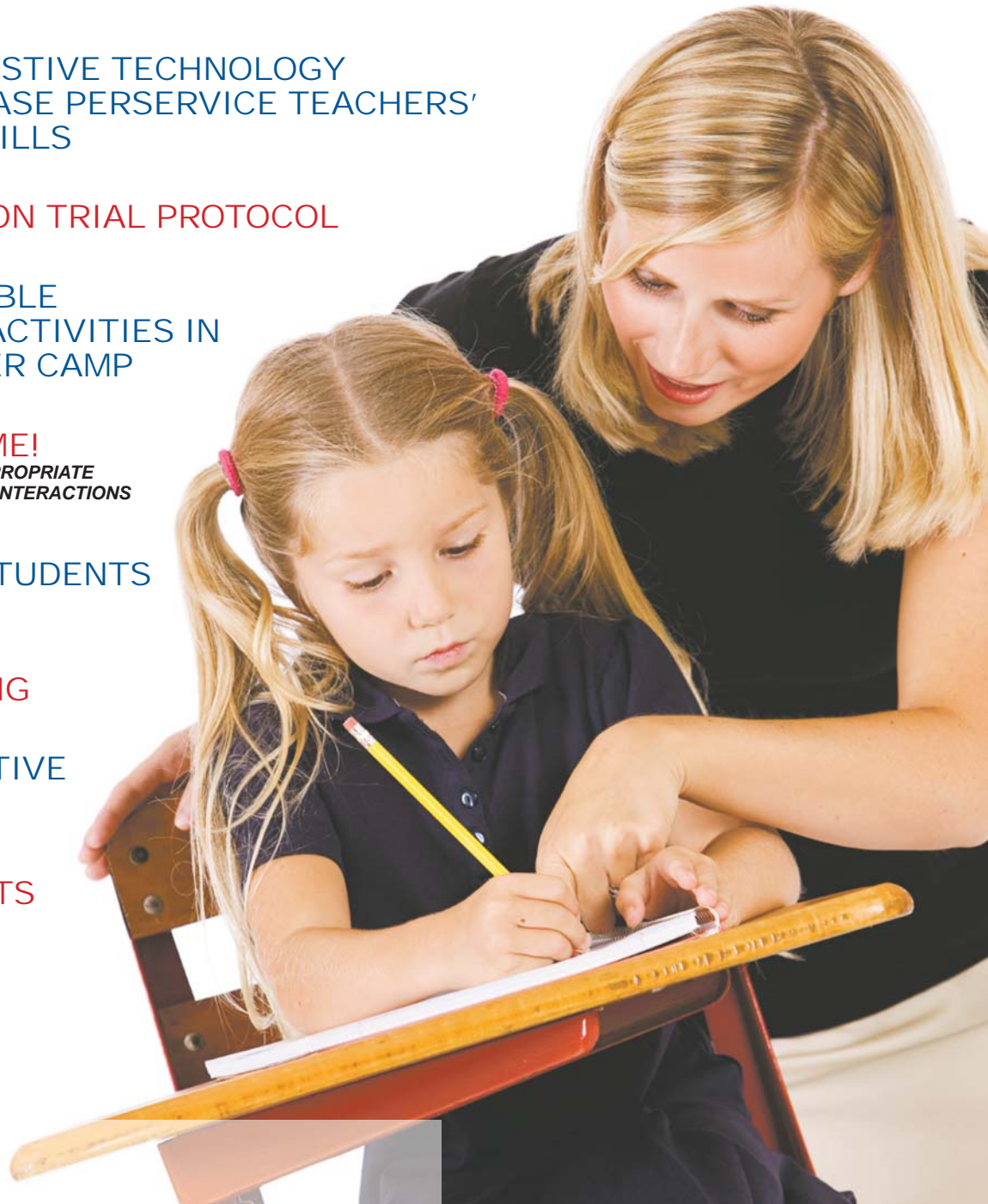
INTERNSHIPS AND STUDENTS WITH DISABILITIES

SWITCH ON LEARNING

AN AAC RETROSPECTIVE

PART 2: MYTH, POLITICS, CULTURE AND ATTITUDE

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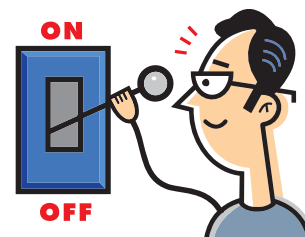
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Editor's note

By Megan Turek



Closing The Gap strives to share practical, ready-to-implement ideas and strategies that have a direct impact on the lives of children and adults with disabilities. Each issue shares unique articles demonstrating the successful application of assistive technology.

Over the years, it has been my pleasure to meet many of you who make up this dedicated community of individuals with a common goal, that of identifying and implementing assistive technology to impact lives.

The Closing The Gap Conference is an intense week of learning and networking. We all leave with our batteries charged, motivated to implement all that we have learned. It is truly the exchange of ideas and best practices that motivates others to build on them and create their own successes.

As we look ahead to the new year, I encourage you to submit your strategies, tips and tricks and successes (and/or failures) so that we may pass them along to all of our readers. Please contact me directly at mturek@closingthegap.com or visit www.closingthegap.com/submit_article.lasso to learn more.

From all of us at Closing The Gap, our sincere thanks and we wish you the very best this holiday season!

Wishing you the very best,

Closing The Gap

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PUBLICATION INFORMATION

Closing The Gap (ISSN: 0886-1935) is published bi-monthly in February, April, June, August, October and December. Single copies are available for \$7.00 (postpaid) for U.S. residents. Add \$2.00 for postage outside the U.S. The annual Resource Directory issue sells for \$16.95 plus postage and handling. Article reprints available, please contact the Managing Editor for details.

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A Model of an Assistive Technology Program to Increase Preservice Teachers' Awareness and Skills

By Marcie M. Bump

What do teachers need to know about assistive technology (AT)? At the University of Texas at Austin, the College of Education's AT Lab Orientation introduces undergraduates to technology they will use in the public school setting, AT across the lifetime, and how decisions are made regarding the selection of AT devices. The purpose of this article is to describe the curriculum structure; how we use hands-on activities to ensure active participation; how the orientation is embedded in the college and system of interacting with faculty to integrate an AT session as a course requirement; and some outcomes from the survey students complete at the end of their session.

As the field of assistive technology (AT) rapidly grows, the selection process is increasingly more complicated for AT service providers (Bausch & Hasselbring, 2004). When it comes to getting AT services to reach people with disabilities, what is known to teachers and administrators is more important than what is currently available in the field (Bausch & Hasselbring, 2004).

To ensure that students with disabilities will acquire the necessary services, current legislation requires that service providers have AT competencies (Tech Act, 2004; CEC, 2003). However, current research suggests that many preservice teachers are not well equipped to provide services on assessment, selection and application of AT (Bausch & Hasselbring, 2004).

In response to these needs, UT's AT Lab provides workshops and orientations to students in the College of Education. The lab works in collaboration with faculty to ensure a cohesive and integrated curriculum. Every semester, over 300 students receive hands-on training in small groups to increase their knowledge of AT devices and services. At the finish of the orientation, students complete an on-line survey to give feedback of their experience.

Though we operate as a service to all of the College of Education students, most of our students complete a lab orientation as a course requirement specifically for ALD 322, which is an introductory course in special education. In the course, students learn about

different disabilities, assessment and identification, and the IEP process and IEP team decision-making. The purpose of the orientation is to present them with information about assistive technology throughout the lifespan of the individual, addressing different disability types and how to make proper decisions regarding the selection of AT for the individual. We take the students through a series of settings, beginning in the home and moving to the classroom, workplace, early childhood and communication areas.

We begin in the home setting, with the students gathered around a table with adapted utensils and plates. After getting to know each other we facilitate an informal conversation about each other's knowledge of assistive technology. We want to assess the students' previous knowledge about AT and the special education process.

We ask them questions like: What do you think AT is? Who has older relatives or neighbors that use equipment that they may not have needed when they were younger? What devices did you see on the way into the building as you came here today? What constitutes AT? What is the federal definition? How are devices chosen?

We explain the definition, discuss the differences between no-tech, low-tech and high-tech options, and walk them through a process of choosing AT devices based on the student's needs.

The home setting includes a simulation of a kitchen with a dining room, a den, a bathroom and an indoor recreational area. We have appliances, utensils and electronic equipment in every section for the students to see and experience. In this area, students can manipulate aids for daily living in the four areas of the home.

In the kitchen area, we have the students try to use the adapted materials they find on the table. We ask them questions such as: What was hard and what was easy? How did it feel using this? Who might this be helpful for?

We then show them some utensils in the kitchen section and have them use some of them, such as our grabber/reacher, jar opener, talking scale and tab grabber. We point out that many of these devices are

helpful in the home and not just for people with disabilities. Some of them will comment that their mother or their grandparents use some of these items.

We show them items from the living room and bathroom, and have them try out some of the adapted equipment, like our adapted handle back scrubbers and combs, and office items, such as the talking clock and talking calculator, and the Braille money marker.

Our goal for the home section is that students will know more about different AT devices used in the kitchen, living room, bathroom, and den. We also want them to know about the skills needed to use the devices, and their benefits. We give them opportunities to use the tools so that they can become familiar with how to manipulate them.

After familiarizing students with the assistive devices in the home, we move to the classroom area, which contains instructional software currently used in schools. The classroom simulation contains devices for students with cognitive disabilities, sensory impairment and physical disabilities.

We begin with a demonstration of how Braille is used, the Braille cell, and show them technology used to produce Braille – portable and electronic notetakers, such as the Braille 'n Speak and the pocket slate. Each student is given a Braille math flash card which has a line of Braille at the top, and a cut corner. They are asked to close their eyes and tell what they notice about the card. We discuss how the line of Braille and the cut corner help the student know how to hold the card. Each student is then given a different Braille book. Some are for emergent readers and some are high school textbooks and yearbooks. We discuss how these books are different from the books the students usually read and ask the students what other questions they have about the books.

After learning about Braille, we move on to a hands-on activity with instructional devices. We give the students a Quick-tionary Pen, Alpha Smart, Leap Pad, Turbo Twists (Math, Spelling and Brain Quest) and an instruction card with how to use their device and what to look for. We give them five minutes to explore their device. We then

come back together as a group and each person tells about their device, how it works and for whom it would be helpful.

After that, we split them into groups of two or three to use different instructional software programs. Lexia, CoWriter, Math Blaster, Show Me Math and Inspiration are some examples of the software in the classroom area. We give them an instruction card and have them explore their program as a group. After using the software for about five minutes, we come back as a large group and discuss the software. They share what they did, telling each other how the software worked, who software was useful for, and whether or not they would like to use this in their classroom.

Our goals for the classroom area are to familiarize the students with different devices to facilitate instruction for students with a variety of disabilities (learning disabilities, visual impairments, hearing impairments and speech and language impairments), how those devices can help individuals function more independently, and how to use the devices and software.

After the classroom, we move to the workplace, which is a simulation of an office setting. The tools and software programs in this area are used to help individuals with physical disabilities and visual impairments to work independently. We show students alternative keyboards, FM system, automatic page turners and software used for individuals with visual impairments. Some of the software includes Kurzweil, Jaws, Dragon Naturally Speaking, Magic Screen Magnification and Duxbury Braille translation software.

Our goals for the students in the workplace area are for the students to learn about

different devices that individuals with disabilities (physical and visual impairments) can use in a workplace setting. We also want students to know about the skills required for individuals to be able to use these devices and the benefits of using the devices. Students will also learn how to use the devices themselves.

After the workplace, we move to the early childhood area. We have the students sit around a large play mat that has many adapted toys, communication devices and equipment for positioning and mobility. The students explore the toys and devices on their own for a few minutes, and then we facilitate a discussion about the devices. We

ask them to name the features that make a toy appropriate for a child with a sensory deficit, like blindness or deafness, and then we ask them to find another toy that would be inappropriate for that same child. We ask them to think about the skills required to use a certain toy, and which toys would be effective to increase socialization opportunities for children with and without disabilities.

The early childhood setting allows students to manipulate adapted toys and hardware that are generally used by service providers (OT/PT and speech pathologists) and teachers who work with children who have sensory or physical impairments, and language or cognitive delays.

Our goals for the students in this area are to understand developmental domains (cognitive, motor, communication and social) of children and how assistive technology can be incorporated into their daily

"We ask them questions like: What do you think AT is? Who has older relatives or neighbors that use equipment that they may not have needed when they were younger? What devices did you see on the way into the building as you came here today? What constitutes AT? What is the federal definition? How are devices chosen?"

environment to promote the development of these domains; how toys from standard retail outlets can be made accessible to children with developmental delays; and how AT devices can increase children's independence and daily living skills.

After the early childhood center, we move to the augmentative and alternative communication (AAC) center where students get hands-on experience using different levels of communication devices. In this area students experience both "low-tech" and "high-tech" communication devices to help individuals who have expressive communication difficulties. Here, students learn the concepts of communication systems and how to manipulate each communication tool. They learn how communication devices can help increase the independence of individuals with disabilities and also how these devices help

individuals interact with others in their daily lives. We start out with an eye-gaze display board as an example of a no-tech communication device. The students take turns using the device to communicate what they want to eat, for example. After that, we show them one-button devices, such as the Big Mac, and students record their own speech and learn how to operate the devices.

Our goals for the students in the communication area are to become knowledgeable about the different choices available for communication devices; how to manipulate these devices; and how these devices can help students interact with others in their daily lives.

When the orientation is complete, we give the students a chance to give us immediate feedback. They use computers in the AT lab to complete an on-line survey of their experience. We use the comments

and feedback from students to improve our lab each semester. The majority of students (96 percent) completing the survey reported that the content of the orientation related to what they were learning in their introduction to special education course, and 94 percent expressed that this experience was "good" or "wonderful."

By working with faculty to integrate the AT lab orientation into their curriculum, we are able to give preservice teachers a real experience with some of the technology that they will use in the schools. Future research should be conducted to follow up with those who become teachers, and ask how their experience prepared them

to work with students using assistive technology in schools.

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Speech Recognition Trial Protocol

By Cindy Cavanagh

IMPROVEMENT IN SPEECH RECOGNITION ACCURACY

Continued improvement in the accuracy of speech recognition hardware and software has made it possible for more students to successfully use speech recognition as a writing tool. The previously accepted prognostic indicators for successful use of speech recognition software, though relevant, appear now to have less strength in the context of the improved recognition capabilities of the most recent technologies. Indicators for successful use of speech recognition have included: consistency and intelligibility of speech production; reading level; general computer skills; patience and motivation; and the regular presence of a proficient mentor.

Students who use speech recognition are writing more, writing independently, spelling correctly, using longer words, using more complex written language and writing thoughts that have never been written before. A student recently said, "Now I am writing stories that have been inside me all my life." Another said, "I'm not the last one done anymore." A fourth grade boy recently wrote a paragraph summary of a book he had read - something he had never done before by himself. When asked who he would share it with, he said, "I'm going to show it to EVERYONE!" The vocabulary of students who have not written independently because of reading and spelling difficulties, can now include multisyllable words such as invented, accidentally, panicked, inappropriate, explains, serious and compounds - words taken from the writing of the

a student who reported that he had never before written anything by himself.

With the new level of accuracy in speech recognition, the potential for use by a larger student population exists. To assist school teams, the Assistive Technology Team at Mississippi Bend AEA, an intermediate unit providing educational services to local schools, developed a four-session trial protocol to assist school teams in making data-based decisions related to the provision of speech recognition for students with writing difficulties. This trial protocol was developed to achieve the following:

- Be short and intensive
- Be completed in the school environment
- Use data that could measure change during a short trial
- Use data that was meaningful and easy to collect
- Provide staff with enough training, follow-up and student intervention to support a productive trial
- Reduce the need for repeated trials by providing a final meeting for discussion/and data-based decision-making and planning

The following provides an outline of the speech recognition trial protocol, a description of individual sessions and review of a data collection table in the speech recognition trial.

TRIAL PROTOCOL

Step One: Based on conversations with a teacher and student, interest in a speech recognition trial is established. The outline

for the trial is reviewed with the staff and student. Each agrees to the following items:

- Data collection will be completed by the teacher and student before the trial with assistance as requested. The data collection table is provided to the teacher and is used to establish measures for comparison at the completion of the trial. [See *Data Collection Table Addendum*].

- Four mandatory sessions are scheduled with the same teacher and student in attendance during each session. Other staff members and parents are encouraged to attend when possible. One optional follow-up session may be scheduled based on needs and time available.

- The mandatory sessions include:
 1. Introduction and training session 60-75 minutes with follow-up assignment
 2. Follow-up #1 - 30 minutes (with assignment)
 3. Follow-up #2 - 30 minutes (with assignment)
 4. Final meeting with student, teacher, parents and other staff (e.g. administrator, other teachers, counselor, therapists, etc.)

The equipment used is provided for the one-week trial from the Assistive Technology Loan Library of Mississippi Bend AEA. A current Windows computer with Dragon Naturally Speaking, Preferred, v. 9, and an upgraded USB, monaural, noise-cancelling headset is used for most trials.

Session 1: Introduction and Training Session 60-75 minutes

Teams are encouraged to invite interested staff and parents to attend with the permission of the student. Staff then has an

opportunity to have basic questions answered, to see the level of student use at the end of one session and to learn about speech recognition and dictation skills. The student voice file is trained by reading a passage. For most students, sections of the voice training passage are read by the adult and the student then repeats the phrase or sentence as it is read. This provides the student with a model for dictation speech. This reading model also helps students with reading difficulty move through the training passage with smooth, connected, and clearly articulated speech.

During this initial session, dictation behavior is modeled, taught and coached before, during and after the formal voice training to begin to develop the student's automatic dictation speech. The student is taught to sit up straight, use normal full breath support for clear speech and to speak clearly, pronouncing all sounds in words. Modeling of "robot speech" and other ineffective speech production is provided and contrasted with clearly produced, connected speech for highest speech recognition accuracy.

Specific production problems are identified before and during this initial training. Speaker-specific patterns are targeted for modification and can include misrecognitions caused by excessively low or high volume, extreme prosodic changes added by the speaker "for listener interest", reduced volume at the end of sentences, missing sounds in multisyllable words or the slighting of "little words" such as "to" and "of."

By providing students with instruction, model and coaching as well as high expectations for accurate production early in dictation practice, the student begins to develop automatic dictation speech. This is an important step in the process of training because it will eventually allow the student the ability to think about what to write rather than how to say it. For the student, this automaticity is likened to learning to dribble the ball before going into the game. If a player has to think about how to dribble the ball while playing the game, the game would not go well! Learning to dictate well before thinking about what to write will eventually make it possible to write well with high levels of recognition accuracy. The game will go well!

The skills for using speech recognition are taught in the context of this development of a student dictation "set" or automatic behavior for dictation. This allows the student to develop proficient, nearly 100 percent accurate dictation skills before beginning to generate sentences independently. Following voice training, the student begins to practice short (4-6 words) sentences that are provided by the trainer. Without the need to generate language, the student is able to focus on development of accurate dictation speech.

In addition to the immediate development of effective dictation speech, the student is taught to read (independently or with the "read that" command) the text written by the computer and to identify any recognition errors. During the first sessions, all corrections are made through a repeated attempt to improve dictation speech. For misrecognition errors based on unknown words or consistent idiosyncratic pronunciation by the student, the word is typed by the trainer or a different sentence is produced. Software-based corrections are demonstrated later in the week and independent identification of appropriate correction strategies is not anticipated during the trial period.


If the trial sentences are produced with 100 percent accuracy, the student may move on to the next level in the hierarchy of sentence generation outlined in the following section. Each time the student produces a sentence, the sentence is read by the student (independently or with the "read that" command) and misrecognitions are identified. At the conclusion of the session, an assignment is provided that includes sentences produced at a step lower than that achieved during the session. The teacher and student meet

before the second session and complete the assignment that may include production of 5, 10 or 15 sentences. The goal in practice is 100 percent accuracy. Technical features of the program (program opening and closing, voice file selection and saving, audio checks, connection of headset, voice file saving, etc.) are practiced by the student and teacher before leaving the first session.

SESSION 2: FOLLOW-UP #1 – 30 MINUTES (WITH ASSIGNMENT)

Review homework assignment and discuss and troubleshoot any problems encountered. Review dictation speech and monitor the student's level of recall of dictation behaviors (e.g. sit up straight, clear, connected speech, etc.). Continue to move the student along the hierarchy of sentence generation while maintaining 99-100 percent accuracy. Continue to require the student to assess recognition errors after each sentence. Continue to correct errors by repeating with improved dictation speech. Recognition errors will continue to be treated as during the first session.

Hierarchy of sentence generation. In each level, ask the student to say the sentence with the microphone off before dictating to the computer. This will allow the trainer the opportunity to help the student modify the sentence production if there are problems (e.g. Underarticulated, need to produce in shorter phrases, maintain breath support to end of sentence, etc.). If recognition is then 100 percent accurate, continue at the same level by providing the sentence and asking the student to say the sentence directly to the computer without practice. Encourage the student to "think of the sentence" or "practice the sentence inside your head" before speaking.



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- Provide the student with sentences that are short and easy to produce. Model each sentence for the student in appropriate dictation speech.

- Ask the student to think of a word. Provide the student with a short and easy to produce sentence using that word. Model the sentence for the student.

- Give the student a word. Ask the student to say a short sentence using the word. Modify the sentence if it is too long or difficult to produce.

- Provide increasingly complex sentence generation tasks. Complexity can be increased by: using two words in one sentence (e.g. make a sentence with the word “bus” and “because.”); answering “why” questions; stating a single-sentence opinion; etc.

- Write a 3 to 4 sentence letter to a family member who lives in the same house.

- Wrote a 3 to 4 sentence letter to a friend.

- Write a 3-5 sentence paragraph about a familiar topic.

SESSION 3: FOLLOW-UP #2 – 30 MINUTES (WITH ASSIGNMENT)

Same as Follow-up Session #1. Complete data collection sample and record in the data collection table.

SESSION 4: FINAL MEETING

Attendees at the final meeting should include the teacher, student, parents, administrators and other staff members interested in the discussion of the use of speech recognition for writing. Review of the data collection table is completed during the meeting and a discussion about the viability of speech recognition as a writing tool for the student is held. Indicators for successful use are identified as well as challenges that were experienced during the trial period. Logistical issues are reviewed and a decision is made about the future use of speech recognition based on comparison of the writing data, input from staff, administrators, parents and the student and consideration of all issues related to use. Decision options include: 1. Obtain and begin using the program for the student with additional staff and student training and inclusion as assistive technology in an IEP or 504 plan; 2. Obtain and begin using the program with a larger student population and without individual inclusion in an educational plan; 3. Provide other writing accommodations that are more appropriate or 4. Provide other accommodations and revisit speech recognition as an option for a writing tool in a specified time period (e.g. one year).

ADDENDUM: DATA COLLECTION TABLE

Comparison of writing samples

TIME: _____ Minutes each

Writing Samples ↓	Total words written	Correctly spelled words (%)	Multisyllable words (%)	Words per sentence	Characters per word	Legibility per word by unfamiliar reader	Complex sentences (2 or more verbs) (%)	Writing completed independently (%)	Reading level (see below)
Handwriting									
Typing (no other supports)									
Typing with any typically used supports									
Transcription (if used now)									
Speech Recognition software									
Other									

Data-based decisions related to student's use of speech recognition as a writing tool can be made through comparison of speech recognition and other writing "tools"

AFTER THE TRIAL

If the team has determined that the student or larger student population will be using the program, support is provided upon request from the Assistive Technology Team through one or more of these options: teacher/parent/staff training; email or phone support; regularly scheduled follow-up contacts for a specified time period; or “as requested” support. Items to consider in additional training include:

- Development of proficient use and mentor status for one or more individuals in the school
- Development of the student’s error correction
- Guidance toward independent writing
- Development of writing-specific goals and benchmarks
- Monitor and coaching in use
- Expansion of accuracy training through appropriate corrections and use of accuracy improvement tools (e.g. adding words to the dictionary, training words, etc.) available through the program
- Maintenance of current product version
- Development of troubleshooting skills
- Identification of students who could serve as student mentors and development of a student mentor system of support

REVIEW

- Software and hardware improvements provide increasingly accurate speech recognition.
- Improvements in accuracy make it possible for more students to use speech recognition successfully.
- It is important to make decisions about student use of speech recognition based on trial use.
- A four-session protocol with targeted data collection was developed to provide a systematic and planned approach to speech recognition trials.

CONTACT

Comments and suggestions are welcomed. Please contact Cindy Cavanagh via e-mail: ccavanagh@aea9.k12.ia.us.

DATA COLLECTION TABLE (PAGE 10)

As a part of this trial protocol, a data collection table was developed to assist teachers in obtaining and recording targeted measures/skills for all current writing tools used by a student. In the development, specific writing area concerns were identified and indicators for those areas were included in the data collection table. Examples included: spelling; use of complex sentences; vocabulary selection; independence in task completion; and legibility. Writing difficulty related to organizational skills, language skills and limited or inactivated background knowledge were not included in this data collection. Teachers are encouraged to provide equal support in those areas during writing samples. If, for example, a graphic organizer was developed with the student for use during one collection sample (e.g. writing with pencil/paper), a similar organizer would be used for other samples obtained (e.g. typing with spelling support). Instructions for use of the table are provided and include:

Purpose: To collect data through a timed sample of similar writing tasks using all current writing tools for comparison of targeted measures/skills

1. Identify four to six topics about which the student has similar background knowledge and interest. Randomly assign the topics to the writing sample. While the student is completing each writing sample, keep conditions as similar as possible (e.g. distractions in the room).

2. Based on information about the student, a time-limit for each trial is determined. The time established needs to be short enough

to collect the sample quickly and easily during a regular school day and still be long enough to obtain a sample that is reflective of typical writing.

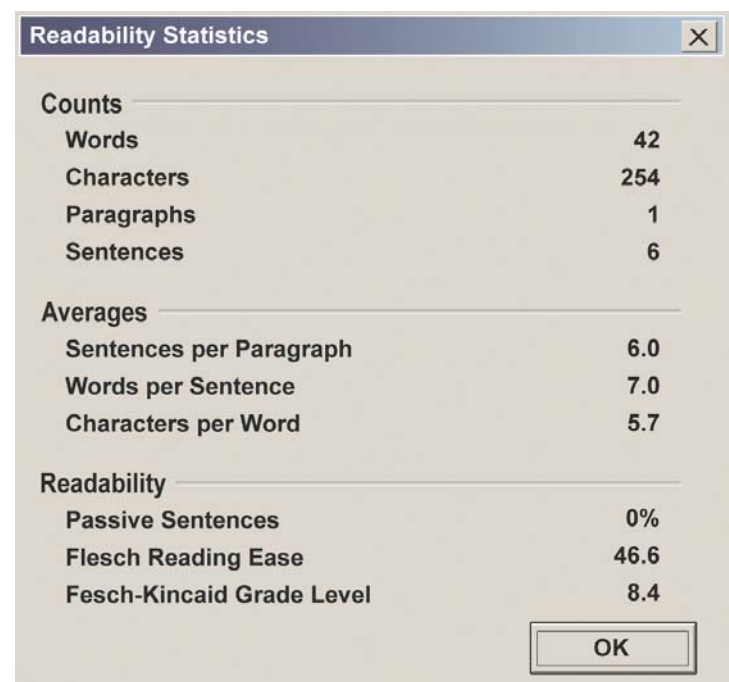
3. All samples will be typed or copied/pasted into a Word document to assist data collection through the automatic statistics features in Word. Handwritten samples are kept for records. However, the handwritten samples are typewritten into Word with an “x” used for any illegible letters.

4. Legibility of handwritten samples is established by percent legible words in the original sample as determined by an unfamiliar reader without contextual information. [Note: This measure is only taken when legibility is an area of concern.]

5. *Note about Readability Statistics in Word: When using the automatically calculated Readability Statistics available in Word, it is important to include appropriate punctuation in all samples even though the student may have omitted punctuation. The addition of punctuation can be documented on the data collection sheet. Inclusion of punctuation when looking at measures of sentence complexity and length is important for accurate comparisons. If, for example, the measure, words per sentence, is used to help determine if the level of sentence length is greater with a specific writing tool, then the appropriate punctuation will need to be added for this measure to be accurately calculated and compared. In the following example, the student has written two sentences without punctuation. Example: I like to fish with Dad He is a good fisher” This sentence would be counted as eleven words per sentence when it is actually 5.5 words per sentence.” If punctuation is supported in all writing, appropriate comparisons can be made between samples and the level of sentence complexity (as measure by words per sentence) can be determined.

6. Multiple samples are collected if a sample is not considered reflective of typical writing with the specific writing tool used.

* Select Tools, then Options. In the Spelling and Grammar tab, check “Show readability statistics.” To display readability statistics, select Tools from the menu pull down. Select Spelling and Grammar. Complete the spelling and grammar check. The final window will provide readability statistics. ■



Readability Statistics	
Counts	
Words	42
Characters	254
Paragraphs	1
Sentences	6
Averages	
Sentences per Paragraph	6.0
Words per Sentence	7.0
Characters per Word	5.7
Readability	
Passive Sentences	0%
Flesch Reading Ease	46.6
Fesch-Kincaid Grade Level	8.4

Readability Statistics window from the above paragraph.

AN AAC RETROSPECTIVE

Part 2: Myth, politics, culture and attitude

By Patti Murphy

History happens in waves that often reach their crests with a push from the inevitabilities of life. Myths kept alive for decades, political climates, cultural influences and generational differences may at any time be bridges or barriers to new waves of change. This second of a two-part retrospective explores how such variables have colored augmentative and alternative communication (AAC) history, meshing the technological and human factors that undoubtedly will also shape its future.

In possibly its broadest sense, AAC encompasses the myriad ways that people throughout history have learned to express themselves in the absence of comprehensible speech. Ranging from informal gestures to standard sign languages and graphic symbol systems to written alphabets, these communication tools and modalities remain invaluable to people lacking the ability to speak – and their communication partners. The evolution of AAC as we know it today, however, closely parallels the wider recognition of the civil rights of people with disabilities and the advent of the computer age rooted in the late 1960s and early 1970s. A host of protective laws (including the Americans with Disabilities Act of 1990, the Individuals with Disabilities Education Act of 1997 and related mandates preceding them) and assistive technologies introduced since then have contributed to the growth of the AAC industry and greater public awareness of the benefits of AAC to individuals across the life span. The traditional base of AAC consumers, school-age children who also use wheelchairs because of physical impairments related to congenital conditions, continues to grow and change. Survival rates for people with head injuries and other disabling conditions resulting from accidents, falls and gunshot wounds also rose considerably by the late 20th century, as did the number of survivors

of strokes and neurological diseases that similarly have left such individuals without functional speech.¹ Like them, children with good mobility who cannot express themselves fully or are completely nonverbal due to the effects of conditions, such as autism and Down syndrome, are also more often recognized as candidates for AAC interventions. This may be attributed partly to the crisper and more concrete visual representation of language that dynamic display technology has offered since its inception in

Even as more professionals and consumers embrace AAC solutions in the new millennium, the challenges are not much simpler than 30 or 40 years ago, perhaps in part because neither technology nor legislation can change human nature.

BUSTING MYTHS

Consider, for instance, a few lingering AAC myths:

- reliance on AAC technologies hinders development or recovery of typical speech,
- technology is a panacea for communication difficulties
- advanced AAC technologies are inappropriate for individuals with intellectual challenges

About one in four or five clients that speech-language pathologist Cindy Cottier, M.S., CCC-SLP, sees at Augmentation Communication Therapies in Pasadena, California buy into such myths, sometimes forestalling successful implementation of AAC solutions.

The mindset continues, despite a body of academic research in the past two decades showing that AAC device use may encourage natural speech^{2,3,4} and the holistic approach to AAC intervention that many practitioners have adopted, implementing communication systems built around sophisticated electronic voice-output devices while expecting that their clients will turn to low-tech tools and established ways of communicating without the aid of technology when needed. Such options may include alphabet boards, photo albums, pointing, writing notes or having a trusted friend or loved one interpret their subtle vocalizations, facial expressions or body language for unfamiliar listeners. The expectations of the parties involved can add an element of risk to such interventions. “Those who pursue the technology often expect miraculous results,” said Cottier, who opened her private practice in 1993 and entered the profession as a school therapist 28 years ago.



Photos above and next page: Individuals who rely on augmentative and alternative communication technology can express themselves readily in nearly any environment today, thanks in part to the increasing portability of AAC devices through the years.

1991, and its increasing portability.

The AAC community is still relatively young and hardly a stranger to the complexities intrinsic to most interdisciplinary fields.

Today's consumers, nonetheless, are better informed about their choices in AAC products, she said. They want to be able to talk wherever they are, so they're well attuned to how the technology will fit into their communication environments. Such knowledge may keep their hopes realistic. "They research and have an idea of what they're looking for when they come into an evaluation more so than in the past."

For some of her younger colleagues who grew up with computers, the risk lies in wanting to set up a device to maximize use of its capabilities when doing so is beyond the client's needs. "They look at the technology for the sake of the technology rather than from a therapeutic stance."

State-of-the-art technology is "the ongoing carrot that we tend to dangle in front of families and others as the answer to their child's communication problems," said Tracy Kovach, Ph.D., CCC-SLP, a specialist in the Augmentative Communication and Learning Enhancement program at The Children's Hospital Denver. Quick to note that it is hard to beat the power of audible human speech replicated in higher end devices, she acknowledges the importance of treating them as part of a broader solution often encompassing a spectrum of modalities. "In our enthusiasm, we need to be very cautious to make sure that we regard the technology as a tool and not the outcome."

The good news, Kovach said, is that "assistive technology is the norm now and not the extraordinary. It is accepted and not something extra we might try," as professionals tended to regard it when she began her career as a speech-language pathologist at the Cerebral Palsy Center of Denver and in a public elementary school in the mid-1970s.

Kovach said there is room for progress on the more delicate issue of whether high-tech solutions are viable for those with cognitive disabilities. The authors of "A History of Augmentative and Alternative Communication for Individuals with Severe and Profound Disabilities," a scholarly paper published in 2004, note that, "Historically, the choice of communication system often was based on the belief that individuals with

severe physical disabilities would benefit most from aided systems, whereas persons with severe cognitive disabilities with lesser levels of physical disability should use unaided systems."⁵⁵ Advocacy and expansion of choices may eventually depolarize this mentality.

"There is still this myth out there and we need to get over it," Kovach said. "At times, people prefer using low-tech for less physically involved kids (regardless of their cognition, and often for kids with autism) because high-tech can be cumbersome. My feeling is that it's our problem to deal with. A kid shouldn't be denied a voice just because we can't figure out how to get the device out to the playground for him to use when he needs to ask for his turn on the swing."

With the versatility that current devices

comes to trying new solutions. She believes school and family decision makers may be more welcoming of technology as a possible solution if they saw the potential that the technology holds for students who struggle intellectually as they transition to adulthood and build lives in their communities, but it is up to care teams to raise awareness of the possibilities by sharing their successes. "More examples of what actually can be achieved will help the ones that will change their minds to actually change their minds."

Many in the AAC community say it is best to assess the value of advanced technologies for people with cognitive disabilities on a case-by-case basis, keeping a reality check on how closely device features match the individual's needs and abilities.

"What we're up against is that for some, the advanced components of the system may not be necessary," said Elizabeth J. LaMarca, M.S., CCC-SLP, who supervises speech-language pathology graduate students from Long Island University's C.W. Post campus in a cooperative arrangement with The Shield Institute, a day rehabilitation program for adults with developmental disabilities and mental retardation who live in the New York City metropolitan area. A comprehensive assessment is essential to find the device that best fits the person and avoid choosing one that may go underused, she said. Considerations that may arise during the process

include whether the person can access the device using preferred access methods, ease of navigation and whether the symbolic representation of language is clear or proves too abstract for the person to make associations between the symbols and vocabulary for meaningful communication.

Katy Schindler of Cincinnati, Ohio was four years old when she started making such associations soon after she got a DynaMyte 3100 in 1999, thanks in part to the arrangement of symbol-based vocabulary on the dynamic display of the synthesized speech device. She had used static devices containing 12 buttons to express needs and wants, but some staff at her school doubted her readiness for technology that would



offer with respect to varying levels of language development and communication abilities, she said that recommending advanced technologies, even for young people with profound cognitive disabilities, has become more acceptable. Also, seeing the children use the devices more than cognitively competent peers who also use devices to speak is not unusual. "It's not the system or the cognitive level that's in question," Kovach said. "Often, it's the training and strategies used, and the kid's desire to communicate."

At school, Cottier said, other issues that may be at play are the availability of funding for assistive technology and tendency toward lower expectations for some students who may be overlooked when it

allow her to create and deliver more descriptive, engaging messages.

"They weren't being mean," said her mother, Sue. "They were being heartedly honest." At an evaluation with a private speech therapist, however, the motivation Katy showed when using the portable DynaMyte convinced others that in time the device, supplemented by items such as the talking picture frame on her belt that she activated to introduce herself to people, would help her overcome the communication difficulties she experienced because of cerebral palsy and cognitive delays.

Sue Schindler, a former special education teacher, and her husband, Bob, believe that Katy would not be where she is today without the intervention and direction they eventually received. "It also taught me to have expectations of every individual whether they have a disability or not," Sue Schindler said.

CULTURE MATTERS

Anticipating cultural diversity among consumers, as well as differences in age and reasons for communication impairment, is bound to be a recurring lesson for AAC service providers in years to come. According to one demographic report, AAC use in the United States from 1990 to 2020 will grow by an estimated 46.7 percent among African Americans, 109.1 percent among Hispanic/Latinos and 122.2 percent among Asian/Pacific Islanders, compared to approximately three percent among European-Americans, who will remain the largest group of AAC users. The projected growth rate for AAC use by American Indians is also three percent.^{6,*}

Professionals are poised to understand how native cultures of clients may influence the assimilation of AAC into daily life as this pattern unfolds. Kovach, for years, saw a Hispanic girl whose mother supported her use of a speech communication device, putting her at odds with the rest of the family. They believed it was God's will for the girl to be disabled and for the mother to require her to participate in conversation by using the device instead of through gestures or vocalizations was simply mean. "I was making her the bad guy," Kovach said.

Resistance to seeking services may be more apparent in some cultures, as LaMarca experienced when the parents of an Asian girl she worked with feared that AAC would present a greater cognitive load than their daughter could handle. Instead, her eventual adoption of low- and high-tech solutions had the opposite effect, opening new

doors. She learned English and became more active in family life through her device use.

When cultural matters arise, "It usually stems from the original disability rather than AAC use," said Tina Murphy, M.S., CCC-SLP, a speech-language pathologist and AAC specialist with Florida's Palm Beach County Schools. She finds that families from foreign cultures often will rely more heavily on the opinion of a professional than on information they gather themselves.

In an era when bilingual AAC technology extends options to many families, Murphy echoes a common concern that carryover from schools or clinics to home may be difficult without someone in the family who can troubleshoot language and technical issues.

One asset of AAC products, in terms of multiculturalism, is their potential for visually supporting communication about food, religious traditions, music and similar topics. "Picture symbols have allowed us to sidestep language barriers due to the universality of the symbols," LaMarca said.

CHANGES IN ATTITUDE – OR NOT

As AAC history moves forward, some obstacles may be harder to surmount. The idea of augmenting or replacing someone's voice with technology, at any age, usually involves some attitudinal adjustment that may be easier with help from others who have made their way through the barriers.

Sue Schindler said today's technology may have been life-changing for a number of individuals she remembers from her teaching days, sparing many from institutionalization. Yet she wonders if teachers and therapists who sometimes misjudge a child's ability to learn the technology may be reluctant to learn the technology themselves, leaving the child and prospective conversation partners stuck in a non-communicative mode.

Overwhelmed families who view the technology as one more thing to squeeze into a busy schedule is a challenge Kovach frequently encounters. One way to work around that, she said, is to simultaneously relate AAC use to their daily routine and vocabulary from a story programmed into a child's device. If the child is reading "The Three Billy Goats Gruff," for example, parents might talk with the child about preparing a salad for dinner with lettuce, which is green like the grass the goats like to eat. Or while traveling from place to place, they can imitate, listen for and describe stomping noises like the goats make when crossing

the bridge. Kovach uses "The Storybook Journey" reading series by Sue McCord as a basis for such exercises.

Technological comfort level is a key consideration for those with acquired disabilities who adopt AAC later in life. Some informally designate a younger, less technophobic family member as their go-to person for device programming and maintenance, Cottier said. The same practice occurs in families with a child using AAC, often with a sibling close in age as the helper.

LaMarca would like to see more professionals at schools and adult day treatment centers encourage similar buddy systems for new and veteran AAC users.

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*Projected growth estimates were not available for American Indians because of the large number of different tribes. This is a conservative estimate.

CONTACT INFORMATION

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INCLUDING ACCESSIBLE TECHNOLOGY-RICH ACTIVITIES IN AN EXISTING SUMMER CAMP

By Sheryl Burgstahler

Each year the DO-IT Center coordinates technology-rich activities at selected summer camps. They teach campers how to send messages to their friends and family with electronic mail, use the World Wide Web for fun and education, create World Wide Web pages and program computers. DO-IT also teaches camp administrators how to develop programs. For example, Camp Courage, a residential camp in Minnesota for youth with disabilities, has developed technology-rich offerings that delight campers season after season. Other camps can do it, too!

DO-IT has found the following steps helpful when developing technology-rich offerings at a typical summer camp:

Put together an instructional and technical team – Building a team with both technical and instructional expertise is an important first step. Planning and implementing Internet activities work best when

people with a variety of knowledge and skills work together, including an activity coordinator, one or more instructors and a computer support person.

Determine instructional goals and activities and create materials

– Find out about campers' interests and their previous computer and Internet experiences. You are likely to find that you need to create flexible, alternative activities for a diverse group. Determine your instructional goals. Think about what knowledge and skills you would like the campers to take with them when they leave. Allow plenty of time for camper practice and exploration.

Find a facility with computers or make plans to rent or buy them – Life will be

easier for you if you can use a facility that already has computers set up, for example, a local school or library. However, if that isn't possible, there are other options. Sometimes computer companies will let you borrow computers, free of charge, for the duration of your camp. If you have the funding and plan to incorporate computer activities into future camps, buying the machines may be your best option.

Arrange for Internet service – If the facility you are using does not already have an established Internet connection, you will need to arrange for accounts on a computer system that is connected to the Internet and then determine a connectivity method. Sometimes you can obtain accounts through a school or university.





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Integrate the Internet program into other camp activities –

Maximize the impact of Internet education to your camp program by integrating Internet activities into other camp activities. For example, let your campers research a camp activity via the Internet, or create a World Wide Web page for the camp, including pictures of campers and camp activities.

Publicize the program – There are a number of places you can advertise your camp. Contact local newspapers, radio stations and television stations. Consider newsletters from organizations that might be interested in publicizing your camp. You may be able to get a promotional spot free or at a reduced rate. Post messages on electronic discussion lists and on the World Wide Web.

For information and ideas on including accessible technology-rich activities at a summer camp, view the short video *Camp: Beyond Summer* at: www.washington.edu/doit/Video/camp.html. Comprehensive training materials for camp administrators, entitled *Internet at Camp: How to DO-IT*, are also available at www.washington.edu/doit/CampN.

A portion of this article was borrowed from The DO-IT Knowledge Base. The Knowledge Base is continually growing to include answers to common questions, case studies and promising practices regarding accessibility of technology, college, graduate school, and careers for individuals with disabilities. You can access the DO-IT Knowledge Base at: www.washington.edu/doit/kb.html.

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1, 2, 3... HEY LOOK AT ME!

BY MO BUTI

How many of you teach in a special education classroom that is "housed" at a school other than a child's home school? Low incidence programs typically consist of children from all over the district. Districts will find schools with space, place a program in that school and bus the students in. No more feeling of just being "housed!" At times, it is difficult to assure that your students are involved and included in the culture of your school. Being included and belonging to a school are more than academics. I have created fun ways to help children with significant disabilities (autistic, severe and profound, physically disabled, etc.) be accepted into the social culture of a school where they once may have felt alienated.

Idea number one is in this issue.

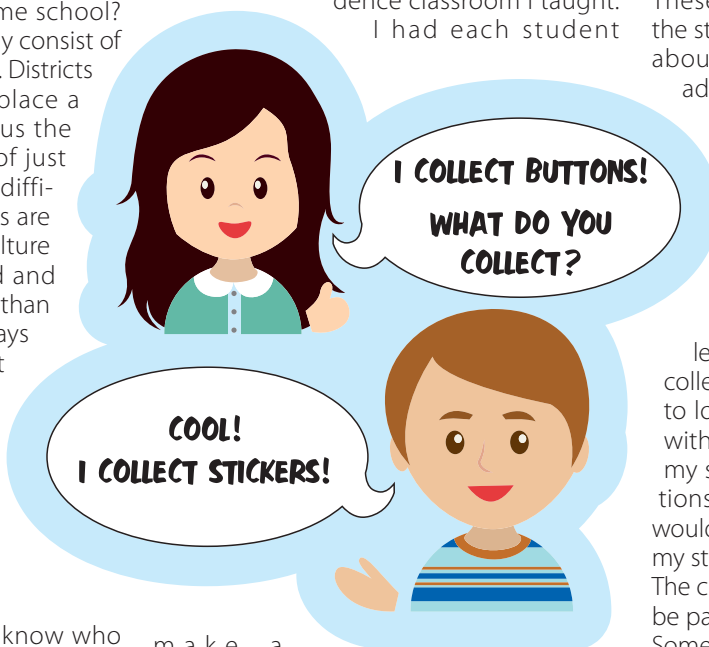
COLLECTIONS

How many children do you know who collect things? How many adults, for that matter, do you know who have collections? I myself collect miniature high heel shoes. (Hint, hint ... Christmas is coming up!) Collections increase social opportunities. You can talk about your collections with others. You can show your collections to others. You can trade, give or get items for your collection. This creates many opportunities for social

interactions that may not have been there if it weren't for a collection.

I facilitated collections within a low incidence classroom I taught.

I had each student



make a choice of something to collect. Some were asked verbally, some were given picture choices, and some had siblings assist in the choosing of their perfect collection. Once they chose what to collect, I got them started with a couple items. I then wrote up some index cards introducing themselves and their collection

(many of these students were non-verbal). Those children who had devices had a section programmed about their collection. These systems were put in place so that the students were able to have interactions about their collections. Information was added to these communication systems as the days went on; who gave what items, where the items were received, and how many items there were.

The collections included stickers placed on a wheelchair, buttons placed on a sash that was worn, fancy barrettes and friendship bracelets. Students in the school noticed these collections right away, and would come by to look at them and talk about the items with the children. Students began to give my students items to add to their collections. Most importantly, all students who would come by would interact and talk with my students. The collections got quite large. The children in the school were so excited to be part of the growing of these collections. Some collections were over 200 items. When a child in the school would start counting the items and talking to my student, they would both light up. It was great to watch.

This is an easy, age-appropriate and fun way to facilitate social interactions.

Stay tuned for idea number two!

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READERS EXCHANGE

EDITOR'S NOTE

HERE'S YOUR CHANCE TO SHARE YOUR QUICK TIPS AND TRICKS – WHETHER THEY'RE HIGH TECH, LOW TECH OR NO TECH – THAT ARE MAKING A DIFFERENCE.

IN THIS ISSUE AND THE NEXT TWO ISSUES, MO BUTI, AUTISM MANAGER FOR CHICAGO PUBLIC SCHOOLS, WILL BE SHARING SIMPLE STRATEGIES THAT HAVE WORKED FOR HER.

YOUR IDEAS CAN MAKE A DIFFERENCE TOO. SUBMIT YOUR CONTRIBUTIONS TO MTUREK@CLOSINGTHEGAP.COM OR VISIT WWW.CLOSINGTHEGAP.COM/SUBMIT_ARTICLE.LASSO TO LEARN MORE.

INTERNSHIPS AND STUDENTS WITH DISABILITIES

BY SCOTT BELLMAN

Challenging internships are a critical part of career success for all students. Internships help students clarify their career interests and provide new opportunities for learning and growth. Students with disabilities in high school and in college have unique needs as they pursue internships. It's important that professionals who serve them, such as career counselors and internship coordinators, understand research that relates to work-based learning and students with disabilities.

For example, staff at a college transition and college success program for students with disabilities called DO-IT review journals and articles about work-based learning and conduct their own research to understand critical components of effective service delivery. They include recommendations from research in their work as they help students pursue internships.

An interesting article written by Richard Luecking and Meredith Gramlich, summarized in the publication *Quality Work-Based Learning and Postsecondary Employment*

Success, reported the following characteristics of work-based learning and internship development programs that are high quality²:

- clear program goals;
- clear roles and responsibilities for supervisors, mentors, teachers, support personnel, and other partners;

- training plans that specify learning goals tailored to individual students with specific outcomes connected to student learning;
- convenient links between students, schools and employers;
- on-the-job learning;
- completion of a range of work-based learning opportunities;



Jen, a high school student with a mobility impairment, learns to program a computer during a DO-IT internship on the University of Washington Campus.



Theresa, a college biology major with a learning disability, working at her DO-IT internship in a lab for the Alaska Department of Wildlife.

- mentors at the work site;
- clear expectations and feedback to assess progress toward achieving goals;
- assessment to identify skills, interests and support needs at the work site;
- reinforcement of work-based learning outside of work; and
- appropriate academic, social and administrative support for students, employers and all partners.

DO-IT staff uses the principles above to guide their work when they provide work based learning. They also apply the results of their own research to improve services. One article, written by Dr. Sheryl Burgstahler,

Scott Bellman, and Sara Lopez¹, and published in the National Association of Colleges and Employers Journal, addresses how to better work with both students and employers. The article suggests that programs who serve students with disabilities do the following:

- Develop disclosure strategies with the student early in the job search process. Students should be able to articulate their disclosure strategy before their first interview.
- Develop relationships with employers that invite a wide range of work-based learning options. For employers with little or no experience working with students with disabilities, start off with job shadows, informational interviews and mock interviews. This creates a comfortable environment for employers to gain knowledge and prepare for hiring students with disabilities.
- Encourage employers to identify their employees with disabilities and then, in turn, encourage those employees to act as role models for students. Help mentoring relationships form, both on and off the worksites. Consider both in-person and online mentoring.
- Develop clear, specific goals for the work-based learning experience. As students with disabilities may have a limited work history, facilitate goals that increase knowledge about job retention. Share these goals with the work-site supervisor. Meet regularly with the student and supervisor to assess progress toward meeting specific goals.
- Seek out employer events that promote workplace diversity and/or employment programs targeting people with disabilities. Also encourage students to participate in non-disability specific activities, such as career fairs, industry conferences and other opportunities for networking and skill building.
- For each work-based learning experience, work with the student to create an appropriate, updated resume. Carefully consider elements of the resume that may disclose a disability.

• Discuss accommodation needs and when and how it is best to request accommodations from the employer. Following a work experience, provide an opportunity for students to evaluate the effectiveness of their accommodations and refine their accommodation request plan.

• Be prepared to offer resources to potential supervisors regarding disability issues, such as interviewing, accommodations and workplace culture. Ask the onsite supervisor for feedback on the experience once complete. Collect testimonials from supervisors who have a positive experience with students with disabilities for use in future employer recruitment.

For more information in this area, consult the DO-IT Web site that describes their application of evidence-based practices for increasing the academic and career success of individuals with disabilities at: www.washington.edu/doit/Resources/research.html. Visit the AccessCAREERS Web site for more information about career preparation at DO-IT www.washington.edu/doit/Careers.

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“The music and visuals are wonderful for engaging my students, including those with Autism and other disabilities.

I have had students that have refused to write, learn their letters and numbers on the computer because it is so engaging.”

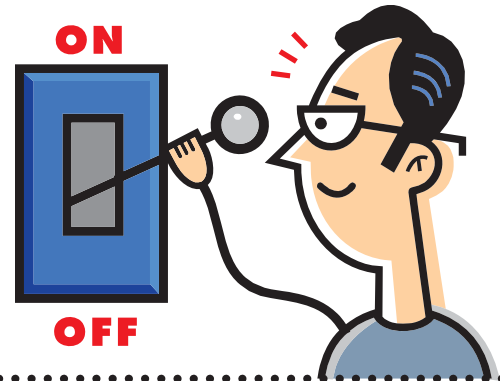
~ Laura Johnson, OTR



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Editor's Note: In each issue we will highlight compelling material from the 2008 conference that spotlights concise how-to ideas and strategies that you can start implementing today.

SWITCH ON LEARNING



By Cindy Nankee

This presentation took attendees from assessment to the Individual Education Plan (IEP). Participants learned to assess for appropriate switch use, saw and touched switches that could access toys, computers, communication devices, environmental controls, recreation and mobility options and learned strategies to make students successful.

This handout will look at the what/why/when/where of switches, assessment, types of switches, strategies for success, an action plan, IEP recommendations and resources.

What - Wikipedia defines a switch as a mechanical device used to connect and disconnect a circuit at will. A switch may be used for access to an activity, but keep in mind the switch is secondary to the activity. A switch is not the activity.

Why - A switch may be used because direct selection or assisted direct selection of a device or activity is not the best or most efficient access.

When - A switch may be used for play to activate toys, computer games or communication devices for social interaction. They may be used in education with the computer to complete assignments or answer questions through a communication device or speech program, such as SDP. Switches may be used for recreation and the arts. It may be used at home for all of the above, including use with environmental controls. Switches may be used to activate powered mobility.

Where (to Start) -

- Obtain knowledge: attend a training, read, check out switches from a Loan Library
- Consult with team: OT, PT, SLP, Teachers, AT
- Rule out direct accessibility
- Assessments
- Trial Use
- Access and mounting

ASSESSMENT

Through assessment we want to find the most efficient and fastest accessibility that requires the least amount of effort. We want to be able to select an appropriate switch and we want to be able to locate and mount the switch at a point that requires the least effort. We need to know the task requirement of switch or switch activity. Will the student/client be able to locate the switch, are they capable of a momentary hit, a sustained hold as with a wheelchair, a quick release as in stopping a wheelchair, are they able to visually, cognitively and motorically time a switch hit as need for a scanning.

ASNAT (Assessing Students Needs for Assistive Technology) www.wati.org. The ASNAT is an assessment manual developed by WATI (Wisconsin Assistive Technology Initiative) The ASNAT follows the SETT (student, environment, task, tool) process. The manual includes chapters specific to need, assessment forms, environmental observation form, AT continuum, and a trial use guide.

Every Move Counts by Jane Korsten is a non-traditional, sensory-based communication assessment and intervention strategy appropriate for the development of communication in individuals having sever multiple differences, developmental differences and/or autism.

Stages by Madalaine Pugliese, www.cambiumlearning.com is an alternate assessment framework to help identify learning needs, assess skills, report progress over time and select appropriate educational software for learners with special needs.

SENSwitcher at www.northerngrid.org/ngflwebsite/sen/intro.htm is a suite of programs designed to help teach ICT (information and communication technology) skills to people with profound and multiple learning difficulties, those who need to develop skills with assistive input devices (switches) and very young children new to computers.

TYPES OF SWITCHES

Mechanical have movable parts requiring pressure to connect the circuit.

Mercury or tilt switch is activated by the movement of mercury within a switch.

Pneumatic is your sip and puff often used for wheelchair mobility

Electronic switches require power and are "capacitive" or activated by skin touch.

Proximity switches have an adjustable range that may activated by a body part.

Fiber Optic switch is a light beam and requires very minimal but specific movement.

Infra-red beam switch is a light beam.

Sound activated

CONNECTING SWITCHES

Mechanical switches will connect directly to a device, though often you may need an adapter to go from 1/8 to 1/4 inch or the other way around. Adapters are available at Radio Shack. Battery operated devices may be adapted with a battery interrupter, which may be purchased or homemade, just search Google for home made battery interrupter for directions. In order to use a switch with the computer, a switch interface box is required. Most are now USB connections and have several programmable ports for single click, double click etc. STAGES assessment serves as a good resource for switch software at various levels. A switch may be connected to the wheelchair; again you may need a switch interface or a mouse emulator.

SWITCH ACCESS

Access is the means by which a person controls an assistive technology device. Computers, toys, EADL's may all be accessed by a switch. A power wheelchair may be accessed by a joystick, proximity or electronic switches. A communication device may be accessed by switch scanning with one or more switches.

The ideal location for mounting or positioning a switch for physical

access would require a small, voluntary, controlled movement that does not illicit reflexes. The hierarchy of switch location generally would start with the hand, then head, including jaw, cheek, eyebrow, eye blink, mouth, then feet and other upper or lower extremity location, such as knee. In order to assess for the optimum location for a switch, client/student positioning must first be considered. Be sure to consult with OT and PT for positioning considerations. Karen Kangas is an excellent resource for positioning for task performance.

A switch may be mounted to a wheelchair, headrest, armrest, footrest, on or in a lap tray.

Switches may be mounted or positioned using dycem or shelf liner, velcro, or mounting brackets. There are various brackets on the market for mounting switches. One example is the Slim Armstrong. It is beneficial to be prepared with a small toolbox, including allen wrenches, screw drivers, velcro, dycem, a few nuts, bolts, screws and batteries.

SUCCESS STRATEGIES

Team approach/communication: Meet frequently with team members, share the knowledge, use the same language, keep a journal, involve the family.

Engaging activity: Remember the switch is not the activity, make it interesting, know your students' interests. Activity or type of switch use includes: cause and effect, choice making with single switch use, two switch or multiple switch use, scanning with one or two switches. There are several variations to scanning, including automatic, step, inverse, linear, row-column, block and frequency.

Environment: Arrange and/or sabotage the environment to encourage and motivate switch use.

Trial and error: Try various switches from a loan library before purchasing. Try positioning the student/client in various ways for optimum motor control and try various positioning of the switches. Use the

It's time to speak up.

Introducing the new MacSpeech Dictate 1.2 with Spelling and Phrase Training.

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so good, about the
only thing it can't
do is speak for you.



<http://www.macspeech.com>

WATI Trail Use Guide. If at first you don't succeed, try, try again.

Practice and repetition. This will take time. Try, try again

Resources Use the people around you, your team, seek out loan libraries, company trainings/representatives, webinars.

CCE CREATING COMMUNICATION ENVIRONMENTS

CCE is a training put on in Wisconsin by WATI. CCE teaches the

Prompt Hierarchy

1. Environmental cue
2. Open question
3. Prompt or request
4. Full model

Descriptive feedback

Pause for response time

Action Plan/Goal setting

Formula

Time Frame: In 36 weeks

Conditions: Given fiber optic switches on a tray array

Behavior: Eric will use an onscreen keyboard to complete writing assignments

Criterion: at the 5th grade English level

RESOURCES

Bateman, Barbara D. and Cynthia M. Herr (2006) *Writing Measurable IEP Goals & Objectives*, Attainment Company, Inc.

Burkhart, Linda (2006) *Two Switches to Success! Increasing participation and Cognitive engagement with Two Switch Activities and Two Switch Step Scanning*, Simplified Technology.

Canfield, Helen, M.A., CCC/SLP and Peggy Locke, Ph.D. (1998) *Book of Possibilities*, AbleNet, Inc.

Herlihy, Daniel (2003) *IntelliTools Extreme!*, Connective Technology Solutions, Inc.

Korsten, Jane, M.A., Dixie K. Dunn, M.A., OTR, Teresa Vernon Foss, M.Ed., Mary Kay Francke, COTA (1993) *Every Move Counts, Therapy Skill Builders*.

Levin, Jackie, M.A. And Kathy Enselein, B.S. (1990) *Fun for Everyone - A Guide to Adapted Leisure Activities for Children with Disabilities*, AbleNet, Inc.

Purcel, Sherry L., Ph.D., CCC-SLP and Debbie Grant, M.A., CCC-SLP (2007) *Using Assistive Technology to meet Literacy Standards (Grades K-3, 4-6, 7-12)*, Attainment Company, Inc.

Reed, Penny, Ph.D. (2004) *Assessing Students' Needs for Assistive Technology*, www.wati.org.

WEB SITE RESOURCES

www.abledata.com - Assistive technology product and vendor database

www.aacintervention.com - Julie Maro and Dr. Caroline Musselwhite

www.atilange.com - Michelle L. Lange, OTR, ABDA, ATP Access to Independence

www22.brinkster.com/jimluther/access.htm - Jim Luther's Adapted Computer Access Materials for Windows

www.Lburkhart.com - Linda J. Burkhart

www.cesa3at.wikispaces.com - Cindy Nankee, OTR, ATP, Wisconsin Assistive Technology Initiative

www.connectivetechologiesolutions.com - Dan Herlihy author of IntelliTools Extreme

www.inclusive.co.uk/downloads/downloads.shtml - Inclusive Company free downloads

www.northerngrid.org/ngflwebsite/sen/intro.htm - SENSwitcher - a suite of programs designed assess and teach skills with assistive input devices.

www.oneswitch.org.uk/2/switch-downloads.htm - A resource of fun ideas and 'assistive technology' aimed at individuals with moderate to severe learning/physically disabilities. Switch software downloads.

www.softtouch.com/stepstolearning.aspx - Article: Assessing, Teaching and Measuring Choice Making Skills of Students with Significant Disabilities using SoftTouch Steps to Learning programs and IntelliKeys Keyboard (by SoftTouch company).

www.specialeffect.org.uk - The SpecialEffect Game-Base contains a range of PC-based computer games and leisure software. We've been finding out if and how each game can be played using access technology, like switches, headpointers and adapted keyboards. But that's not all. We're the driving organization behind the StarGaze project, which aims to provide gaze-controlled technology to people who suffer a sudden injury or illness that leaves them completely paralyzed.

www.switchintime.com - Free software for Macintosh only (OS 9 and OS X).

VENDORS

AbleNet - www.ablenetinc.com; 800-322-0956

AMDi, Advanced Multimedia Devices, Inc. - www.amdi.net; 888-353-2634

Attainment Company - www.AttainmentCompany.com; 608-845-7880

ASL Adaptive Switch Labs - www.asl-inc.com; 800-626-8698

Don Johnston - www.donjohnston.com; 800-999-4660

Enabling Devices - www.enablingdevices.com

EnableMart - www.enablemart.com 888-640-1999

Inclusive TLC - www.inclusivetlc.com; 800-462-0930

IntelliTools - www.intellitools.com

Cambium Learning - www.cambiumlearning.com; 508-647-1340

AUTHOR CONTACT

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Switch Use Action Plan

Name: _____ Date: _____

Outcome	AT Tool(s)	Task	Location
<i>(ie. Student demonstrates cause and effect switch use)</i>	<i>(ie. Jelly Bean and penguin toy)</i>	<i>(ie. Using prompt hierarchy, student will demonstrate cause and effect by pressing jellybean to move penguin)</i>	<i>(ie. In EC during reading of penguin story)</i>

C.Nankee & N.Schermacher 2/08

Introducing The PRC Bluetooth Wireless Switch, Allows Wireless Access to PRC Products

Advanced Wireless Computer Access and More for AAC Communicators

Prentke Romich Company (PRC), the leading manufacturer of alternative and augmented communication (AAC) devices for individuals with speech disabilities, has announced the release of the PRC Bluetooth Wireless Switch (BTWS), an innovative wireless switch that is comparable to PRC devices with built-in Bluetooth capabilities. The BTWS is compatible with PRC's ECO-14, Springboard Lite, and another newly released innovation, Vantage Lite.

With comparable size to other switches, The Bluetooth Wireless Switch has a rechargeable li-ion battery with over 100 hours of run time on a single charge. Additional features include:

- External switch jack allows dual switch input;
- Non-skid bottom case means the BTWS stays where you want it
- LED indicator lights show "pairing" and power status
- Bluetooth connectivity for computer access and wireless access
- Battery level can be viewed in the paired PRC device

"Wireless switching eliminates traditional problems with tangling or disconnection of cords that can happen with everyday use of a communication device," says Bob Nemens, PRC Director of Marketing. "PRC designed and developed this innovation with both freedom of access and reliability in mind."

Adding the PRC Bluetooth Adapter also delivers wireless computer access features in three versatile product modes:

- Mouse Mode inputs mouse moves and "click" and "double click" into USB-equipped computers
- Keyboard 1,2,3 Mode allows the switch to be used to scan in PRC PASS software
- Keyboard F-Keys Mode allows the switch to be used to scan WiVik software

For more information on the new PRC Bluetooth Wireless Switch and other PRC innovations, visit PRC online at www.prentrom.com, contact PRC Sales at 800-262-1933, or contact your PRC Regional Consultant. ■



PRC Introduces Vantage Lite, a Portable AAC Powerhouse

Compact, Rugged, Take-It-Anywhere AAC Device Enables Robust Communication on the Go

Prentke Romich Company (PRC), the leading manufacturer of alternative and augmented communication (AAC) devices for individuals with speech disabilities, has announced the release of Vantage Lite, a dedicated device designed for AAC beginners and those ready to advance toward fully independent augmented communication.

The second in PRC's popular new line of "Lite" devices, Vantage Lite offers the same powerful language and communication features of PRC's classic Vantage Plus, but adds an array of hardware and software innovations, including:

- Compact case with built-in handle for greater portability;
- "High brightness" display with LED backlight and wide viewing angle;
- Magnesium frame that prevents damage from bumps and drops;
- Bluetooth connectivity for computer access and wireless access;
- Integrated Bluetooth phone interface, a PRC exclusive.

Like all AAC devices from PRC, Vantage Lite enables rich, independent communication through PRC's proven Unity language system, which allows users to progress from simple words and phrases to novel and spontaneous communication. The device's expanded Unity Toolset features make it easy to build vocabulary, while 4-, 8-, 15-, 45-, 60- and 84-location display options allow communication capacity to grow along with the user's abilities.

"Vantage Lite is a breakthrough in dedicated devices because it combines our critical focus on language development with exciting

technological and design innovations," stated PRC President David L. Moffatt. "The new design is a direct result of requests from SLPs and PRC device users for a durable, powerful, and portable speech device."

Onsite demonstrations can be arranged by calling a PRC Regional Consultant at 800-848-8008. Details about the new device and PRC's other AAC aids are also available online at www.prc.com. ■



Mayer-Johnson Announces AdaptedLearning.com

A New Resource for Educators and Parents of Students with Special Needs

Mayer-Johnson, developer of innovative software products and symbols designed to help special needs students learn, announced the launch of AdaptedLearning.com (www.adaptedlearning.com). This free resource provides a place to find and share adapted curriculum created with the company's popular Boardmaker(R) Software Family products. It also provides online community functions, as well as feature articles and expert tips that meet the needs of the spectrum of Boardmaker users. Developed to provide better symbol-enhanced learning tools and make it easier for special educators and parents to adapt curriculum to ensure accessibility for all students, the Web site provides resources and tools that allow students with special needs to learn more effectively and succeed academically.

Over 100,000 special education professionals and parents have come to rely upon the Boardmaker Software Family of products to help children challenged by significant speech, language and learning disabilities achieve academically and socially. Adapt-

edLearning.com stretches the reach of the products by creating an international community of Boardmaker enthusiasts.

The keystone of the free AdaptedLearning.com Web site is the searchable database of communication boards and other educational assets created using Boardmaker products and shared by therapists, teachers, and parents of students with special needs. Additional resources include:

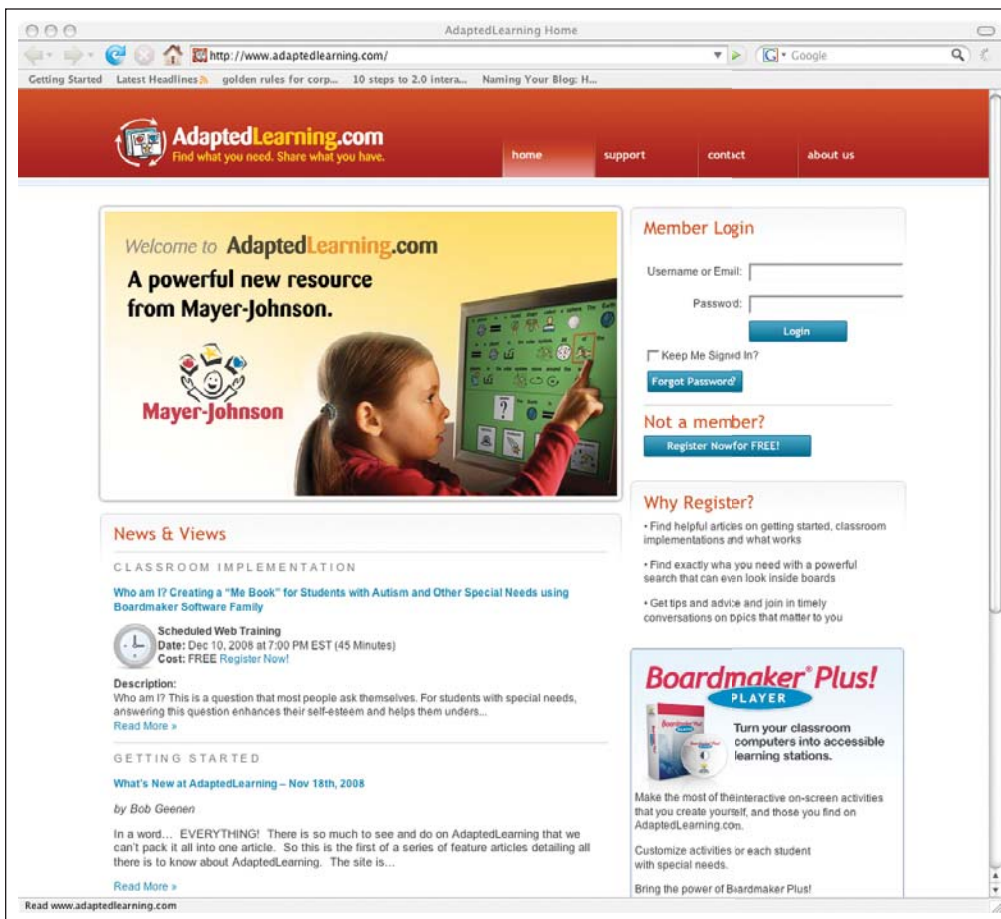
- An online community that allows educators and clinicians to connect and share ideas and information with other Boardmaker users, as well as create public and private areas for groups of colleagues and parents,
- Feature articles highlighting implementation ideas and other resources
- Training videos featuring application strategies to enhance student learning and communication, and show how to create tools that make it easier for children with special needs to succeed.

Information is organized by subject area in the News & Views section of AdaptedLearning.com, ensuring that members are able

to locate the resources they are seeking easily. New Boardmaker users will find the Getting Started articles helpful as they experience all that the software has to offer. The Classroom Implementation area provides application ideas so that members can apply newly acquired skills and discover new ways to use previously learned skills. A resource for parents, the Home Connection provides information to help families support the child's education and communication journeys in the home and in community settings. Find success stories and case studies that provide information and inspiration in the Results area.

"AdaptedLearning.com comes in response to the requests of the many loyal Boardmaker users who were looking for a place to share their work and access new content," said Jim Mills, DynaVox/Mayer-Johnson's vice president of education products. "We're pleased to be able to offer them a place to share that work and their great passion for the Boardmaker Software Family of products."

To register for this new Web resource, visit the Web site at www.AdaptedLearning.com. ■



AdaptedLearning.com from Mayer-Johnson provides a place for educators and parents to share adapted curriculum created with the company, Boardmaker Software Family.

DynaVox Releases Software Version 1.05 for DynaVox V and Vmax

Latest Software Enhances Communication Options and Provides Greater Flexibility

DynaVox, the world's leading provider of advanced communication solutions that assist individuals with significant speech, language and learning disabilities, announced the release of software version 1.05 for the V and Vmax speech-output devices. This new release includes a range of new features that enhance communication options, ease device setup and use, and provide greater flexibility when working with applications outside the V/Vmax communication software.

NEW FEATURES INCLUDE

- **EyeMax Support** – A robust new eye gaze system, the EyeMax enables individuals with significant physical limitations to access all Vmax features using just their eyes.

- **eBook Reader** – This tool allows users to download books from sites such as bookshare.org and eBooks.com directly to the V or Vmax. Books added to the eBook Reader can be read onscreen using multiple access methods, or the V/Vmax can read the book aloud to the user.

- **Navigator** – This intuitive user interface provides quick access to speech, e-mail, internet, computer, eBooks, and environmental control capabilities. An alphabet-based core word strategy that combines seamlessly with the InterAACT language framework, Navigator supports fast, easy and independent communication for literate adults.

- **Onscreen Keyboards** – These specialized keyboard pages enable V/Vmax users to operate other Windows software applications using the same selection method (e.g., scanning or eye gaze) used for their communication software.

- **Enhanced Environmental Control Functionality** – An intuitive setup interface allows individuals with significant physical limitations and their care teams to quickly configure V and Vmax devices to operate common household appliances, such as televisions, DVD players, etc., equipped with infrared remote controls.

- **Bluetooth Connectivity** – The V or Vmax can now be configured to control another computer

through a Bluetooth connection. This benefits users who wish to use another computer as their primary computer.

“This latest software release for the V and Vmax is very exciting,” said Jim Shea, DynaVox’s vice president of marketing. “Software version 1.05 streamlines communication and device support and makes basic tasks, such as reading a book or using computer software, easier and more accessible. This release is the direct result of customer feedback and DynaVox’s commitment to supporting the customers by continuing to enhance the product line to better meet their needs.”

Software version 1.05 for the V and Vmax is available free of charge and is included with all devices shipped on or after September 24, 2008. Individuals with devices that shipped before that date can obtain the software by visiting Support at www.Dynavoxtech.com. Instructions for determining the current software version running on a specific V/Vmax can be found on the same page. ■



Software version 1.05 for the DynaVox V and Vmax provides augmented communicators with a variety of new features and capabilities including an e-Book reader, the Navigator page set designed for literate adults, enhanced environmental control functionality, onscreen keyboards and Bluetooth connectivity.

Supernova, Hal, Lunar and LunarPlus Version 10 Launched

Dolphin Computer Access, the world-leading provider of software tools that deliver independence to visually and print impaired people, announced the version 10 release of Supernova Reader Magnifier, Hal Screen Reader, Lunar Screen Magnifier and LunarPlus Enhanced Screen Magnifier.

Following the extremely positive reaction to the re-engineered internet support released in version 9 earlier this year, version 10 follows in quick succession and extends Dolphin's internet accessibility with all new support for the Mozilla Firefox version 3 Web browser, URL specific settings and virtual focus text selection being amongst the 26 listed new features.

Version 10 includes a host of new features including:

- **Mozilla Firefox 3 Support** – Firefox 3 support is supplied in addition to Dolphin's newly re-engineered Internet Explorer support.

- **Virtual Focus Text Selection anywhere!** – Hal and Supernova users can use the Dolphin Virtual Focus to select text from almost anywhere in Windows and Windows applications. Directly copy your Virtual Focus Selection to the Windows Clipboard for use in your application.

- **URL Specific Document Settings for Internet Explorer** – Optimise version 10's performance and usability on specific Web sites, domains, intranets and Web-based applications by creating URL specific settings.

- **Setup Wizard** – A helpful Setup Wizard carefully steers users through a series of straight forward questions about the speech, magnification, Braille and general access features of their Dolphin access software that are required to best meet their individual needs. The Dolphin Setup Wizard runs automatically the first time users run their Dolphin software, and thereafter is available any time from the Help Menu in the Dolphin Control Panel.

- **Multi-Core Ready** – Version 10 has been designed with the intention of supporting pipelined multi-threaded multi-core ready applications.

- **Product Improvement Program** – Version 10 users now have the option to contribute anonymous data to the Dolphin Product Improvement Program that will ultimately contribute to making Dolphin software easier to use and more intuitive.

- **All New Support for WinAmp** – Improved speech and Braille access to this ever popular media player, in particular, comprehensive support for the Winamp Graphic Equalizer.

- **Improved Quick Navigation Keys** – Users said they wanted even simpler Quick navigation keys on the Internet. So we've done it, whilst Web browsing in Virtual Focus mode, press H to move to the next heading and Shift H to move to the previous Heading. There are 14 to try, so download the all new Quick Reference Guide (available online at www.YourDolphin.com) for a complete list.

- **And there's More...**

A complete list of all the new version 10 features is available from the Dolphin Web site at www.YourDolphin.com.

Familiar to many for the creation of Smart Hal, Dolphin's Blindness Product Manager, Dave Williams has steered the creation of version 10 alongside a new ally. Newly appointed to the role of Low Vision Product Manager, Neil Hall has more than seven years experience providing product support to Dolphin customers. As a Lunar user himself, Neil is squarely focused on customer driven development and believes the version 10 improvements reflect this.

"What sets Dolphin apart is our responsiveness to user feedback. Supernova, Hal, Lunar and LunarPlus are constantly being updated and improved, and the free updates, maps and scripts via our internet updater allow us to get those improvements into the hands of our users as fast as possible."

"Version 10 adds new and unique features that deliver independence and greater choice to our blind and low vision customers."

Download your FREE 30-day demo of version 10 from the Dolphin Web site at www.YourDolphin.com today! ■

Ergodex Introduces the DX1 for the Assistive Technology Market

Ergodex, a pioneering Silicon Valley company, brings a powerful new technology to the assistive technology market that enables better accessibility to computers. The DX1 Input System recognizes the shortcomings of the keyboard and mouse in dealing with the special needs of individuals with impaired motor skills, blind/low vision conditions, cognitive impairments and/or communication disabilities.

The breakthrough technology gives people a powerful new tool to control their computers. Users can place individual keys anywhere on an 8x10 pad and assign to those keys any functions they wish. This allows them to configure the DX1 to conform to the particular size and shape of their fingers. Keys can also be placed separately or grouped in functional clusters, creating a more intuitive interface for the user.

The DX1 system lets people reassign keys on the fly as their needs change. Keys contain no wires or batteries. And because

they have an adhesive surface, keys can be repositioned whenever desired. The ability to reassign and reposition keys at will means the DX1 offers the ultimate in flexibility. As people's needs change, they can change their input systems.

The DX1 pad connects to PC's via a USB cable and supports Windows 2000 and XP operating systems, with support for Vista to follow. The cost of the DX1 Input System is \$149.95 and consists of a pad, 25 keys, a removable clear tray and key labels. Accessories include 25 additional keys, additional trays and key labels.

Ergodex is building a team of AT specialists and resellers to introduce the benefits of the DX1 to the assistive technology community. To learn more about this new technology first hand, visit Ergodex at www.ergodex.com or contact Tim Kelly, 650-960-1010 ext.105, e-mail: tkelly@ergodex.com. ■

AbleNet Announces Flourish Software To Track Special Education Student Achievement and Show Administrators How Their Schools Measure Up

Platform Helps Teachers Align IEP Goals With State Education Standards

AbleNet announces the release of Flourish – the only software that helps school administrators track the progress of their special education students and connects IEP goals with state education standards. Flourish provides analysis of all IEP goal data requirements.

Flourish helps both educators and administrators collect data in a way that is consistent across the district. By reviewing this data, the district can compare various initiatives to better determine what is leading to special education student achievement.

“Much of administrators’ time is spent speaking with parents, advocates, caregivers and education officials about how their schools are responding to the needs of special education students,” said AbleNet CEO Jen Thalhuber. “Flourish helps special education administrators knowledgeably discuss student achievement and demonstrate their district’s commitment to effective instruction and measurable progress for every special education student.”

Flourish captures data across IEP goals, but also includes information unique to the individual student, such as the use of assistive technology, teacher supports and other key elements necessary for student success in special education.

The results are detailed, real-time reports that can be analyzed and discussed to determine proactive ways to better meet the needs of these students.

As important as this information can be to making key decisions, the data capture process has historically, been arduous. Flourish includes many ways to streamline data collection, making data capture easy and efficient. In addition, the program allows for easy start-up because of the open platform designed to integrate with districts’ current IEP and student information management systems. This eliminates the need to enter redundant student data.

Now administrators across the district can respond with confidence to a concerned parent about a child by pulling up reports right from the office. The reports show how the student is doing relative to district programs and the IEP goals set for that student. With this information, administrators can reinforce the district’s commitment to their students in special education and build confidence within the parent and advocate communities. Flourish is designed for a Microsoft Windows environment. It is fully compliant with HIPAA/FERPA standards for data privacy and security.

For more information, visit www.ablenetinc.com. ■

AbleNet Announces New Communications Innovation with Impulse Bluetooth Technology Access for Computers

Allows Persons With Significant Physical Limitations to Communicate by Using a Computer Operated by Muscle Impulses Transmitted by This Wireless Access Device

AbleNet announces the release of the innovative new Impulse Bluetooth Technology Access product. Impulse is specifically designed for persons with significant physical limitations, allowing them to use any muscle surface (face, jaw, neck, arm, leg, etc.) to control their computer. This device is particularly applicable for persons with degenerative conditions, such as ALS, MS and MDA, as well as anyone with physical limitations or paralysis.

“This product leapfrogs anything in the market in terms of flexibility, usability, safety and price,” said AbleNet CEO Jen Thalhuber. “Computer access unencumbered by wires and visual limitations is now possible for persons with the most severe physical limitations, as long as they have even faint muscle control somewhere on their body.”

Impulse is a patented, full-service computer access device, not simply a “switch.”

It uses an electrode to measure electromyography (EMG) – or minute muscle contraction – allowing very small movements to

control computer devices. Impulse accesses the computer using software installed and configured during the set-up process. The device gives the user the ability to control such tasks as typing and mouse movement by using any muscle the person chooses.

Bluetooth wireless connectivity allows caregivers to attend to other needs without being hampered by wires or disturbing switch alignment. Bluetooth also allows the user to remain connected to the computer even while being transported short distances, such as going to another room.

“Impulse offers consistent, wireless computer access capability for users who may be using complementary tools, including eye-tracking technology,” continued Thalhuber. “We expect the price point will be very appealing, especially when coupled with the flexibility and usability improvements. Impulse also has the stylish technology design of a Bluetooth headset, giving the user the same look and comfort other consumers demand and receive.”

For more information, visit www.ablenetinc.com. ■

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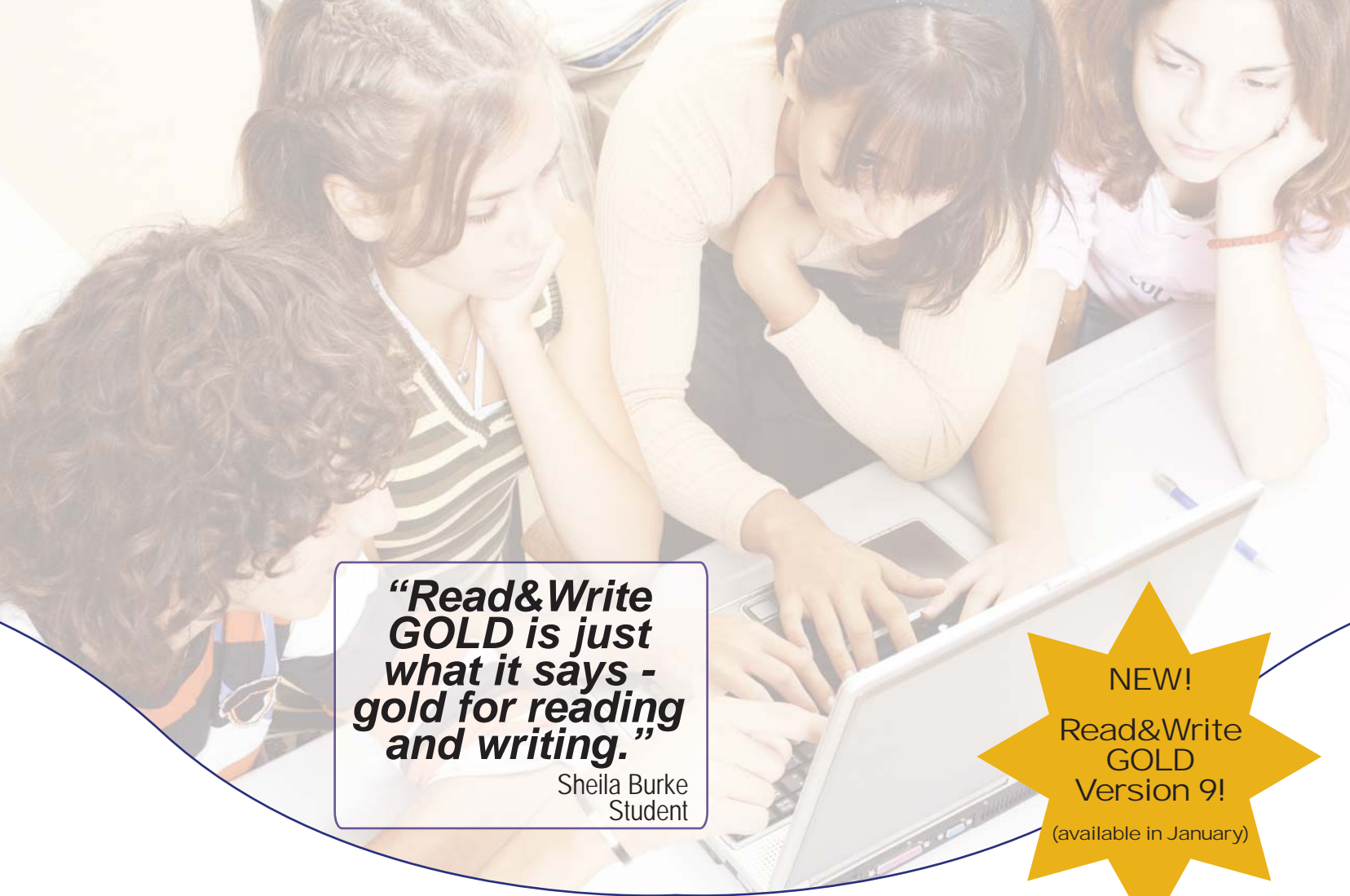
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