

Closing The Gap

OCTOBER / NOVEMBER, 2008

VOLUME 27 - NUMBER 4

**A WRITER, A PENCIL,
A REASON AND A TEACHER**

**PROLOQUO GIVES ME
FREEDOM OF SPEECH**

**AN INTRODUCTION TO SWITCHES,
SWITCH-ACTIVATED SOFTWARE
AND HOW IT ALL WORKS**

**LITERACY AND AUGMENTATIVE
AND ALTERNATIVE COMMUNICATION
CURRENT RESEARCH AND INDICATIONS**

**ADDRESSING CONSIDERATION IN
MATHEMATICS INSTRUCTION VIA
TECHNOLOGY-BASED SOLUTIONS**

**NEW INCLUSIVE "FLAT FRIENDS"
PROJECT PROMOTES ACTIVE
COMMUNICATION AND CONNECTION
FOR STUDENTS OF ALL ABILITIES**

**AN AAC RETROSPECTIVE
PART 1: TOOLS, METHODS, TRENDS
AND MILESTONES**

DISCOVERIES

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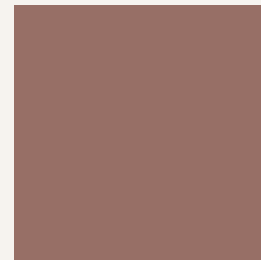
2009

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P.O. Box 68
526 Main Street
Henderson, MN 56044

Phone 507-248-3294

info@closingthegap.com

www.closingthegap.com

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Closing The Gap

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Closing The Gap

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CONTACT INFORMATION

Please address all correspondence to Closing The Gap, P.O. Box 68, Henderson, MN 56044. Telephone 507-248-3294; Fax 507-248-3810. E-mail <info@closingthegap.com>; Web site <www.closingthegap.com>.

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Dolores Hagen
PUBLISHER

Budd Hagen
EDITOR

Connie Kneip
VICE PRESIDENT / GENERAL MANAGER

Megan Turek
MANAGING EDITOR/ SALES

Jan Latzke
SUBSCRIPTIONS

Sarah Anderson
ADMINISTRATIVE ASSISTANT

Becky Hagen
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DISKoveries

Special Needs: New Software, Books, DVDs and Professional Resources

By Joan Tanenhaus

Boardmaker Version 6 for Macintosh (Mayer-Johnson: 800-588-4548, www.mayer-johnson.com) Boardmaker Version 6 is now available for Macintosh in two different versions, Boardmaker Plus and Boardmaker with Speaking Dynamically, with all of the features of the Windows versions. Boardmaker has always been the standard of excellence for creating printed classroom and at home materials with Picture Communication Symbols (PCS). Now Boardmaker Plus! for Macintosh lets Boardmaker activities come alive on the computer with voice, animation and video support, and with Boardmaker, more than 4500 PCS and over 300 ready-to-use templates for schedules, AAC and calendars. Some of the new features of Boardmaker Plus Version 6 include a Symbolate function which lets you just type your words and symbols appear, and a quick and easy way to add symbol support to sentences, stories and other text. Copy and paste in a paragraph, sentence, story, etc. and watch it get paired word for word with PCS symbols. Then it can be read aloud with highlighting of the words or of the symbol and word. Other features include the ability to create a transparent background that allows symbols to be layered to create free-form materials. You can swap and shuffle buttons, drag and drop images from the Internet or other programs, draw freeform buttons of any shape, and resize multiple buttons. The MJ Sounds Library contains dozens of fun sounds, and there is video and animations support along with the ability to play movies and sound files and record speech. Boardmaker with Speaking Dynamically for Macintosh is augmentative and alternative communication (AAC) software that lets you do all the same things as Boardmaker Plus, and also includes the ability to create customized "talking" communication boards. Boardmaker with Speaking Dynamically Pro turns a computer into a talking word processor, a speech output device and a powerful student-learning tool. It has the ability to talk in human-

sounding voices and play recorded sounds and movies – with word prediction, abbreviation expansion capabilities, Symbolate, support for 44 languages and much more. Visit www.mayer-johnson.com for User Sharing Forums, Free Tips, Activity of the Month downloads, new PCS, upgrade information and online training.

Interactive Reading Software Library 1 and Library 2 (Attainment/Greenhouse: 800-327-4269, www.attainmentcompany.com; 661-263-7661, www.greenhousepub.com) These programs (Windows only) are based on the excellent Interactive Reading Book Series published by Greenhouse Publications. (See full reviews of these wonderful books

in DISKoveries in CTG April 2007 and October 2005). For each book, there are four activities. In Matching, there is one large card and multiple (three to eight, you decide) smaller cards to choose from to match. In Identification, similar in design to Matching, the large card shows only the printed word and the match choices show only the image. The Labeling activity shows a card and records the student's verbal response. In Reading, a sentence is shown and read aloud. The student recreates the sentence by selecting the matching cards to fill in the boxes. You can track progress, and scanning is available. The books in Library 1 include: How Many?, What Color Is It?, I Go To School, Things



Interactive Reading Software (Attainment / Greenhouse Publishint).

I Do At Home, Actions!, Sounds Good to Me!, The Ups and Downs of Opposites, and How Do I Feel? The books in Library 2 include: I Have Feelings, Too!, What Happened and Why?, Pigs in Space, Who's on First?, Meet the Word Family, What's It For?, What Do I Say?, and What Do I Do? These are outstanding programs and can be used by students of all ages for language and literacy learning.

Story Builder (Judy Lynn Software: 732-390-8845, www.judylynn.com) Story Builder, for Windows (2000, XP and Vista) is a storybook program that lets switch users create picture story books from templates and read them aloud in a simple and errorless way. Students write their books by choosing pre-written picture and text pages related to a topic that they pick. They can choose to include or skip a particular page in their book and they can control the path that the story takes. (For example, in a story about a class trip, they can choose to write about going to the zoo or going to the aquarium. Once there, they can decide which animals to include.) Story Builder comes with 25 different story templates and there are almost 30 additional ones that can be downloaded free. Teachers and parents are encouraged to also upload stories they have created to share with others, so there will be more coming. In the Users Guide, there are detailed instructions on creating your own templates. The program also prints out the storybooks and collects data for each student that can be viewed in a spreadsheet or text format. If you go to the Web site, you can download a free trial of Story Builder to try for 20 times. This is a very creative program and one that can be used to encourage literacy in all children. Judy Lynn Software can always be depended on to create well-designed and highly motivating software for our youngest switch users.

The Learning to Get Along Series (Attainment: 800-327-4269, www.attainmentcompany.com) Another great new program. This software includes 14 talking books with activity pages. The stories are designed to help young children, ages 4-8, learn to behave responsibly and respectfully toward themselves and others. (The books are also available in print form.) The software reads the books aloud (natural speech or a slower word-by-word speech), highlighting the text (one word at a time, by sentence or by line). There are glossary words that can be clicked to hear a definition. The Next and Back buttons move forward or backward through the story. Immediately following each story is a screen "Think About It," that sums up the message of the book. There are also screens following that with multiple choice questions. You can customize the program by selecting individual stories for each user, along with highlighting and narration style. Scanning and progress tracking are available. Some of the book titles are: Be Careful and Stay Safe, Be Polite and Kind, Join In and Play, Know and Follow Rules, Take Turns, and many

more. See the Web site for a complete listing of the books and also an excerpt from one of the books. Highly recommended.

Play with Me (Life Tool, available from Mayer Johnson: 800-588-4548, www.mayerjohnson.com) Young children who use a switch need lots of practice with cause and effect and timed activation skills. This new program presents six fun activities that will motivate and entertain as they teach. In the first activity, little birds are learning to fly. Children press and hold the switch to open the net to rescue falling birds. In the Mole game, they press the switch as soon as they see a mole appear in order to turn on the light on his helmet. In Snakes Duel, press a switch to throw a piece of melon or to duck and avoid getting hit. In Hen House Race, press the switch in time to change the position of the basket to catch falling eggs. In other games, play ball with seals or soccer with monkeys. There are five levels of difficulty and users play alone (against the computer) or with a second player. Great program for children. Pablo, also from Life Tool, is a coloring and copying program. Children press and release a switch to color a picture (cause and effect) or use color selection (i.e., color changes at a rate you select and child presses when he sees the color he wants). There is a copying activity (see the picture on the left and make the picture on the right the same). There are also a coloring activity and a copying activity with the mouse.



Play with Me by Life Tool, available from Mayer-Johnson.

Preschool Playtime Volume 1 and Volume 2 (Social Skill Builder: 866-278-1452, www.socialskillbuilder.com) Two excellent new programs in this series, for Windows and Macintosh, designed for preschool to 1st grade, to develop play skills, social emotions and appropriate behavior, using real life videos and social stories. Designed like others in this series, there are five different skill levels. Level 1 familiarizes the user with critical elements of a behavior or social interaction. Level 2 introduces a variety of behaviors and interactions for identification of positive and negative consequences. Level 3 presents multiple choice questions to help identify important behaviors. Users chose what the child did correctly during the interaction.

Level 4 presents still images to identify facial expressions and feelings. Level 5 challenges the user to predict what should be done or said. Following a video clip, the question is asked "what should the child do next – with choices. In both volumes, the settings are the Park, an Outing, Playgroup and Preschool. Data is tracked and reports can be printed. Preschool and social games are also provided in step-by-step presentation (i.e., Ring Around the Rosey). In Volume 1, the social interactions are: greetings, clean up, please/thank you, waiting, coping, interrupting and shifting attention. In Volume 2, the social interactions are: apologizing, taking turns, listening, playing, personal space, sharing and requesting.

Do2Learn (www.do2learn.com) This excellent Web site has been designed to provide computer-based learning for children with special needs. It has an activities section with suggestions for art projects, card games, math helpers, writing tools, etc., all with instructions and things needed for off-computer work. There is a section with Songs (fire safety, mall safety and street safety) and Games to play online. In addition, there is software to purchase and download. These are excellent programs for reinforcing language. **Placing Objects** is great for learning prepositions, such as on, under, in, next to, beside, between, and others. There are four environments to choose from (kitchen, bedroom, etc.) and children are instructed to put the object in the named place (i.e. between the boy and the basket). Videos of actual people reinforce concepts. Performance and progress is tracked and printable activities are included. In **What's The Order**, children can work on concepts, such as first...then and before... after, while completing two- or three-step sequences. A video is shown to reinforce the concept and then players move the pictures to sequence the activity. There are many options to include different sequencing vocabulary (i.e., in the beginning, finally, last, at the end, following that, etc.) There are printable activities. **Name That Object** works on naming, understanding and categorizing common objects. All pictures can be printed as 1-inch or 2-inch picture cards. There are other programs on Alphabet, Faces and Feelings, Fire Safety, Pet, Playground and Water Safety. All programs are Mac and Windows.

SwitchIt! Transport Extra and SwitchIt! Dinosaurs Extra (Inclusive: 800-462-0930, www.inclusivetlc.com) Inclusive has added two new programs to its wonderful SwitchIt! Extra Series. Like all the other SwitchIt! programs, for both Macintosh and Windows, each program includes Flash Cards, Builds (picture is presented as an outline and each switch press fills in the colors and then animates it) and Stories (clever sequences that are revealed with each press of the switch). There is an auditory scanning option for the Picture Builds and Stories menu so users can select the sequences they want to play. Student progress can be tracked, and

other options include the ability to select which specific flash cards, picture builds and stories are selected. The programs also include Resources, worksheets and additional interactive programs. There are also Braille and tactile activities which can be photocopied onto swell paper and put through a heat machine to make them tactile. **SwitchIt! Transport Extra** includes pictures and sequences related to transportation, including school bus, taxi, motorcycle, boats, planes, construction vehicles, etc. **SwitchIt! Dinosaurs Extra** includes all kinds of dinosaurs, behaviors, habitats, etc. The content is designed so that it can be used at multiple language levels. Early learners can learn basic facts about dinosaurs, while more advanced students can talk about camouflage, changing environments, predators and prey. All SwitchIt! Extra programs are highly recommended!

MyBoard (Inclusive: 800-462-0930, www.inclusivetlc.com) MyBoard is an authoring program for making all kinds of drag and drop activities with pictures and text, for whole class lessons, individual instruction, for literacy, for interactive WhiteBoard and Touch Window use, too. It includes a 10 minute tutorial on creating activities. The program includes many sample activities to get you started and to give you an idea of the range of lessons that can be created. There are lots of learning activities (dress the boy, shapes, build a Spaceship, sorting activities with venn diagrams, number activities, copying and tracing activities and much more). The program is for Windows 2000, XP and Vista. Visit www.itmyboard.com to see examples of activities and get more information. Excellent!!!

Choose and Tell: More Nursery Rhymes (Inclusive: 800-462-0930, www.inclusivetlc.com) The third in this clever series, this latest program presents some popular nursery rhymes and then lets the user create their own story. The rhymes are Little Bo Peep, Mary Mary Quite Contrary, Little Jack Horner, Yankee Doodle and Pussy Cat. Players decide where they go, how they travel and what they do when they get there. The program encourages decision making, using a combination of cause and effect and choice-making activities. After the nursery rhyme is presented, the program presents two or three modes of transportation (randomly chosen from a group of five); two or three locations (from five different ones) and some treasures. Other choices include the kind of monster that takes the treasure and a solution on how to get the treasure back. The story can be replayed and printed. Options include how many choices to be offered (two or three), switch and scanning access, and auditory scanning. This is a fun program for young children and encourages choice making, switch use, and understanding of language and sequencing. Other programs in the series include **Nursery Rhymes, Fairy Tales** and **Legends**.

Early Learning Suite 2.1 (Marblesoft: 888-755-1402, www.marblesoft.com) The Early Learning Suite contains three of Marblesoft's

classic programs, Early Learning 1, Early Math Skills and Money Skills. Each program, with large, clear and simple graphics, has a range of activities with dozens of difficulty levels and is age appropriate for all ages. Students can use the mouse, touch window or single switch with scanning and there is full record management. Other options allow control of advancement rate, amount of prompting and reinforcement and how the programs respond to wrong answers. **Early Learning 1** teaches colors (matching, recognition and identification of 12 colors – you select which ones to use); shapes (12 different shapes to choose from); numbers (practice counting numbers from 0-20, with color icons or optional high visibility icons and special prompts for blind students); and letters. **Early Math Skills** teaches addition and subtraction of simple equations in either a horizontal or vertical format, with options to select sums from 0-20. The program uses large color icons (high visibility or black-and-white icons), number sequencing and greater than/less than. Money Skills teaches American, Canadian, European, British or Australian currency with clear, realistic pictures of the money. Teachers can modify or replace the graphics used in the program. The program teaches counting money by denomination. In the Counting Money activity, each coin or bill is introduced and students learn to count that denomination. Early levels include a number key to help the student count. Other activities include Making Change, Counting Change and the Marblesoft Store (save money and then go shopping to purchase items on display). If you go to the Web site, www.marblesoft.com, you will see a complete description

and screen shots of many different activities with different levels shown and explained. You will see what the program actually looks like and how it advances from one level to another. Marblesoft has also updated its **Single Switch Games 2**. Watch for a review of that program in the next DISKoveries.

Mini Mystery Readers Software (Attainment: 800-327-4269, www.attainmentcompany.com) This is a great new program! It includes 24 high interest (fun) detective stories for students, reading level 2-3 and 3-4. There are interactive questions at the end of each story. The text on each page is spoken automatically after the page is turned. The speech is in a conversational tempo but can also be played at a slower, word-by-word tempo. Students can click on individual words to hear them spoken and can repeat the narration on individual pages. Narration highlighting (by word, sentence or line) is an option. There is a detailed user management section, with many options for data collection and options. There are scanning options for single or two-switch access. This is an excellent program for struggling readers, and for those needing supported reading, listening and comprehension skills. **Functional Skills System: Functional Literacy Sampler** is a drill-and-practice program designed to teach and review about 80 sight words. Players see the word, hear it spoken, then click to see a video demonstrating the word and hear a definition. There are two audio tracks (advanced or basic (simplified) definitions). There are many options to customize, including scanning/switch options.

Yuichi's Games (Mayer-Johnson: 800-588-4548, www.mayerjohnson.com) This Boardmaker



Preschool Playtime from Social Skill Builder.

add-on, designed to improve problem-solving, turn-taking, and literacy skills, is a set of games that can be customized by skill level and theme, and is accessible by touch window, mouse, scanning (step, inverse) and arrow keys. The nine games include **Concentration** (options include ability to substitute photos for PCS symbols, play with 2, 3,4,6, or 8 pairs of cards, play with face up for beginning matching game, optional speech feedback, written labels, etc.); **Guess The Word** (a variation of hangman – options include ability to add your own words, use of symbols that correspond to word as a hint, categories, etc. Always a good way to build spelling and vocabulary); **Maze-Craze** (maze game with on-screen arrows or arrow keys on the keyboard); and **Word Search** (five difficulty levels with varying size grids, create your own word searches). Others include **Number Slider** (move the numbers in the grid), **Shapetastic** (match pieces to shape outlines), **Tic-Tac-Toe**, **Four in A Row** and **Sing Along** (computer plays a sequence of notes and players replay the sequence). This is a great collection for your Boardmaker users!

Animation-ish (FableVision: www.fablevision.com) This new drawing and animation program, designed for Grades K-12, for both Macintosh and Windows, is designed to help both students and teachers create and animate their drawings, stories and class projects. There are three levels of instruction. In Wiggledoodle-ish, students draw, trace and animate with three frames. You can import and trace graphics with different tools. In FlipBook-ish, students create their projects with any number of frames and with more advanced tools. Advanced-ish, the third level, lets you have two levels of anima-

tion so you can create an animated character (foreground) and an animated landscape (background). Sound and music can be added also. There is a Classroom Activity Guide also included.

Watch Me Learn: Friends (Watch Me Learn: 631-261-1707, www.watchmelearn.com) Another excellent volume in the Watch Me Learn series (available in DVD format). This volume teaches social skills through the depiction of activities, such as playing catch, basketball, painting, snack time, charades, a treasure hunt, baking with friends and more. It is recommended for developmental ages 5 and up. Created by a mother of a child with autism, Watch Me Learn Video-Modeling products incorporate standards of socialization and communication (ABA/VB) in the context of authentic childhood situations. They present video sequences of play scenes and everyday situations and model the actions needed to communicate, with verbal responses, pointing, looking, etc. Children are encouraged to play the video over and over and to interact with parent/caregiver to practice the skills. Other DVDs in the series include **Watch Me Learn Volume 1** (gross motor skills – jump, clap, wave, touch, etc., imitation skills, pointing, attending, responding, receptive language, etc.); **Watch Me Learn Volume 2** (models attending skills, receptive language skills (identifying body parts, objects, people, following instructions, etc.) expressive language (labeling, asking “What’s That?” answers questions, etc.) and; **Watch Me Learn School Days** (sequences related to getting ready for school, organizing a book bag, getting on the bus, going to classes, interacting, etc.). If you go to the Web site, you can view

the teaching guides, which list all the activity scenes, and also view video clips from each of the DVDs. Highly recommended for home and classroom

Rosetta Stone Language Learning Software (Rosetta Stone: www.rosstattstone.com) Interested in learning another language? Rosetta Stone software is available in over 30 different languages, for both Macintosh and Windows. It integrates graphics, audio, and text, which let the learner associate the written and spoken word with real-life pictures. Users are presented with a series of pictures and a word is spoken with text also being displayed on screen. They then select which picture goes with that word. The lessons progress from words to phrases and then to full sentences. Some of the units include Language Basics, Greetings and Introductions, Work and School, and Shopping. Some activities give the users the chance to practice new language with the included USB microphone headset. With the speech recognition abilities, users can practice and get immediate feedback. This is all done without any translation into English (immersion method). Rosetta Stone now also includes audio CDs that can be used to practice what the user has learned with the software. These CDs (good also with an MP3 player) can be used to practice pronunciation, vocabulary, phrases, speaking and conversation. If you are interested in applications for ESL, for home schooling or for reinforcing school second language learning, visit the Web site to see more details on languages available and specific examples.

INTERACTIVE ENTERTAINMENT SYSTEMS FOR LEARNING

Interactive entertainment systems are a very important way that children, teenagers and adults of all ages interact with their siblings, family and friends. The most powerful applications are cooperative play and social, recreational and whole body interactivity. They are also great for language (following a story line, sequencing, etc.), fine motor and gross motor skills, timing and coordination.

The following Nintendo DS programs are especially useful for enhancing learning, challenging thinking skills, enhancing “brain power” and mastering vocabulary.

Flash Focus (Nintendo: www.nintendo.com) This fun DS program is based on focus ability training which includes: Dynamic Visual Acuity (the ability to clearly see moving objects); Momentary Vision (ability to gather several bits of information at once); Eye Movement (the ability to move your eyes quickly and accurately); Peripheral Vision (the ability to see over a wide area); and Hand-Eye Coordination (the ability to recognize and respond quickly and accurately). The program consists of both Training and Eye Relaxation exercises. Core Training includes things like tracking a moving box, watching a number flash and recalling it, remembering symbol order, watching a shape



Placing Objects from Do2Learn.

in the middle and finding others like it in their peripheral field, counting letters, matching, and more. In Sports training, you will do visual focus training within the contexts of soccer, baseball, boxing, table tennis, basketball, volleyball and football. After doing the training activities, the program will automatically give you a series of eye relaxation exercises. Visit www.Flashfocus.net and pick How To Play to see animated examples of the activities. Good choice for all ages, and no reading required to do individual activities.

Crosswords DS (Nintendo: www.nintendo.com) With crosswords, word searches and anagram games, players just write their answers in the puzzle using the stylus. There are four levels of difficulty and size. Clues are displayed in the upper portion of the screen, with a timer and hints available. In Wordsearch, you are given a list of randomly selected words to find. To highlight the words, you touch the first or last letter and slide over the entire word. In Anagrams, your goal is to create as many words as possible using a set of randomly selected letters. There are three game types (short: three- and four-letter words; medium: three-, four- and five-letter words; and long: three-, four-, five- and six-letter words). Great for vocabulary and literacy.

Brain Assist (Sega, www.sega.com) This brain training program has 10 mini-games to challenge one to three users. They can match figures; touch number or letters in the order they were shown; find two of a kind from the displayed pictures; guess what a picture will look like from its broken parts; or spot the difference between two pictures. In other games, players memorize the locations and colors of painted hexagonal panels, and then paint the panels correctly. They memorize a set of numbers as they speed by and enter the numbers in the correct order. Other memory tasks include watching and comparing two sets of cards, or memorizing icons in the correct layout. Lots of fun for all.

USA Today Crossword Challenge (Destineer: www.destineerstudios.com) This is a collection of crossword puzzles from the USA Today newspaper. There are 300 puzzles in English and 300 in Spanish. Touch a cell and clues across and down are shown on the top screen. You can enter with handwriting or by tapping the letters on an on-screen keyboard. You have a choice of immediate error spotting or final review. If you are stuck, ask for a hint and you are given the next letter.

The following Wii and DS programs are excellent ways for children and adults to interact, and provide opportunities for cooperative play, social, and recreational activities.

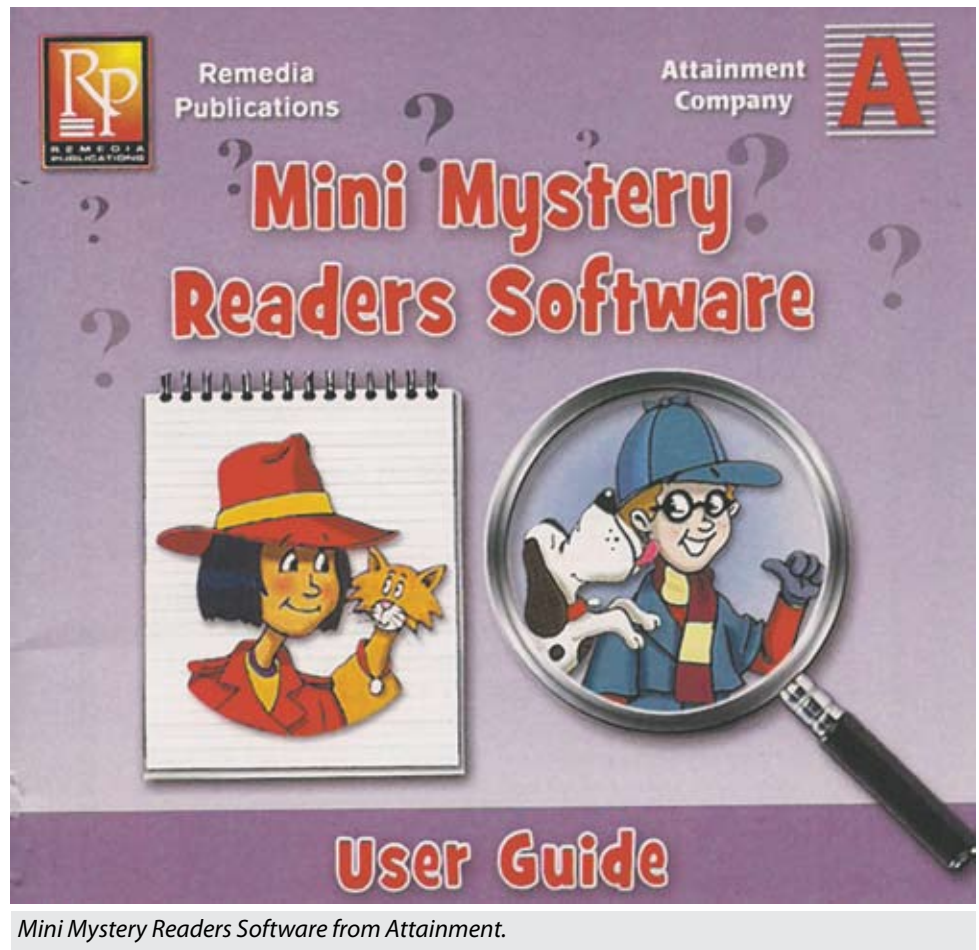
Rock Band for Wii (EA/Harmonix: www.ea.com, www.rockband.com) Wow, older children and adults of all ages will love this! Rock Band lets up to four friends form a band and play together. It includes a wireless guitar, a white set of drums, and a microphone. The drum set

has four pads, a kick pedal and real drum sticks. The Wii system also supports a second guitar, which can be purchased separately. In solo mode, aspiring musicians can sing, drum, or strum along to any song. These include classic rock, punk, 80s rock, alternative and modern rock, most performed by the original artists. The gameplay is similar to the other versions of Rock Band. To play the drums and guitars in the band, you try to keep up with the flow of notes by following color-coded cues on screen. Singers follow the stream of written lyrics on screen and match the words and pitch of the song in order to score points. There is a tutorial mode to help master the basics – pick your instrument and progress from beginner to star. In Practice mode, you can break down any part of a song at your speed and work on it. Both of these modes are excellent tools for players who want to work on skills independently or with support before joining the group! In Quickplay mode, you can pick any unlocked song and jam alone or with others. Solo Tour Mode lets a single player go on the road and Band World Tour Mode lets the whole band reach stardom. (Rock Band is rated T for mild suggestive themes in lyrics.) Rock Band is great for family fun and for peer interaction. The options for practice and tutorials make it very helpful for those who need additional assistance before entering full gameplay.

Backyard Baseball 2009 for Wii and DS (Atari/Humongous: www.backyardsports.com)

Two great new Backyard sports programs!! Backyard Baseball, for both the Wii and the DS, features animated kid versions of the top MLB players (some favorites like Alex Rodriguez, Derek Jeter) and also one pro player from each of the 32 MLB teams. All 32 current MLB team uniforms and logos are included. Choose your favorite player and create your own team – from MLB, from the Backyard team or create your own. There are All Star Games and tournament modes, along with season and single game options, mini-games (Home Run Derby and Fielder's Challenge) and unlockables (there's an unlockable Babe Ruth!!). There are multiple levels of difficulty, and fun batting and pitching power-ups. With the DS, you use the button controls or the stylus. With the Wii, you use the Wii Remote to pitch and swing. You can also go behind the scenes and meet the players, view all-time records, access your trophy and watch the intro movie again. Backyard Baseball 2009 is an excellent choice in either format for young sports fans. It's great, not only for playing the game, but for learning the rules and good sportsmanship. A long-time favorite of parents and teachers, Backyard programs by Humongous have an excellent history of presenting kid-friendly, non-violent play within a scenario of cultural diversity.

Wild Earth: African Safari (Majesco: www.majescoentertainment.com) This is an excellent new Wii program – players can explore the wild,





Rock Band for Wii from EA/Harmonix.

take pictures of exotic animals in their natural habitats, run with herds of zebra and follow hunting lions. The Nunchuk is used to move, while you point the Wii Remote to choose the direction. There are 11 picture-taking missions (i.e. follow the hyenas, observe giraffes from a helicopter, meet a family of elephants, etc.). The Impact Meter tracks how much of a disturbance you are to the natural habitat. If you disturb too many animals or get too close to them, the Wii Remote rumbles at varying degrees. The program includes more than 30 African animals. Players

can drive the vehicle or take the pictures, and they can play alone or with one to three friends. Photos collected are placed in an animated slide show with informative articles. The Safari Game mode lets you use the Wii Remote to play 11 different arcade-type games, such as Elephant Wash (use the Wii Remote to aim the trunk and shoot water), and Meerkat Madness (whack-a-mole with the Wii Remote). Players will experience the flora and terrain from the Serengeti National Park in Africa at different times of the day and in varying weather conditions. The music and sound track is excellent, too. This is a great choice for family fun.

Big Beach Sports for Wii (THQ: www.thq.com) This Wii program lets you play your favorite beach games right from your own house. Included games are: American football, volleyball, soccer, beach cricket, disc golf (golf played with a Frisbee) and bocce. You interact with each game with the Wii remote; for example, in cricket, you hold the remote like a bat and then mimic a swing to hit the ball. Up to four people can play each sport, and if it's a game that's played sequentially, you can share a single Wii Remote. The different sports can be played either as short games or as tournaments. Also from THQ, WALL-E for Wii and DS, based on the Disney/Pixar movie, let players re-live some of the movie's exciting parts, from the waste lands of Earth to the space cruiser. They can play as WALL-E or EVE, and

interact with the other robots and characters, while shooting, flying, racing and playing arcade style games. Fun for all ages, 6 and up.

Guitar Hero DS (Red Octane: www.redoctane.com and www.activision.com) This DS game comes with a four button grip that plugs into the Game Boy Advance slot of the DS. Players slide their hand through the adjustable wrist strap, cradling the DS in their palm. Notes scroll downward on the left screen and players push the corresponding buttons. They also use the included guitar pick-stylus to strum across the guitar that is displayed on the right screen. There are four difficulty levels – the higher the level, the more notes and more complicated patterns appear. There are 25 songs, most performed by the original artists. On a local wireless network, two to four players can join together to play in co-op mode, or challenge one another in a Guitar Duel. Players blow into the included microphone to extinguish a pyrotechnics effects gone wrong or use the touch screen to autograph a fan's shirt.

ABOUT THE AUTHOR

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

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	Assistive Technology:	Operator's Manual
	Switches	
	Switches Activated Software	

An Introduction to Switches, Switch-Activated Software and How it All Works

By Mark Larson

We live in a wonderful time where technology enables us to do so many things that would have been considered impossible a few years ago. However, some people can feel left out, or have diminished choices, because of physical disabilities. For example, a person may not be able to type on a keyboard or to move a mouse. In this article, we'll look at one of the technologies that enables people of all ages to use a personal computer – switches and switch-accessible software.

My introduction to switches and software came about accidentally. In 1983, I had written a computer program for a two-year old child. Two special education teachers saw the program and liked it, but could not use it with some of their students. So, we figured out how to modify the software, and how to wire a switch into the computer, and have been creating software for switch users ever since.

To understand how a computer could be used with switches (and why), lets imagine "worst case" which is also a very simple case – a user with extremely limited motor skills. Perhaps they only have one reliable muscle movement, lets say puffing with their mouth, or flexing an

eyebrow. Well, this single movement gives us two conditions, on and off. A puff means on and no puff means off, or a flex means on and a relaxation means off.

Now we only need a switch that can signal this on/off state, and software that can do what's required when the switch is hit. In effect,

“The beauty of switches is that all they have to do is connect two wires together, so you can make a switch yourself to suit any situation.”

a program that could ask yes or no questions would be sufficient. The program would present a problem or situation, and the user would answer “yes” or “no” by pressing or not pressing a switch.

A switch is simply a device that momentarily completes an electrical circuit, just like a light switch. The computer sits and patiently checks this circuit repeatedly. When the switch is pressed, the circuit is closed, and the computer responds as it has been programmed to do.

Switches come in a great variety of sizes, shapes and colors (Figure 1). Most are simple push buttons that make contact when pressed. The beauty of switches is that all they have to do is connect two wires together, so you can make a switch yourself to suit any situation. For a user who could only nod their head, for

instance, you could attach a mercury switch to a head band, so that when the head is dropped, the switch makes the connection.

Switches are usually placed on the desktop, but some are designed to be held in the hand or attached to a wheelchair. There are universal mounting brackets available for mounting switches at any angle so they can be pressed by the hand, leg, face or any other body part.

For most users, the switch you need is already available commercially. Almost all come with a standard 1/8-inch mini phone plug. For those rare situations where you might want to create your own, all you would need would be a plug, two wires, and a way for the user to connect the two wires on demand.

Next comes the connection to the computer. Computers don't have built-in switch jacks anymore. Instead, we need an interface that connects the switch to the computer in a way



Figure 1: Saltillo's Access Switch.



Figure 2: Don Johnston Switch Interface Pro 5.0.

that the computer can recognize the switch. The most common way, these days, is to use the USB port to make the switch simulate a mouse click or a key press. A typical interface is the Don Johnston Switch Interface Pro 5.0 (Figure 2, page 13), which allows up to five switches to be connected at a time. A simple push button on the device lets the user tell the interface what to do when each switch is pressed, for example, to send a mouse click.

Other types of switch interfaces include the Stealth Switch AT-5 and AT-10, which allow up to 10 switches and remember your settings for each different program you run, and the Quiz-Works Wireless Switch Interface, which allows the user to be some distance from the computer, without being attached with wires. There are many others from other manufacturers, all with unique features to suit your needs.

The IntelliKeys keyboard has two jacks on the side, making it a programmable switch interface (though not as easy to use as a purpose-built interface). There are also some special switch-adapted mice that allow you to plug a switch directly into them. These are somewhat limited in that they can only send a mouse click – suitable for many, but not all, applications. In a similar way, some switches have a USB interface built into the switch, which makes them act just

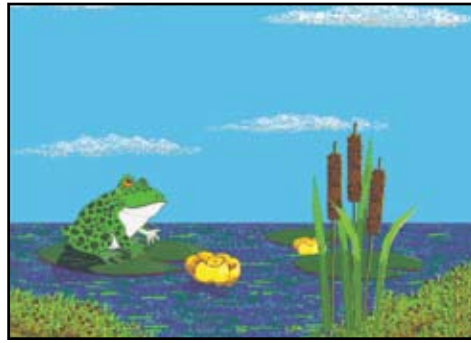


Figure 3: Hit the switch and the frog eats a fly.

like a mouse button. Again, simple, but not as versatile.

Having selected the appropriate switches and connected them successfully, the only thing left is the software. While the “yes/no” metaphor we discussed earlier describes the basic case, there are many, many ways we can make software respond to switch inputs, with incredible possibilities for interaction with the user.

Note: There are some powerful, amazing and expensive devices for using switches with “conventional” software that we are not going to mention. In this article, we’re describing software that is specifically designed for switch users.



Figure 4: Blast the aliens by hitting the switch.

Basically, switch software is designed to respond to mouse clicks or keystrokes which, not incidentally, are what the switch sends through the switch interface.

The first kind of switch software is cause and effect software. When the switch is pressed, the computer does something, random or predictably, in response. Effects could include graphics, animation or sound effects designed to provide feedback to the user. Cause and effect software is used to stimulate a young mind, to enable an unskilled user to use the computer for simple play and for switch training.

The next type of switch software provides some other type of user-controlled single-switch activity. This includes games or other activities where the student has a single choice. What separates this category from cause and effect software is that the user knows what the computer’s response will be to the switch input. For example, we could have a game where success comes from hitting the switch at the right time – zapping the aliens when they’re in the right place (Figure 4), waiting for the exact right moment to make the frog eat the fly, or perhaps flipping the paddles on a pinball game.

The third type of switch software is called “scanning” software. The user is given a number of choices. The computer scans through the choices, typically by flashing something across the screen from one choice to the other, or by paging through the choices, one screen at a time. When the user sees (or hears) their choice, they hit the switch. With scanning, a user could perform a simple activity, like playing a puzzle or game, or something much more complex, like writing a story by scanning through the alphabet one letter at a time. (While this seems like a very tedious process, there are programs that facilitate writing for switch users by incorporating facilitating concepts like word prediction and grammar checking.)

Now you can begin to see how broad a range of activities can be performed on a computer with but a single switch. Switch-accessible software can do everything from cause and effect to games to academics to e-mail and exploring the World Wide Web. So, what’s the next obvious step in improving the user experience for switch users?

Multiple switches are the next step. It's certainly true that very young users will not understand the added complexity of two or more switches, and that some users will not be able to physically control more than one switch. However, for the majority of users, adding another switch or two can make the process easier and much more rewarding.

Lets consider the three types of switch software we discussed previously. Cause and effect software could be much more interesting when used with two switches. One switch could play an animation and the other could play a sound effect. Or, one switch could play an effect while the other one changed it in some way. Five different switches could produce five different results, etc.

For user-controlled switch activities, a second switch could easily add another level of control or another set of options. For instance, one switch could move your spaceship while another shoots the aliens, or each switch could control a different paddle in the pinball game. One switch could scroll through your e-mails, while the other scrolls in reverse, or perhaps deletes a junk mail. With two switches, two separate switch users could play a game with or against each other (Figure 5).

Two-switch scanning allows a user to perform a task much more quickly than with a single switch, and with less frustration. Consider the yes/no metaphor again. Instead of waiting for the computer to scan the choices, the user uses the first switch, the "no" switch, to very quickly scan through the choices before using the "yes" switch to make a choice, i.e. no-no-no-no-yes (Figure 6). This type of two-switch scanning is called "step scanning," as opposed to single-switch "timed scanning" or "auto-scanning."

What if we add a third switch to the mix? Well, a third switch could cause the program to scan in the opposite direction, for one, or perhaps to offer another option. In general, the more switches in use, the more rewarding and less frustrating the program becomes to the user. I'd recommend two or more switches for any user who can handle them.

Switch software is available from many fine companies, including our own, in too many varieties to mention. Suffice it to say that there is an application (meaning switch, interface and software) for virtually every user. Hopefully, I've given you some information that will help you understand how switches and switch software work, some of the options available to you, and how to choose the right application for each user's needs.

If you'd like more detailed information on switches and switch-accessible software, I'll be doing a presentation, "One Switch, Two Switch, Red Switch, Blue Switch," at the Closing The Gap Conference on Saturday, October 18, 2008.

(Screen shots from New Frog & Fly by Bill Lynn, and Single Switch Games 2 and The Graphic Speller by Mark Larson.)

PRODUCT INFORMATION

- Access Switches, \$25 each (Figure 1)
- Don Johnston Switch Interface Pro, \$99 (Figure 2)
- New Frog & Fly, \$30 (Figure 3)
- Single Switch Games 2, \$60 (Figures 4 and 5)
- The Graphic Speller, \$39 (Figure 6)
- All products available from Marblesoft-Simtech, 12301 Central Ave NE, Suite 205,

Blaine, MN 55434, or on the Internet at www.marblesoft.com.

ABOUT THE AUTHOR

Mark Larson is the founder and owner of Marblesoft-Simtech, a producer of switch-accessible software since 1983. He can best be reached by e-mail at mark@marblesoft.com. ■

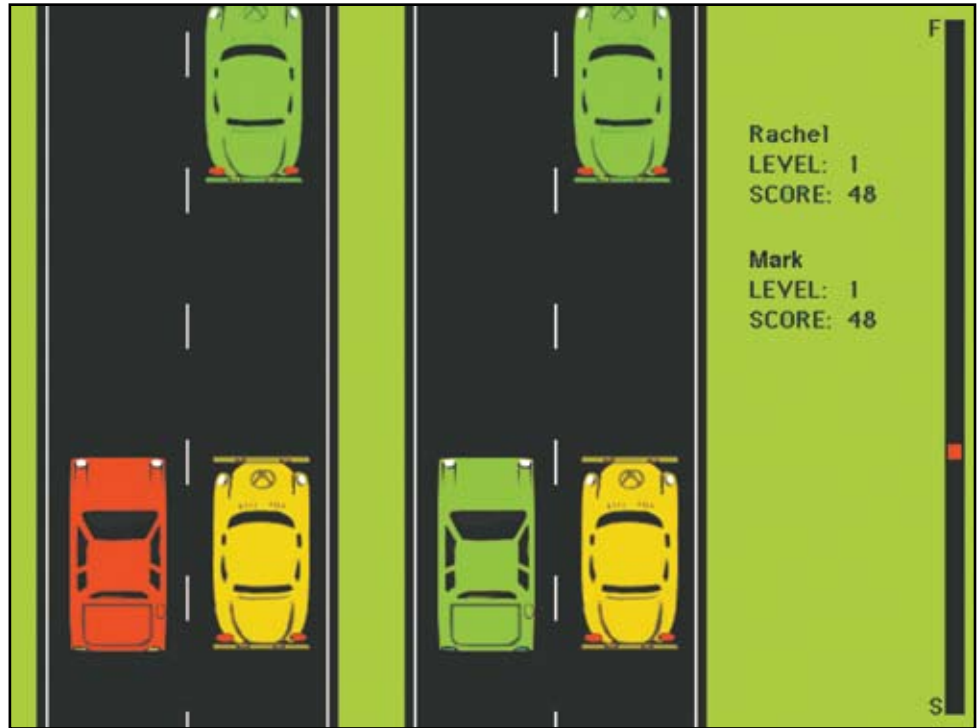


Figure 5: Two switch users play together.

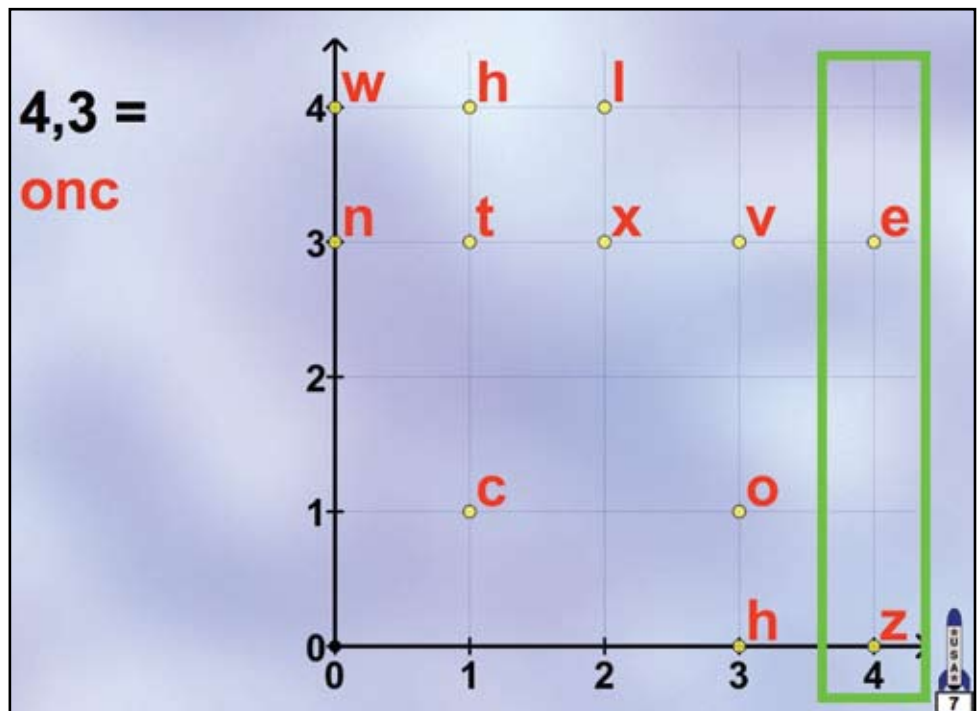


Figure 6: Two switches select the column, then the row.

Addressing Consideration in Mathematics Instruction via Technology-based Solutions

By Sean J. Smith

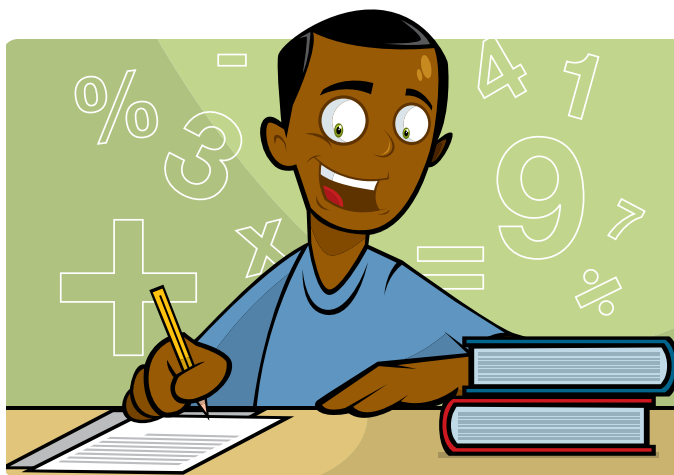


MATHEMATIC CHALLENGES FOR THE STRUGGLING LEARNER

Meaningful access to the general education classroom is something teachers, parents, and related educational professionals continually strive to accomplish for ALL learners. With the passage of the No Child Left Behind Act (NCLB) of 2001 and the reauthorization of the Individuals with Disabilities Education Act (IDEA) of 2004, educators are under tremendous pressure to increase the academic performance of all students. That is, if we are to achieve meaningful access, students need to be included not only in state assessments but also within the very content classes that prepare individuals for their respective local and state assessments.

In the area of mathematics, a primary content area assessed at the local and state level, concerns regarding the poor math performance of both students with disabilities (e.g., learning disabilities) as well as their low-achieving nondisabled peers is significant. Challenges in mathematics for students with disabilities are not a recent problem, but instead, often surface early and continue throughout an individual's education (Bottge & Hasselbring, 1993; Kelley, Carnine, Gersten, & Grossen, 1986). Likewise, the skills mathematics seeks to develop and build upon (e.g., high order, problem solving) are major hurdles for the student with a disability (Woodward, 2002), further challenging the learner as he/she progresses to the middle and secondary classroom.

To further complicate mathematics instruction, critics of the National Council on Teaching Mathematics (NCTM) standards, specific to students with disabilities, argue the constructivist-based focus, as well as the limited research, on the developed standards challenge struggling learners (Woodward, 2004). Of great concern is the shift from traditional didactic models of instruction to constructivism. As a result, schools are increasingly adopting mathematics programs (e.g., Everyday Mathematics) that embrace the constructivist approach (Woodward, 2002). Critics argue that this discovery-based approach will lead to even greater failure for students with disabilities because it lacks the direct instruction critical for these learners, as well as their struggling nondisabled peers. Unfortunately, efforts to reform the NCTM Standards are not at a point where pedagogy (e.g., spiraling curriculum) will be altered significantly to address the needs of the struggling learner. Furthermore, the continued pressure to assess appears to further frustrate the time needed to provide step-by-step skill instruction that would then shift and employ interactive scaffold instruction needed for the students challenged by mathematics (Woodward, 2004).



TECHNOLOGY AS PART OF THE SOLUTION

While mathematics, for the near future, appears to offer complexity for the struggling learner, the broad impact of technological advancements over the past two decades offer supports and even solutions in the area of mathematics instruction. The cornerstone for a number of these technology-based solutions is the universality of the hardware or software application. That is, many appear to have the essentials of universal design at the heart of the solution. For example, Texthelp's *Read, Write Gold* (an application to assist in reading) (see www.texthelp.com) has a talking calculator as part of its text-to-speech tool bar. *Google* offers a built-in calculator function, where the user simply enters a calculation into the search box and the equation with the correct answer is provided. Interestingly, the calculation can be provided as a math problem and/or written out (e.g., $2 + 3$ or two plus three). There is even a spell check component whereby users, for instance, could seek conversion information

by typing 55 celsius as feren-
hight and be corrected to search for 55 celsius as fahrenheit. While these examples are not meant to illustrate the essentials of universal design for learning (see cast.org/research/udl), instead, they offer a glimpse into technology-based solutions that are increasingly available to support mathematics instruction.

The purpose of this article is to offer a select overview of technology applications that are often accessible in the general and special education setting pertinent to the demands of mathematics instruction. In consideration of time and space, I will focus our discussion of technology-based solutions centered around building comfort on the part of the teacher, developing context for the learner,

assisting in problem-solving (specifically word problems), addressing the vocabulary of mathematics, and general applications that address particular problem areas associated with mathematics.

TECHNOLOGY-BASED SOLUTIONS FOR TEACHING MATHEMATICS

INTERNET-BASED MATH RESOURCES FOR TEACHERS AND PARENTS

The increased emphasis in raising accountability for ALL students in mathematics has led to the development of a number of Web-based supports to assist teachers of struggling students. MathVIDS (Video Instructional Development Source) (see coe.jmu.edu/Mathvids2/) is an example. Developed for the Commonwealth of Virginia, MathVIDS fundamentals are based on NCTM standards and thus, applicable across

the country. The primary theme of MathVIDS is to help educators connect why struggling learners have difficulty learning mathematics to effective instructional practices for these students. The primary features of this free site are the video models of real teachers in real classrooms using research-supported effective mathematics instruction for struggling learners. That is, users gain a visual understanding of the lesson, its key ingredients, and how it is implemented in the general education classroom. In addition, the site offers teaching plans that describe how instructional practices can be integrated to teach important mathematical concepts; a section on understanding mathematical learning problems; accommodations and instructional modifications for specific types of learning difficulties; and a new learning communities site that district, building, and teacher teams can use to enhance professional development.

LDOonline's *LD In Depth* (see www.ldonline.org/indepth/math) section also offers pertinent information for teacher, parents and related educational professionals on math-related learning disabilities, successful interventions and resources. Here, users can read from a list of recommended articles (some research-based while others are practical publications), visit recommended links, and get quick "nuggets" of information from the *Questions + Answers* area that offers frequently asked questions and responses by experts in the field.

To learn about specific technology products for mathematics, teachers and parents now have access to the free *TechMatrix* (see www.techmatrix.org) developed and hosted jointly by the National Center on Technology Innovations and the Center for Implementing Technology in Education. Developed to allow users to search for products by *Subject* (e.g., math, reading, writing) and *Learning Support* (e.g., means to organize and plan), the matrix offers a listing of 60 math related technology products organized by features (e.g., differentiation). Each *Feature* listing includes specific components. For example, Differentiation includes components like adjustable levels, multiple user profiles, student control, and teacher control. The purpose of the *TechMatrix* is to simplify the search process for a suitable product (e.g., specific to math) so that the user (e.g., parent, teacher) can determine what might work with the individual, access the product, and determine whether this product is an appropriate solution. The *TechMatrix* is not a one-stop shop for determining the answer but it is a significant piece of the technology puzzle, especially when it comes to technology-based solutions for math.

BUILDING CONTEXT/ANCHORS FOR MATHEMATICS

Shifting to a more constructivist approach in teaching mathematics complicates an individual's ability to solve problems and limits exposure

to foundational basic skills where teachers can carefully sequence content to task difficulty so that a student's working memory is not overloaded. Without these foundational skills and with an increased inclusion in general education math classrooms, students with disabilities struggle and require alternative solutions to current practice. Bottge and his colleagues have investigated the use of visual anchors in order to enhance student understanding and subsequent application of math principles within their learning (Bottge, Rueda, Serlin, Hung, and Kwon, 2007). Called Enhanced Anchored Instruction (EAI), students first solve a problem in a multimedia format and then apply what they learn in related hands-on problems. The focus of this work is to offer the learner a visual connection or context to what is being taught, and then once the individual connects (e.g., they have a visual representation) to the problem, they are often more likely to understand and appreciate the steps needed to solve the mathematical problem. Bottge's work has found that through this visual representation, the understanding of complex, multi-step problems that required knowledge of fractions, linear measurement, and representational skills can be enhanced via the visual anchor. A primary strength behind the EAI is that it directly immerses students into problem context; thus, it reduces comprehension difficulties students with disabilities and/

or students with low skills in both math and reading often experience with common text-based problems (Bottge et. al, 2007).

While the EAI model investigated by Bottge and his colleagues is not available in most general and/or special education classrooms, visual and interactive representations of math-based problems are increasingly available to students and teachers. For example, Discovery Education's streaming is a digital video-on-demand and educational resource available via the Internet. This for-pay service is available in over half the school districts across the country. Tied to state curriculum standards, the site features over 8,700 full-length videos that have been segmented into 87,000 content specifically tied directly to state and national (e.g., NCTM) standards. As one teacher recently described it to me, "it is the Discovery channel on steroids via the Internet."

Discovery Education's streaming can be streamed live and/or downloaded to be used within the classroom at anytime. The searchable interface allows one to locate resources via state standards, grade level, content, and/or a combined approach. For instance, by selecting K-2 Mathematics, I have the option of choosing from 1039 video segments organized under Algebra, Data Analysis, Geometry, Measurement, or Numbers and Operations. To further define the search, I could select Numbers and Opera-

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tions and then choose from Arithmetic, Number Concepts, or Patterns and Sequences. Each choice allows me to further define the search and thus, gain access to a limited number of video segments specific to my need.

Once I've identified my selection (e.g., Numbers in the World Grades K-2), I can then pick the appropriate segment and have it quickly download as a QuickTime video for review (Quicktime or Window's Media Player and includes Closed Captioning). The specific video also comes with suggested lessons, citations, and a Teacher Center. The Teacher Center offers an Assignment Builder, Quiz Builder, Write Prompt Builder, Classroom Manager, and a host of Curriculum Resources. While one does not generally think of movies and mathematics, these videos offer visual connectors to the learners; for example, fractions are not simply a number but edible fractions in the form of a pie, songs about fractions from which to sing along, and/or examples of fractions in everyday places. Likewise, the video segment is not limited to the computer, but instead, can be projected to a large screen where the entire class can watch, comment and learn.

Besides the Discovery resource, additional free or for-fee sites exist that offer visual representations of mathematic concepts and/or problems. These sites offer a variety of supports, some as simple as visualizing a process while others allow for the visual representations supported by the mathematical formula and relevant practice. For instance, Learn Alberta (see www.learnalberta.ca) offers an interactive Web-based resource for K-12 learners. While the site is Canadian-based and does require a username and password in order to access the entire site, there is a Guest option allowing access to a considerable amount of visual material. Upon entering the site, users will find access to information structured under grade level, as well as content areas (e.g., mathematics, health and life skills, sciences).

For instance, under mathematics, users can explore a host of interactive multimedia resources that include video, audio, and Flash simula-


tions. Junior High Math Interactive, for instance, features a variety of math terms (e.g., percentages, exponents, polynomials, etc.), including your basic triangles. Exploring and Solving Triangles features an approximately 30-second QuickTime video of how triangles are an integral part of our architecture and thus our environment. At the end of the brief movie, users are able to select an Interactive, whereby a photo is provided and the student is asked to use their mouse to click on a triangle. Upon selecting the appropriate triangle, the interactive provides two triangles with missing values and asks the user to provide a number for the x and y variable. Next, the student can check their work where the complete formula appears stating the answer is correct or asking the user to Try Again. Of course, this is a simple example, but the idea being that free visuals exist for teachers, parents, and students to investigate that offer multi dimensional representation, as well as math formulas from which to begin to practice.

In considering visual-based supports, we should thank YouTube (see www.youtube.com) and similar resources that are pushing the envelope in what is possible while demanding an Internet where streaming video/audio is increasingly faster and available for all users. Teacher Tube (see www.teachertube.com), of course, is the safer alternative to YouTube offering teachers a place to post, view, discuss, and generally engage learners. The Apple Learning Interchange (see edcommunity.apple.com) is a similar site that hosts a variety of resources for teachers and students. I am particularly impressed with the Community that has developed where teachers have posted videos illustrating how video and audio can be used to instruct content. Structured around content areas, users can visit, enroll, and generally get ideas on how visual-based instruction can engage and enhance learning. Teachers and parents can search via grade level, academic area, tools, and even a creative commons area.

For example, under Secondary Mathematics, the lesson Data Modeling with Nike + iPod in Mathematics presents the visual summary of a lesson that used interactive graphing software (Apple's Grapher), iPods, and Nike Shoes to collect and analyze data to make predications about calories burned on future walks/runs. The two-minute and 23-second QuickTime video illustrates how a typical lesson can be enhanced via an engaging anchor. While not targeted for the learner with special needs, the hands-on experience allows for all learners to participate and problem-solve a challenge associated with daily life. Teachers might not use the video and/or accompanying resources in his/her classroom (e.g., lesson plan, Nike Shoes), instead, the lesson, as well as the entire Interchange offers examples from which to explore possibilities. Likewise, the Interchange Community allows for professionals to engage in discussions on what has worked, ingredients for success, hardware/software questions, and related resources applicable to teachers wishing to build their own anchored-based videos. Yes, at the end of the day, the site does attempt to inspire visitors to develop their own educational resources using Apple's iMovie (see www.apple.com/ilife/imovie). Personally, this last component is something that offers great promise.


Whether working from a Windows or OS operating system, access to Apple's iMovie or Microsoft's MovieMaker (see www.microsoft.com) is typically free. I stress "free" because these applications are typically available to all teachers that have access to a computer (regardless of platform), as well as the families with home computer access. Access means potential use on the part of the teacher and/or directed by the student. Take a simple lesson where the teacher wants students to explore shapes, their specific attributes, identifying their area, and related geometric principles. To begin, students could be directed to locate and photograph (or video) these shapes throughout their school, community, and home. The photos would then be uploaded into iMovie or MovieMaker, where the teacher and/or his/her students could edit the images, add transitions, offer audio commentary, music, or basic sound, and integrate other components, concluding with a short film. In this way, context (or an anchor) has been provided relevant to the shape, and students are engaged in the experience, enhancing meaning and subsequent comprehension.


While time will limit the number of video productions, video-based experiences can be targeted to anchor a series of lessons and/or a unit.



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Similarly, the activity (like the Nike + iPod experience) can serve as the completion of an activity (e.g., EAI) to contextualize the classroom instruction. For teachers and students not technology proficient, Atomic Learning (see atomiclearning.com) and similar on-line tutorials are increasingly being made available for quick visual tutorials in how to use particular software. Besides technology skills tutorials on video editing (iMovie and Moviemaker), Atomic Learning's Training Library offers tutorials on the basics, as well as advanced features of Microsoft's Word, PowerPoint, and Excel. Most of the instructional technology available in schools today is included in their collection of on-line tutorials (e.g., Inspiration, Kidspiration). Segmented into brief one- to three-minute trainings, this site is perfect for the busy professional or parent to sit down in their PJs at the end of a long day and get a crash course on an application. I should note, Atomic Learning recently added an Assistive Technology Tutorial Collection including software solutions like Boardmaker, Don Johnson's SOLO and IntelliTools.

PROBLEM-SOLVING AND TECHNOLOGY-BASED SOLUTIONS

Math problem solving, especially the demands of word problems, often confuse and frustrate struggling learners. Whether it is the inability to comprehend the text and distinguish relevant from irrelevant information, approaching the solution in a systematic way, and/or having the ability to actively think through a problem employing specific strategies along the way, word problems challenge students with disabilities, as well as their nondisabled peers.

One software application accessible to most general education classrooms that is founded on the principles of solving word problems is *Inspiration* (see www.inspiration.com). Yes, known primarily as a reading and writing application, *Inspiration* (grades 6-12) and *Kidspiration* (preschool-5) provide essentials to assist math instruction, especially in the area of word problems. That is, *Inspiration/Kidspiration* offer tools allowing students to actively investigate and explore math concepts; apply what they have previously learned to the problem; form pictures (literally) to represent the math concepts and to visualize (while breaking down the key components) of a word problem; and determining the essentials of the word problem in order to solve the challenge.

Kidspiration, for example, comes with templates or pre-developed math activities for the teacher, parent, and/or student to use. These Math Activities include templates for Estimation, Alike and Different, Factor Maker, Fractions and Decimals, and a host of other topics. Similarly, teachers and students can develop their own visual maps using terms, pictures, movies, graphics, and embedding sound for the struggling reader. Favorite photographs or images off the Internet can be imported to further

contextualize the math problem. Likewise, teachers and others have developed *Kidspiration* templates and made them available via the Internet (google *Kidspiration* templates). For example, T.O.G.E.T.H.E.R (see www.globalclassroom.org/together/kidspiration.html) features a list of *Kidspiration* files created by teachers for teachers organized by grade level and content area, including a brief description, and ready to be downloaded via a click of the mouse.

For word problems, *Inspiration* offers an interactive tool that integrates the effective schema-based learning strategy for solving word problems. That is, schema-based learning is a procedure whereby students are taught an organizational framework that serves as a means for depicting the numerical relationships between elements of word problems (Jitendra and Hoff, 1996). Through this process, students are taught to diagram the word problem, identifying the mathematic equation and then solving it. *Inspiration*, with its visual mapping, offers the learner a tool to show relationships using images, color, sound, pictures, or a host of other tangible components. For example, if the word problem identifies quantities of fruit, the learner can include images of fruit (e.g., apples, oranges), organize the fruit based on the problem, separate the fruit into specific quantities, connect a number to the amount of fruit, and "write" out the specific equation that the word problem seeks to answer. In addition, *Inspiration's* Symbol Library, various effects, tools like its Word Guide (defines any vocabulary term), and other components allow for a flexible tool supportive of numerous content areas, thus enhancing use by the teacher and student.

It should be noted I emphasize *Kidspiration* and *Inspiration* because of its broad availability, use across curriculum, and the fact that the cornerstone of its visual mapping and graphic organization is conducive to the struggling learner. With this said, there are other software applications available to teaching and assisting in word problems, such as Tom Snyder's (see www.tomsnyder.com) Go Solve Word Problems and Math Mysteries. These software programs teach students to recognize mathematical situations in word problems, comprehend problems with the aid of graphic organizers, and plan solutions with addition, subtraction, multiplication, and division. Again, the TechMatrix offers an interactive tool from which to search and identify additional products relevant to this area. Likewise, other Internet-based word problem sites include Math TV (see www.actionmath.com), an interactive math site for middle school students to visualize word problems and related math concepts, Math Playground (see mathplayground.com) which features interactive word problem activities, and Thinking Blocks (see thinkingblocks.com), an interactive math tool developed by classroom teachers to help students learn how to solve multi-step word problems.



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TECHNOLOGY SUPPORTS FOR BROAD MATHEMATICS APPLICATION

Math Vocabulary. The language of mathematics often challenges learners and further complicates the organization of ideas, establishing the steps to solve problems, and similar critical components of math instruction. If a student does not have a comfort with the basic vocabulary building, conceptual knowledge and understanding will be further frustrated. One free Web-based application that seeks to define (in an interactive manner) math terms is A Math Dictionary for Kids (see www.teachers.ash.org.au/jeather/maths/dictionary.html). Developed by Jenny Eather, the site features a colorful alphabet, whereby the user selects a letter and a host of math terms appears for further understanding. For example, when selecting Aa, 37 words appear, from abacus to axis. Next, the user selects the term from which a definition is provided. For instance, the term area comes with two brief definitions, as well as interactive grid, where users are asked to select from six shapes and drag them over the grid and count how many square units. In addition, users can select a link for an area calculator showing the formulas necessary to determine the area for Rectangles and Parallelograms, Triangles, and Circles. There is also a link where the standards units for area (e.g., metric and imperial system) are listed. As a result, the user gains the basic definition for area, and also has a tangible tool to apply the idea, interact with formulas for determining area and is reinforced on what units are used to measure area. Other math vocabulary sites include Math Words (see mathwords.com), Harcourt Math Glossary (see www.hbschool.com/glossary/math2/index_temp.html), and Math.com's Glossary (see www.math.com/school/glossary/glossindex.html).

Math Manipulatives. Manipulatives are a popular approach for teaching abstract concepts that are essential for understanding and performing mathematics. Teachers and students have employed a variety of math manipulatives, including cubes, counting sticks, shells, jellybeans, blocks, crayons, stickers, and a host of other items. Through the Internet, teachers are increasingly using virtual manipulatives. Currently, there are a host of sites that feature interactive manipulatives, including the primary resource, National Library of Virtual Manipulatives for Interactive Mathematics (see www.nlvm.usu.edu), Project Interactivate (see www.shodor.org/interactivate), and NCTM's Illuminations (see www.illuminations.nctm.org). Many of these sites are organized by grade, as well as NCTM standard, in order to connect the activity to an expected lesson and outcome. For example, the National Library of Virtual Manipulatives features a wonderful table whereby resources are organized by grade level, as well as mathematical topic (e.g., Algebra, Numbers and Operations). An added feature to this structure, especially for the student with a disability, is that an activity developed for Numbers and Operations for grades 9-12 could also be found under grades 6-8, if not a lower grade. Thus, a struggling student at the high school level who needs a tool, but not at the complexity of the high school reading or related curriculum, could locate an interactive tool for a given topic at a level of complexity more suitable for his/her needs. As a teacher has described it to me, "it takes out the Barney factor." That is, it is suitable at the level they are functioning while respecting their age and interest level.

Analyzing Data. Math and science curriculum increasingly require an ability to analyze, manage, and understand data. For a fourth grader, this could simply mean his/her ability to compare her 100 meter dash time to that of a peer. Likewise, the elementary, middle and secondary school's Science Fair Projects require the collection of data, analyzing to make sense of it, and then sharing it in a manner that makes sense

of what was found. With this in mind, I feel compelled to mention not only Microsoft's Excel, but also Inspiration's InspireData (see inspiration.com/productinfo/inspiredata). This application will incorporate Excel and other applications' spreadsheets; however, the beauty of InspireData is that it lets students see the data move right before their eyes with just the click of an icon. They actively explore and analyze data using dynamic Venn, bar, stack, pie and axis plots to interpret information and draw conclusions. Students or teachers can color code information, select icons that visually represent the data, and easily move from one format to another enhancing their ability to build data literacy. In short, it takes the easy-to-use visual mapping of Inspiration and applies it to the traditional spreadsheet displays of programs like Word and Excel. As a result, an understanding of the data and an easy-to-use format to manipulate the data is available to the student and teacher.

FINAL THOUGHTS

In closing, the challenges associated in learning mathematics will continue to grow as NCTM standards and related curriculum focuses on practices that emphasize areas of weakness for the student with disabilities and their nondisabled, but struggling, peers. One tool that needs to be further investigated and subsequently integrated into mathematics instruction is the use of technology designed to teach mathematical concepts in non-traditional ways. As this article has attempted

to convey, there are a number of applications (Web-based and software) available to teachers, parents, and students. While many solutions were not developed solely for the mathematics curriculum, they are available and applicable to the primary needs of the struggling student. Similarly, as the TechMatrix identifies, the volume of mathematics software applications grows exponentially, offering continued access to interactive solutions.

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ABOUT THE AUTHOR

Sean Smith is an Associate Professor, Department of Special Education at the University of Kansas. He can be contacted at seanj@ku.edu. ■



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A Writer, a Pencil, a Reason and a Teacher



(Actually – no pencil required)

By Samuel Sennott, Christina Cahill, Shelly Major, Nicole Nordal, Charity Smith-Engelin, Cassie Rubenstein and Joslyn Silverman

After six intense weeks of Nova Southeastern University's TLC Summer Writing Camp for users of augmentative and alternative communication (AAC), one of our team members said about the students, "They love writing now! Look at them, they just can't wait to do it." The six-week camp was designed with the goal of helping users of AAC, ages 8 to 12, become better writers. The primary intent of the camp was to develop and implement systems, curriculum and materials that would help the students grow in the writing process, both now and into their next school year. A secondary goal was to look for potential research questions to be studied related to users of AAC and the writing process. While the students all grew in writing experience and skill acquisition, seeing this "love of writing" demonstrated by the students, was by far the biggest observable success. Like many elementary school programs serving children with complex communication needs, our summer camp had a group of students with a fairly wide range of skills and knowledge in the writing domain. In processing the name for this article, which is also now a workshop, we start with the individual, the writer. These writers had varying levels of experience, from being emergent writers who have had little access to using the alphabet to more experienced writers who

spell to communicate, letter by letter. Regardless of their level, we realized that they could grow from working on better access to writing. We summarized the concept of access into the term Pencil. Writers, who have metaphorical pencils in hand and are ready to go, now need something meaningful to write about. We summarized motivation and the purpose of the writing into the term Reason. Students who have access to writing and a reason to write are in a place where direct instruction is important in the scaffolding of their development. We simplified this into the term Teacher. Put together, we have A Writer, a Pencil, a Reason,

"Alternative pencils are techniques and tools that allow learners to access the alphabet in whatever way that successfully works for them."

and a Teacher. This article is intended to report on the development of curriculum, the results of the work in the camp, and the discovery of potential research questions.

ACCESS TO WRITING

At the most basic level, to become a better writer, you need access to a pencil, or in other words, a way to put letters and words onto a page. Frequently, individuals who either cannot use or have great difficulty using traditional writing implements, such as a pen or pencil, experience decreased or little access to writing. Alternative pencils are techniques and tools that allow learners to access the alphabet in whatever way that successfully works for them. In particular, Dr. Gretchen Hanser, of the UNC Chapel Hill Center for Literacy and Disability Studies, has championed the concept of the alternative pencil by frequently presenting about them and ways to use them. She directs

The Literacy and Communication Model Demonstration Classroom Project for Students with Deaf-Blindness in North Carolina and has posted a series of videos of beginning writers demonstrating the use of alternative pencils. The videos can be found here, under case studies: www.med.unc.edu/ahs/clds/DBhomepage.htm. Each student in our camp program utilized a number of alternative pencils, both high and light tech. Here are a few.

Alternative pencils like this (Figure 1) can be used either with direct selection or with partner assisted scanning techniques. Two simple ways to get started with scanning using an alternative pencil like this are to scan every letter and to scan page by page. When scanning every letter, the partner reads each letter slowly as they point to it or highlight it with a flashlight or laser pointer. The writer just needs to be able to say yes or no to control the partner to go on to the next letter or write the letter they choose. If the writer only has the ability to indicate yes, not saying anything tells the partner to go on to the next letter. When scanning page by page, the partner can either say the letters on the page or just ask if it is on "this



Figure 1: Alphabet flip chart alternative pencil.



Figure 2: Large foam tactile alternative pencil.

page." However you choose to scan, it is helpful to scan consistently through options of "space," "delete," and any other punctuation or shifting options available.

For students with vision impairments, various types of tactile components (Figure 2) can be added to the letters. Additionally, there is an excellent tactile and Braille-based alternative pencil on the resource titled Writing with Alternative Pencils CD from the UNC Center for Literacy and Disability Studies.

Light tech alternative pencils can be styled after high tech versions students are using on their devices. This one is styled after the default keyboard arrangement of the tango! AAC device (Figure 3).



Figure 3: tango styled alternative pencil.

Other alternative pencils to consider are various on-screen keyboard configurations, various adapted or large key size keyboards, and alternative keyboards. For more experienced writers, the focus of the access work was on the best ways to integrate levels of text to speech, word prediction, graphic organizing, and inter-connectivity with their AAC devices.

CONNECTING AAC DEVICES

Students who have AAC devices can connect them to enter text to word processing software on a computer. At this point, the best way to get current information on how to connect specific AAC devices to computers is to go to that company's product support page on their Web site. In connecting AAC devices to computers this summer, we saw that there are ever expanding applications for this, such as sending free text messages; connecting both text output and your audio output to Skype, the internet telephone service; and writing into a blog, to name a few.

THE WRITING SUPPORTS EXCHANGE

• www.onetoonethousand.com

The Writing Supports Exchange is a project that seeks to provide a forum for individuals to share the light tech and high tech alternative pencils that they create, as well as graphic organizers, links to lesson ideas, and more. The goal is for users of AAC, teachers, therapists and parents to be able to easily access writing tools

and ideas to try. The basic premise is that if a group of individuals take time to share a writing resource they have made, then as a community, we can synergize efforts.

MOTIVATION AND WRITING

Did you dislike writing as a child or adolescent? There are many people who claim they despised writing as a student in school. We wonder how much of that dislike was due to not being able to write about individually motivating and interesting topics. Motivation and the "reason to write" are essential for all writers, but all the more important for writers with special needs. Students who struggle to physically access the writing process can tip those scales by being highly motivated to write. Determining what students are interested in, helping them connect to multimedia, and helping them write for real reasons are powerful ways to create a writing block filled with opportunities to write with a high motivation level. Here are some specific ways to help in that process.

PROJECT 365

Writing about pictures from your life is meaningful. Project 365 has a simple goal of taking one picture per day for a year. This idea was originated by Taylor McKnight from the Photojojo Web site and has been made popular in education, in part, by Pam and Josh Harris frequently presenting about its benefits for students with communication needs. This can be highly motivating to students because they can write about stories that are personal to their lives. Also, taking frequent pictures can serve as an anchor for coming back later to write about the experience. For students who have challenges communicating, it can be a simple, yet powerful way to archive stories. To make the pictures and writing even more interactive, you can post them to a photo-sharing site like www.flickr.com or to a blog site, such as www.blogger.com or www.wordpress.com. Even if you can't keep up with a picture a day, writing about pictures from your life is relevant, motivating and interesting.

Charity Engelin Smith, an SLP on our team, recounts about one particularly motivating experience that we took pictures of and wrote about.

"As an SLP, I've noticed that in order to get an interesting response, you must have interesting stimuli. In other words, if you want the children to write about something, it can help them to provide something interesting and exciting to write about. To accomplish this, I took my parrot Einstein to the camp. When it was question and answer time, the kids were very excited and began to use their devices to ask me questions about Einstein, such as where I had acquired her, and why did she make a squawking sound when she saw food. Finally, we made a list of words that the children could select while writing and gave them a chance to write about Einstein. They were so excited about having a parrot coming around to observe them that they got started immediately! One more tip: Things become more interesting when they are seen, felt, heard, smelt and tasted in real life, so when inspiring children to write, try to expose them to as many actual life experiences as possible."

VIDEO WRITING CONNECTIONS

Connecting to video can be a powerful motivator for writing that can also work to build background knowledge. YouTube has become a startling phenomenon, where hundreds of millions of videos a day are watched and every minute, ten hours of video is added to the YouTube site. This free resource, when properly harnessed, can be a powerful learning tool. Students, especially today's digital natives, seem drawn to multimedia. As a motivator and tool in the writing process, you can connect to curriculum content, students' personal interests, and even humor. Connecting to video based around science (Figure 4) and social studies content can be a useful way to interact with curriculum and state standards. National Geographic and the Discovery Channel both have terrific YouTube channels. If you would like to use a more elegant solution, Discovery Education Streaming has over 4,000 full-length videos and up to 8,000 in the Plus Edition. www.discoveryeducation.com/products/

Title and Date	Teacher Note
Scribbling, 6/10/08 l aea. l aieiae	First attempts at using spelling
Do Not Enter, 6/17/08 Vieb	Clearly and passionately chose topic from recent experience
Dad Visiting, 6/20/08 wqhmyyanah ted dhfchlmhj nftyjig	Looked up clearly at father when trying and then having eventual success writing "d."
Jo-Jo Circus, 7/1/08 Dxxxaz aabac mb v bj hk	In the brainstorm/organizing notes section of the writing, student brainstormed the words Jeremy, bear, and house. Note those letters come up in the w.

Student Writing Samples Using an Alternative Pencil, most days including a self-selected image.

streaming This is a popular resource in US schools, so check to see if your school already has access.

Hip Hop music, High School Musical (Figure 5), Hannah Montana, skateboarding, sports, modern art, or cool cars can all come to life with the power of video and help motivate students to write. By connecting to high interest subject matter, the writer can take advantage of their prior knowledge of the subject and the vocabulary associated with the subject. Students may want to incorporate the video or connecting images with their writing.



Figure 4: **Connecting to science** – a YouTube video of lava entering the Pacific Ocean in Hawaii.



Figure 5: **Connecting to high interest subject matter** – a YouTube video of a song from High School Musical.



Figure 6: **Connecting to humor** – a YouTube video of Gizmo flushes.

Creating a blog is a terrific way to accomplish connecting the media.

A benefit of bringing humor into writing is that it can create an “I’ve got to say something about that” feeling. Observe people watching something funny, and often they just can’t help but comment. While using humorous videos may not be appropriate every day, they can spark a writer’s interest and motivation (Figure 6). Yet, if lessons are carefully designed, both high interest and humorous videos can be tools to help fuel more lengthy expository writing pieces. Overall, using videos connected into the writing process can start meaningful conversations, increase motivation, and build background knowledge in a variety of subject areas.

CONNECTING TO LITERACY

Keeping a journal about books you have read can be a simple and fun way to connect reading and writing. Connecting writing can help students become readers, focus their purpose for reading, and give them more to say in their writing (Cunningham, Allington, 2007). In connecting our reading and writing blocks, we found that students were eager to extend both the guided reading block’s reasons for reading into their writing and also create many kinds of writing pieces based on self-selected readings. Having a large variety of high interest books was incredibly helpful for providing customized electronic bookshelves for the students. Check out this on-line resource for accessing over a thousand books: www.alltogether.wordpress.com/2008/08/07/accessible-books-launcher (Figure 7).

DIRECT WRITING INSTRUCTION

Self Regulated Strategy Development (SRS) is a writing instructional approach that incorporates explicit teaching of strategies for general writing and for genre specific work and has been validated with over 40 studies with students from second grade through high school (Harris, Graham, Mason, & Friedlander, 2008). As we were planning for the camp, we were very excited to teach day after day of mini-lessons focused on two chosen strategies POW and WWW, a story writing strategy, and POW and TREE, an expository writing strategy (Harris, Graham, Mason, & Friedlander, 2008). Yet, when the students arrived and we fully realized that over half of the group had little to no previous access to writing with the alphabet, we realized that trying to teach more structured genre specific writing strategies may have an adverse effect on their understanding of what writing is about. We opted to teach a general planning and writing strategy, POW, which stands for pick your idea, organize your notes, and write and say more. It turned out to be a helpful and flexible way to coach the beginning writers and a terrific way to introduce additional strategies and graphic organizers to the more experienced writers. Mini lessons about topics such as technology integration and organizing your brainstorming, frequent conferencing, editing checklists based on what the students were working on, and connecting our working with words block to the writing process were other helpful parts of our direct instructional component of the writing camp.

Viewing a group of students with diverse writing skills come together, find their pencils,

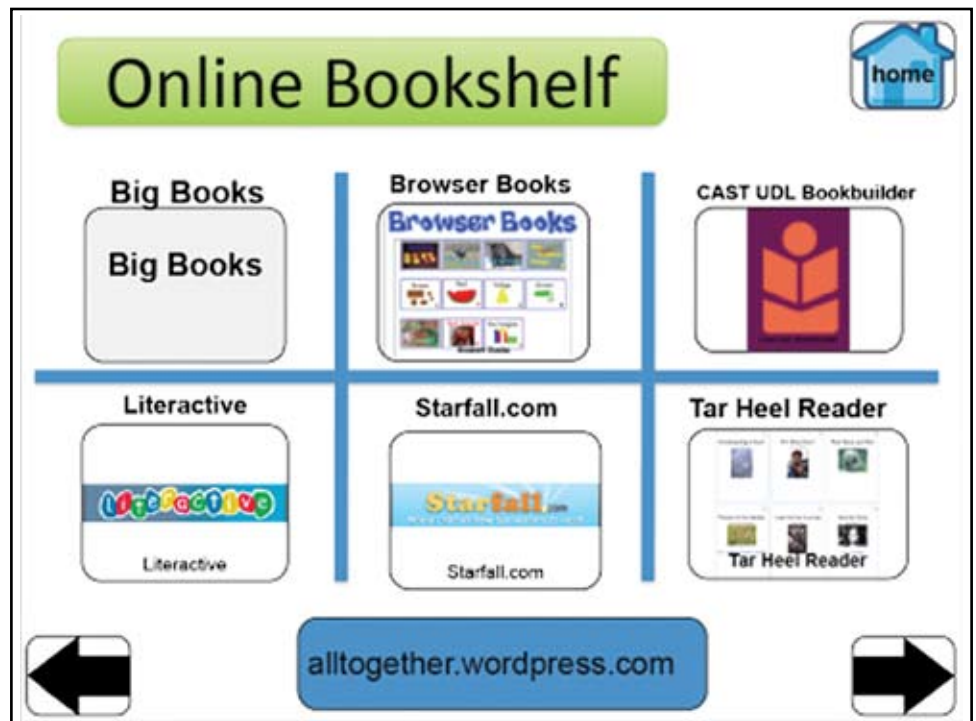


Figure 7: **Accessible Book Launcher** – This continually growing online and downloadable PDF resource links out to books for beginning readers across the age span.

connect to topics and interests that they like, and work on applying their writing strategies was a terrific experience for all. Yet, the best aspects were the students' passion for expressing themselves through writing and the friendships made. Doing this in the context of a fun and engaging summer camp made it all the more worthwhile.

Research questions to consider...

What are the effects of daily access to writing with an alternative pencil for older writers who have had limited exposure to the writing process? What happens when phonics instruction is connected?

What is the effect of providing access to content that has a very high interest level to the student related to their writing output and frequency of writing attempts across school and home?

What is the effect of providing general SRSD style strategies to help successfully structure a daily writing block for users of AAC who are beginning writers?

What is the effect of providing various SRSD style strategies for users of AAC who are writing at the sentence level?

How does connecting video to the writing process build background knowledge for beginning writers?

RESOURCES:

Accessible Book Launcher – www.alltogether.wordpress.com/2008/08/07/accessible-books-launcher

Alternative Pencils

- The Center for Literacy and Disability Studies Writing with Alternative Pencils CD www.med.unc.edu/ahs/clds/resources.html
- Writing Resource Exchange: www.onetoonethousand.com

Project 365

- Project 365 background information www.photojojo.com/content/tutorials/project-365-take-a-photo-a-day
- Blog Entry by Pam and Josh Harris www.alltogether.wordpress.com/2008/01/24/project-365-er6

Video Connections

- Discovery Education Streaming www.discoveryeducation.com/products/streaming
- Content, high motivation, and humorous video writing setups www.alltogether.wordpress.com/2008/07/08/video-writing-setups
- Freely download YouTube videos at www.zamar.com Guide found here: www.alltogether.wordpress.com/2008/06/04

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AUTHOR CONTACT

Samuel Sennott can be contacted at Samuel.sennott@gmail.com. ■



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New, Inclusive “Flat Friends” Project Promotes Active Communication and Connection for Students of All Abilities

Using fun templates that support writing, comprehension and language development, students of all abilities can interact with others around the world

By Suzanne Feit and Jane Odom

For over a decade, students in traditional classrooms across North America have delighted in cross-curricular activities based on Flat Stanley,* the popular character from the book of the same title written by John Nash. Now, students can use technology and augmentative and alternative communication (AAC) devices to join in on the fun!

Prentke Romich Company (PRC), a worldwide leader in AAC technology, has collaborated with Cambium Learning Technologies to launch the “Flat Friends” project, which gives teachers and their students an entertaining and educational way to connect with others via the Internet. Using Classroom Suite, students will be able to experience life outside the classroom and travel virtually to places around the world.

“Inspiring creativity and building community while having fun enriches learning,” says Russell Cross, PRC’s Vice President of Product Management. “As an employee-owned company dedicated to enabling communication without limitations for those with speech disabilities, we are excited to collaborate on a project that will enable AAC users and others to network with fellow students worldwide while enhancing literacy.”

Flat Stanley activities typically extend into numerous curriculum areas. In Language Arts, for example, students compose letters to introduce Stanley and mail his picture to friends to decorate and mail back. The letters and pictures that are returned are incorporated into reading, geography, art and math lessons.

The Flat Friends project is similar, but adds a twist. Students will meet new “flat” characters – including Flat Chase, Flat Caroline and Flat Hoover, a rescue dog who uses a wheelchair – and accompany them on adventures. In addition, students can become flat themselves and share their pictures, biographies, thoughts and stories on the Internet. They

also can share pictures of their pets or neighborhoods, and upload audio files.

As teachers incorporate the lessons and modify templates in Classroom Suite, their students will have the opportunity to learn more about the locations of their new flat friends, as well as the similarities and differences in their schools and communities.

The Flat Friends activities can be downloaded by teachers and students everywhere, whether they use AAC devices or not, making the project truly inclusive.

Templates and activities are being developed using IntelliTools Classroom Suite platform, and are paired with educational standards, lesson plans and measurable goals. The variety of templates and activities provides an opportunity for students to participate at many different levels, and supportive writing prompts, story starters and language pattern strategies are in place to promote student success.

Flat Friends materials are being tested in AAC classrooms, as well as regular education and special education programs at numerous schools around the country. We are also including a group of adult AAC users in Arizona to gauge the potential of the technology to help people of all ages with writing, literacy and international networking.

While the project will not officially launch until early 2009, initial activities and templates are available now at the Activity Exchange section of the IntelliTools Web site at www.intellitools.com, and from the Teaching Materials Exchange section of the PRC Web site at www.teaching.prentrom.com (Flat Friends activities begin with the letters “FFP”). Several of the creators will also be introducing the project at the Closing The Gap Conference in October.

FLAT FRIENDS CREATORS ARE INDUSTRY COLLEAGUES

The Flat Friends project began with a team of speech and language and assistive tech-

nology consultants from around the country who donated their time to develop the initial activities. Collaborators include Suzanne Feit, Curriculum Development and Training Specialist with Cambium Learning Technologies; Jane Odom, M.Ed., Educational Segment Manager for PRC; Dan Herlihy, AT Specialist, Connective Technology Solutions; Dr. Caroline Musselwhite, CCC/SLP, AT Specialist, AAC Intervention; Patti Rea, Adaptive Technology; and Byron Wilkes, President, Learning Magic, Inc.

BECOME PART OF THE “MOST RELIABLE NETWORK”

Because special education teachers can’t always follow a specific curriculum and have to be creative and versatile to meet the needs of their students, the support they can give each other is invaluable. That support is also the basis for the AT-Most Reliable Network that the creators of the Flat Friends project are hoping to build among teachers, therapists, parents and assistive technology users around the world. By sharing best practices in integrating teaching and technology, network participants hope to ‘close the gap’ by enabling more students to find their voice and connect with others around the world.

To join or learn more about the Flat Friends project, contact Joan Odom at 1-800-262-1984, ext. 476 or jmo.cons@prentrom.com; or reach Suzanne Feit at SFeit@intellitools.com

More details about the Flat Friends project will be presented in October at the Closing The Gap Annual Conference in Minneapolis. Plan to attend the “AT: The Most Reliable Network” session on Saturday, October 18, 9:30 - 10:30 a.m.

ABOUT THE AUTHORS

Suzanne Feit, M.S., is a Curriculum Development and Training Specialist with Cambium Learning Technologies; Jane Odom, M.Ed., is Educational Segment Manager for PRC.

* Flat Stanley is copyrighted and is not used in Flat Friends activities. ■

MEET THE FLAT FRIENDS

Initial activities introduce students to Flat Chase, a 9-year-old from Arizona; Flat Caroline, a 10-year-old from Texas, and Flat Hoover, a rescue dog who uses a wheelchair. Teachers can download their biographies to learn more about them and copy and paste them into classroom scenes and then encourage students to share stories.

Sample activities – All activities will begin with the letters FFP (Flat Friends Project)

- Join the network by downloading the FFP Invitation to Visit letter. Using the brainstorming letter template, you can compose the letter to invite Flat Chase to virtually come and visit your class. You will tell him what clothes, food and activities that you can share with him when he arrives. The letter can be sent via e-mail. The response will be story written by Chase who is 9 and lives in Phoenix. You will also get graphics to virtually put him into your stories and share your activities on the activity exchange.

- The FFP Hoover and Me and FFP Bio-Auto are two templates that encourage students to learn to write their autobiographies. These

templates provide students with an example or partner assisted modeling to help understand how to compose a biography vs an autobiography.

- Two ready-to-use templates from Patti Rea are the “Flat Friends Puzzle” and “Flat Caroline and Flat Chase Visit the Farm.” Both encourage writing about the two characters as they explore life on the farm. After opening the puzzle and clicking the mouse to reveal puzzle pieces, the student hears a farm animal sound as the scene builds. When the barn is finally revealed, an animation shows both characters surrounded by the animals.

When opening and exploring the book, the student has numerous pages with farm animal photographs pre-inserted. Each page has a toolbar containing both characters and additional animal graphics to insert into the scenes. A text box is also provided so students can write a unique interpretation about each page of the book.

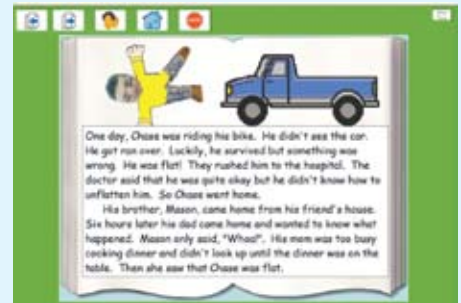
- Three activity sets from Learning Magic, Inc. let students direct Flat Chase and Flat Hoover on multiple paths during adventures to various geographical destinations, including Arches National Park in Utah. Each

page has either a photo or short video of the environment. A reading and writing activity is provided to provide further background content about the place the student is visiting. Students can also write or express their own thoughts about what they have learned by clicking on a toolbar that inserts pictures of the environment onto a page. An optional comprehension activity quizzes students on their understanding of where Flat Chase and Flat Hoover have visited. Built-in grading and data collection capabilities are included.

- Imagination-based activities developed by Dan Herlihy tie into the kinds of Flat Stanley activities that students have been enjoying for years. These include “addressing an envelope” to write to their new flat friends and mapping “My Flat Friends” to show states where they’ve received mail from pen pals. The “Easy Animate/My Flat Image” activity lets students create a flattened version of themselves to animate, and a Prepositions activity lets them animate their flattened image up, down, inside, and more.

NEWS-2-YOU TO FEATURE FLAT STANLEY, THE INSPIRATION FOR FLAT FRIENDS

News-2-You, the weekly online newspaper for beginning readers and individuals with special needs, will feature Flat Stanley in its October 20 newspaper, covering the story of his creation and the theater company now touring with a musical adaptation of the concept. The newspaper is produced in four different reading levels and includes over 50 activity pages that use the Flat Stanley vocabulary to target specific academic areas. Online games, a cartoon, and a storybook further reinforce that vocabulary. News-2-You will also provide an extension activity using Intellitools Classroom Suite that students can share around the world. Go to www.news-2-you.com for more information.



Flat Chase, age 9, shares his story using Classroom Suite.



Using IntelliTools Classroom Suite software and her PRC Vantage Plus, Schuyler Rummel-Hudson composes a Flat Friends story in which she appears as a mermaid.



FFP Hoover and Me supports students in writing their autobiography. They can read about Hoover and then think about their own likes, dislikes and feelings.

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AN AAC RETROSPECTIVE

Part 1: Tools, methods, trends and milestones

By Patti Murphy

Like that of most human endeavors, the history of augmentative and alternative communication (AAC) has its share of variables and constants, trial and error, myth and controversy, successes to celebrate and new frontiers to look forward to. This first installment of a two-part retrospective of AAC focuses on the tangible aspects of its evolution – tools and methods, trends and milestones – in the last quarter century.

In the scholarly paper “A History of Augmentative and Alternative Communication for Individuals with Severe and Profound Disabilities,” the authors suggest that rapid technological advancement may be the most dramatic change occurring in AAC over time. They noted that today’s proliferation of options and possibilities for those with significant limited expressive communication abilities did not exist just a decade before the paper’s 2004 publication.¹ Yet some practitioners and consumers view the driving force of technology in communication solutions with mixed emotions.

“It’s good and bad,” said speech-language pathologist Tina Murphy, M.S., CCC-SLP, an AAC specialist with Florida’s Palm Beach County Schools. “You try to explain we don’t start with the device, we start with the kid. People think the technology is going to solve the problem and it doesn’t. The technology is a tool for solving the problem.”

Newer and more advanced technologies for those reliant on AAC often extend or complement established and less sophisticated solutions rather than simply replace them. Some consumers stay with communication modes that have proven effective for years, occasionally making minor revisions along the way – fabric or paper printouts displaying screens from an electronic speech communication device for environments that may not always be conducive to using voice-output technology, such as the beach or noisy restaurants, for instance. Others, confident that family members and close friends understand their limited speech, reserve their use of technology for unfamiliar listeners. Given these common tendencies, putting AAC in a historical context goes beyond the chronological dates of inventions, concepts and events that have shaped it. In the bigger picture, it reflects the reality that, as humans,

we’re forever tweaking our attempts at meaningful self-expression.

ROOTS

AAC, by perhaps its broadest definition, refers collectively to ways of communicating without comprehensible human speech. People have developed tools and methods for doing so for centuries. Symbolic characters gave rise to numerous ancient writing systems, evolving into alphabets still recognized today. Active use of standard sign languages, born some 300 years ago within communities of individuals with muteness, deafness or hearing impairment, and ad hoc signing, continues throughout the world. Austrian-born chemist Charles K. Bliss hoped the extensive symbol set consisting of simple linear drawings he invented in the 1940s, with chemical symbols as a blueprint, would bridge communication gaps among people of various native languages. Within a few decades, the symbols became an early AAC tool.²

Also by the 1970s, the total communication approach, combining sign language with multiple modes of expression including speech, symbols, pictures, and finger spelling, in the education of deaf students started to attract wider attention from the special education field because of the potential it held for students who were not deaf but could not speak.³ A philosophical relationship between total communication and AAC is evident in the following statement by David Morris Denton, who introduced the approach as superintendent at the Maryland School for the Deaf in 1967.

“Total communication has as its foundation that we had to bring the family into the process, and we had to facilitate lip reading, sign language and maximal communication via the transfer of information, using all channels together,” Denton said in a 2005 online interview.⁴

Speech-language professionals revisited the approach in their work with the AAC population through the 1980s, 1990s and later, and a variation known as aided language stimulation, to help others cultivate improved expressive and receptive communication abilities. The technique involves pairing words represented by sign language, pictures or symbols (usually on sheets of paper, a manual communication board

or in a book) with corresponding spoken words conveyed to a person using AAC by a typically speaking communication partner simultaneously signing the words or a voice-output device also providing graphic representations of them.^{5, 6, 7, 8}

While such combinations of modalities have fostered language development for more than a generation of children lacking a means of verbal communication, research has noted an either-or mentality among AAC practitioners of the 1980s because they seldom combined unaided systems (based on signing, gestures, facial expressions and other natural modalities) with aided ones comprised of devices and other external tangible objects.^{9, 10} Issues underscoring the need for communication aids included the shortage of professionals proficient in sign language and the fact that candidates for AAC technologies often lacked the manual dexterity for adequate signing, said Sue Schindler of Cincinnati, Ohio, who taught special education then. She found the limited options worrisome. “When a child becomes an adult, they’re going to be out in the community, they’re going to need to be able to get a point across.”

Schindler’s observation of a man in a shopping mall holding a conversation by pointing to assorted black and white symbols on a flat rectangular board lying across his wheelchair prompted her to think, “If I ever had a child who needed assistance, what a way to go!” She now has a teenage daughter who uses AAC because of communication challenges related to cerebral palsy and cognitive delays.

GROWTH SPURT

AAC innovation exploded from the mid-1980s through the beginning of the century’s final decade. “The technology shot up like a rocket,” said Nancy Millet, president of Upstate Communication Resource Inc., a Pittsford, New York-based distributor of AAC products. She noted a few key milestones: the birth of language systems based on semantic language compaction, a concept assigning multiple meanings to a symbol; dynamic display devices with screens that changed in a logical sequence according to the user’s selections and Board-maker page creation software. With ready-made computer graphics at their fingertips, parents, teachers and therapists no longer had to devote

hours to creating paper overlays with vocabulary for static communication devices that previously ruled the market. Picture symbols took on a crisper and more concrete look, contributing to broader awareness of the benefits of advanced AAC technologies for those with cognitive disabilities resulting from conditions such as Down syndrome and autism. Fast growth and change in AAC devices paralleled that of computers at large, and similarly proved a mixed blessing. Typically bulky and industrial in appearance, older AAC technology had a roughness about it that might be considered klutzy by today's standards. It had exponentially smaller memory and a frequently fuzzy audio quality that sounded robotic at best. "The voice was terrible, but still it was there," Millet said.

Fast forward to 1999, when Katy Schindler got her first portable dynamic display device. Pleased that it fueled Katy's interest and emerging language skills more so than the low-tech devices containing one to eight messages that she used before, Sue Schindler felt a tinge of disappointment when she heard the familiar mechanical sound of her daughter's newly adopted voice. "It was one of those bitter-sweet moments," she said, adding that while it took her about a week to adjust, Katy and her father, Bob, seemed unfazed.

The more pleasant and realistic-sounding voice output, lighter weight and aesthetic elegance of today's devices evolved slowly, perhaps partly because switches, eye-gaze and scanning equipment built from scratch in its infancy, once topped consumer priorities. "My sense is that those who needed alternate access got a lot of the early attention," Millet said.

AAC primarily served people whose cognitive abilities remained intact, while the physical effects of cerebral palsy, spinal cord injuries or degenerative diseases denied them the eye-hand coordination required to operate a device via direct selection, said Cindy Cottier, M.S., CCC-SLP, who entered the speech-language pathology profession 28 years ago as a school therapist, and in 1993, opened Augmentation Communication Therapies, her private practice in Pasadena, California.

There are pros and cons to the abundance of features and accessories in current AAC technology. Extensive preprogrammed vocabulary sets included with most devices and language applications sold separately have made its integration into daily life less time-consuming and less labor-intensive. More manufacturers offer device editing software for standard computers at home or school so individuals can use a device without interruption while a

family member, teacher or therapist edits their vocabulary selections. The growing demand for such software encompasses clinical evaluation settings and speech-language pathology training programs.

Sharper vocabulary tools, like the Inter-ACT language framework on the DynaVox V and Vmax, and the detailed visual scenes also serving as a vocabulary base on those devices bring real-time, age-appropriate communication deeper into the realm of possibility for people at specific ability levels and stages of life.

Popular device features – onboard computers, Internet and e-mail capabilities, environmental controls, built-in games, sound effects creation tools and digital music players – raise the question of practicality. On one hand, they enhance everyday communication and promote self-sufficiency for end users. This side of the technology can be motivating for adults wanting to stay connected with their world while coping with permanent speech loss and children whose first experiences with AAC mirror the early communication experiences of their typically speaking peers in many ways.

"When they develop language, their voice is a toy," Murphy said. "They sing, they play with it, they make noises, they giggle and laugh. If a

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device is going to replace that, then they should be able to play with it."

Devices that virtually do it all have the downside of being perceived as presenting "just one more thing that has the option of going wrong," Cottier said.

Another concern is that extras in the technology will detract from its original purpose of facilitating functional communication, but a happy medium is reachable. Experimenting with a variety of high-tech, low-tech and non-electronic items before choosing mainstays for an AAC system is a good practice.

"From my experience, kids who have difficulty using low-tech due to cognitive issues often do not tune into the computer screen of a dynamic display," Murphy said. "It really occurs on a case-by-case basis."

Finding the best AAC answers is like solving a puzzle piece by piece. The picture in a talking frame purchased from a local retailer that Katy Schindler wore on her waistband as a child offered a comfortable way for her to ask "How are you?" when she encountered others. She pushed a button on the back of the frame that spoke the message in a recorded voice, a method complementary to her long use

of dynamic display technology. Her mother suggests that a piece-by-piece approach may be the wisest for future AAC technology development.

"Building a step up from the prior device would be the way most helpful to everyone," Sue Schindler said. "Imagine trying to teach someone who drives an automatic transmission car how to drive on a stick shift. This is the same principle."

BEYOND TECHNOLOGY

A number of less tangible building blocks that have influenced AAC in the last 25 years continue to shape its history. Passage of federal laws, such as the Americans with Disabilities Act of 1990 and the Individuals with Disabilities Education Act of 1991 (IDEA), strengthened earlier legislation adopted to protect the rights of such individuals to opportunities, services and resources extended to all citizens and students. Amendments to IDEA in 1997 mandated that students be assessed individually for assistive technology needs, including their need for AAC, and that the Individualized Education Program for each student take such needs into account.^{11,12} Greater availability of funding for

devices outside state Medicaid programs and school district budgets is another recent trend taking public awareness of AAC to new levels. A lobbying effort by industry leaders culminated with the 2001 enactment of legislation authorizing Medicare to provide coverage for AAC products, expanding the adult consumer base. Other newer potential coverage sources include the Veterans Administration, state telecommunications programs, charities and private insurers.

The Internet has arguably become the premier information source for AAC shoppers in the 21st century, perhaps rendering them savvier than their predecessors. Online research may be a key step for professional and family care team members involved in AAC intervention, as well as the person benefiting directly from it, but whether this is indicative of a generation more accepting of technology is a tough call.

Attitudes, political climates, cultural patterns and other intangible aspects of the AAC story will be highlighted in the second installment of this article, scheduled for publication in the December-January issue.

AAC in retrospect

Some key methods, trends and milestones influencing the history of augmentative and alternative communication (AAC)

PRE-1983: ROOTS

1940s – Charles K. Bliss invents a set of abstract linear drawings as a way for people of different native languages to communicate without speaking. The drawings and similar picture symbol sets developed by others later become a common tool for individuals reliant on AAC for self-expression.

1967 – Total communication, a concept named by Roy Holcomb of California, is introduced at the Maryland School for the Deaf in 1967 by David Morris Denton, its superintendent, some 300 years after sign language started to evolve within communities of deaf individuals.

Circa 1970 – The total communication approach begins to attract attention because of its potential benefits for students with profound speech and physical disabilities.

1980S -1990S: GROWTH SPURT

In the early 1980s, electronic voice-output devices with static visual displays are the most advanced available. Research and development of alternate access methods

such as eye-gaze and scanning equipment is underway.

Circa 1982 – AAC devices with language systems based on semantic language compaction, a concept assigning multiple meanings to a symbol, are introduced.

Late 1980s – AAC technology simultaneously adopted a new simplicity and sophistication with the debut of page creation software for voice-output devices with static displays that eliminated the need to create paper overlays for by hand.

1990 - 1991 – Passage of the federal Americans with Disabilities Act and Individuals with Disabilities Education Act (IDEA) strengthen older laws designed to ensure the availability of AAC and other assistive technologies to those reliant on them.

1991 – The birth of dynamic display technology based on the natural language formation process puts AAC on a new course, giving those using a device greater command of expressive language because the device display changes according to their vocabulary selections.

1997 – Amendments to IDEA mandate individual assessment of students in need of AAC and that their Individualized Education Programs (IEPs) consider such needs.

THE 21ST CENTURY: TECHNOLOGY AND MORE

2001 – The United States government authorizes Medicare coverage for AAC products following a lobbying effort by industry leaders, expanding the adult consumer base. Other non-traditional funding sources (Veterans Administration, state telecommunications programs, private insurers and charities, for instance) have a stronger presence in the industry by mid-decade.

2004 - 2007 – Among the most advanced AAC device features at this time are ready-made vocabulary, visual scenes, onboard computers, Internet and email capabilities, built-in games, digital music players and built-in games. Communication through the technology enters closer into real time than at any other point in AAC history.

PRODUCT INFORMATION

DynaVox Vmax – \$8,245

DynaVox Technologies, 2100 Wharton Street, Suite 400, Pittsburgh, PA 15203; Phone: 1-866-DYNAVOX (396-2869); Web site: www.dynavox-tech.com

DynaVox V – \$7,645

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Boardmaker v6 for Mac - \$329

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Boardmaker v6 for Windows – \$329

System Requirements – OS: Windows 2000 or higher, RAM: 256MB, Free Hard Drive Space: 350MB.

Mayer-Johnson LLC, PO Box 1579, Solana Beach, CA 92075-7579; Phone: (800) 588-4548
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CONTACT INFORMATION

For more information about this article, contact the author, Patti Murphy. E-mail: patti.murphy@dynavoxtech.com. ■

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Literacy and Augmentative and Alternative Communication

Current Research and Indications

By Janis Doneski-Nicol

The central focus of education in the United States in primary grades is the development of reading and writing skills. A population of students, with complex communication disorders who use augmentative and alternative communication systems (AAC), is often deprived of this reading and writing skill development. Without literacy skills, the student using an AAC system has severe limitations across the lifespan.

The following discussion is based upon a literature review that examined indications in current literature to increase literacy skills of individuals with complex communication disorders who use AAC systems. A guiding belief of this literature review, the words of David Yoder was:

embrace the 'zero reject' philosophy that has become widely accepted over the past 10 years and to remember that no one is 'too anything' to benefit from either AAC instruction or the opportunity to develop in the area of literacy. (Mirenda, 2001, p. 1)

LITERACY AND AUGMENTATIVE AND ALTERNATIVE COMMUNICATION

Literacy skills are significantly decreased in many individuals with complex communication disorders who utilize AAC systems (Koppenhaver, Hendrix, & Williams, 2007; Millar, Light & McNaughton, 2004). Individuals with complex communication disorders can develop literacy skills. However, these skills are significantly decreased across the literature and vary from individual to individual.

Approximately 70 to 90 percent of such students lag significantly behind same-age, nondisabled peers in measures of reading, and more than 74 percent of adults with severe speech and physical impairments (SSPI) score at the lowest levels of literacy achievement in national assessments. Although literacy is important to all people, it is particularly significant with SSPI in providing a uniquely powerful, precise, and interpretable means of face-to-face communication. (Koppenhaver, et al., 2007, p. 80)

Intrinsic and extrinsic factors are attributed to decreased literacy skills in the users of AAC systems. Intrinsic factors include physical, sensory, perceptual, language, and/or cognitive impairments. Extrinsic factors include different backgrounds, low expectations, decreased exposure to print and literacy activities (Blischak, Shah, Lombardino, & Chiarella, 2004; Coleman-Martin, Wolff Heller, Cihak, & Irvine, 2005). Reading instruction for individuals who utilize AAC systems is decreased and writing instruction is decreased at a greater level (Millar, et al., 2004). Early literacy experiences and joint reading are key to literacy skills, however, fewer joint book reading activities are experienced by children with complex communication disorders. They are passive participants in book reading activities. This can result in decreased preparation for reading instruction. Overall, there are indications that early language impairments may result in later literacy challenges (Iacono, 2004).

Literacy skills also impact the independence of users of AAC systems. Independence is at risk without literacy skills that allow for spelling of words used for communication (Fallon, Light, McNaughton, Drager, & Hammer, 2004, Millar, et al., 2004). Without the capacity to fully communicate, users of AAC systems are faced with a number of barriers. These barriers include decreased participation in community settings, decreased options for higher education, and decreased options for employment (Fallon, et al, 2004; Millar, et al., 2004).

RESEARCH POPULATIONS

Published research in this field is limited. Population size ranged from one to 64 with the majority of the studies ranging from one to 14. The ages of participants range from 3 to 44. The primary disability represented was cerebral palsy (CP). There was a wide range of AAC systems represented. The majority of systems are not currently available. Few studies represented communication systems that are computer based or interface with a computer for word processing and other features. The focus of the research was heaviest in phonology. Other areas of research

have minimal representation over the 10-year span of this literature review. The limitations of the present research in the literature have significant impact upon successful literacy experiences for individuals who utilize AAC systems. No research, within the scope of this review, was identified that addressed current literacy products.

ADULTS, AAC AND LITERACY

Adults using AAC have the potential to attain above average literacy skills. Lund and Light (2006) assessed the reading comprehension levels of seven men between the ages of 19 and 23 who had used AAC systems for a minimum of 15 years. Three of these individuals fell much below the average group performance, two fell below the average group performance, and one fell much above average group performance. Intrinsic and extrinsic factors were identified as influencing higher levels of reading comprehension attainment for these men, including cognition, direct access to AAC systems, motor skills, determination, motivation, and environment. Foley and Staples (2003) provided evidence in their research that adults with autism also have the potential to make gains in literacy skills based upon the Balanced Literacy Framework.

Literacy intervention at the adult level is important and valued by employers (Bryen, Potts, & Carey, 2007; McNaughton, Light, & Gulla, 2003). Insufficient literacy skills are cited as a challenge to employment, further, these skills are difficult for employers to provide training in (McNaughton, et al., 2003). Adults using AAC systems indicated that early practical experience with literacy skills in the workplace would be valuable within their education (McNaughton, et al., 2003).

Adults using AAC systems have a broad spectrum of literacy skills that are influenced by extrinsic and intrinsic factors. The literacy skills developed by these individuals are critical to employment. Further development of literacy skills is feasible and mandatory. Adults across all settings would benefit from the exposure to and development of a wide spectrum of literacy components.

LITERACY COMPONENTS

It is necessary to understand what literacy components are discussed in the literature to provide evidenced based practice for individuals who use AAC systems. Phonological processing, spelling and writing were the literacy components that were represented in the current literature addressed by this review.

• Phonological processing

Phonological processing is the complex set of skills utilized to process spoken and written language (Vandervelden & Siegel, 2001). Phonological skills are identified in the literature as being critical to the skill of reading. Evidence is presented in current literature that individuals with reduced phonological processing skills are poor readers (Foley & Pollatsek, 1999; Blischak, et al., 2004; Fallon, et al., 2004). Important in early reading instruction is phonemic awareness and phonics instruction. Phonemic awareness is consistently correlated with reading success. The use of letter sound knowledge to decode words is also a key in instruction (Fallon, et al., 2004).

Individuals who rely on AAC systems for communication demonstrate the ability to develop phonological processing skills. Card and Dodd, 2006, assessed the phonological processes of segmentation, detection, manipulation, and phoneme-grapheme conversion skills of speakers with cerebral palsy, non-speakers with cerebral palsy, and a control group. This study confirmed that the development of phonological awareness skills is not dependent on the ability to speak. Foley and Pollatsek (1999) concluded that participants with complex communication disorders demonstrate the ability to use phonology to recode words and non-words, do phonological coding in short-term memory, and articulatory coding. This study indicates that individuals with no articulatory ability have the skill to use subvocal rehearsal process in phonological coding. Vandervelden and Siegel's (1999) research of 32 students who used AAC systems indicated good skills in phonemic awareness. While phonological processing skills are cited as skills that users of AAC systems are able to attain, there continue to be indications in the literature that users of AAC systems perform at lower levels than control groups. This is demonstrated in the work of Foley and Pollatsek (1999) and Vandervelden and Siegel (1999).

While phonological processing skills are developed by users of AAC systems, decreased opportunities for auditory rehearsal may lead to impairment in some of these skills. Phonological coding in short term memory also appears to be a weakness in the skills of individuals with complex communication disorders who utilize AAC systems (Foley & Pollatsek, 1999). Card and Dodd (2006) indicated that children who are unable to speak may have weakness in phonological awareness skills that are supported by the auditory loop. This loop is the area in which auditory information is rehearsed. This indication is supported by a lower performance by participants without speech on the syllable segmentation task.

Phonological processing instruction is a method that demonstrates potential for users of AAC systems to increase their literacy skills. Blischak, et al., 2004, demonstrated the effectiveness of instruction specific to the phonological awareness skills of segmentation and manipulation. This study utilized a small population of three users of AAC systems and provided four to five instructional sessions each week for a duration of 20-25 minutes. Phases of instruction included phoneme-grapheme knowledge, segmentation, manipulation, and encoding. One participant was unable to obtain 80 percent accuracy in phoneme-grapheme knowledge and intervention was discontinued. Two participants demonstrated increased encoding skills as a result of phoneme-grapheme and phonemic awareness instruction.

Exposure to phonological processing has been suggested as a link to greater phonological processing skills of individuals who use AAC systems. Foley and Pollatsek (1999) suggest that two participants in their study, who used phonetic spelling skills with their AAC systems, may have increased phonological processing skills as a result of this communication mode. Blischak, et al. (2004) hypothesized that a participant unable to obtain 80 percent accuracy in phoneme-grapheme knowledge in their study had less exposure to phonological awareness. The participant was

from an alphabetical instruction classroom environment, while the other two participants in this study, who performed significantly higher across interventions, participated in a phonics instruction environment.

• Spelling


Phonemic awareness skills have a significant impact in the ability to read. In addition to this impact, phonemic awareness skills are linked to competent spelling skills of users of AAC systems. Hart, Scherz, Apel, and Hodson's (2007) analysis of spelling errors indicated that three of four individuals with complex communication needs made spelling errors specific to phonemic awareness difficulties, while the control group made errors due to orthographic difficulties.

Increasing spelling and literacy skills through the text-to-speech option on higher level AAC systems shows some promise. Methods for incorporating this feature of AAC systems in spelling instruction have been explored. Raghavendra and Oaten's (2007) research indicates that spelling instruction may be best presented through use of an AAC system and the use of the message/text window. Instruction presenting a word orally, having the individual type the word and see the word on an AAC system, and then compare the text on the AAC system to an index card with the target word printed on the card may be an effective method in teaching spelling.

Spelling, at an accurate level, allows a user of an AAC system to produce written text. This text can be used for both written expression and communication of messages. Provision of instruction through phonemic awareness and though use of text features of AAC devices are indicated.

• Writing

Utilizing spelling skills, as well as other methods of expression, which may include picture symbols, are potential writing methods for individuals using AAC systems. However, writing instruction is significantly lacking for individuals who utilize AAC systems (Millar, et al., 2004). Miller, et al. (2004) cite the work of Foley, 1993, Glennen and DeCoste, 1997, and



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Koppenhaver and Yoder, 1992, in stating the following, "Within literacy, writing remains the most neglected aspect of instruction, research, and experience in the lives of individuals who use AAC" (p. 165). One study was identified in the current literature that addressed limited writing skill of individuals who use AAC systems. Millar, et al., 2004, utilized a writer's workshop with three children using AAC systems. This writing intervention utilized a Discover Keyboard with the alphabet in alphabetical order and five short/long vowel keys. This study focused on five target letters, s,d,c,f and b. Instruction sessions were 30-45 minutes long during two to three times each week. "Instructional activities included: (a) letter-sound correspondence, (b) selection of initial letter, and (c) writing workshop-type activity" (p. 170). Writing workshop activities consisted of writing a story based upon a target letter. The child was asked to select a picture to write about. Then the child was orally given words that they could choose from, with the target letter, to write their story. This writing process was successful in teaching two of the three children in this study to identify initial letter sounds for five target letters. This study's approach to writing was limited. Limited amount of research in writing and AAC indicates a significant gap in the literature.

INSTRUCTIONAL APPROACHES

It is evident that there are significant gaps in the isolated skills of literacy discussed in earlier sections of this literature review. The gaps in the research continue to be exposed as instructional approaches are discussed. Instructional approaches for individuals using AAC systems are needed (Millar, et al., 2004). A limited number of instructional approaches

were presented in the literature reviewed. Computer aided instruction (CAI) is one method suggested (Coleman-Martin, et al., 2005). Power Point was utilized to present target words and stimulate the practice of phoneme awareness in words. Three types of instruction occurred during the research using the nonverbal reading approach – initially teacher instruction, then teacher instruction and CAI and finally only CAI. Each of the three participants made gains under each condition, with teachers indicating a preference for CAI. Overall, this early research is indicative for fair results with CAI with teacher preference supporting this format. However, the teachers were not required to set up the Power Point; there was a limited population and internal difficulties. Methods of this research needs to be further explored.

Fallon, et al., 2004, applied a direct instruction intervention protocol to teach initial sounds of words, blending sounds into words, and reading single VC and CVC words, which resulted in development of skills necessary to read 80 percent of 75 targeted words. This research indicated that direct instruction with modeling, prompted practicing, and checking knowledge, as well as positive reinforcement, has the potential to teach target words to individuals with complex communication disorders. This study also suggested that instruction on target words may result in generalization of decoding to novel words. Direct and explicit instruction were indicated by the authors to be a key in the instructional success.

The Balanced Literacy Framework, also a direct instruction method, was implemented by Foley & Staples (2003) in a supportive employment facility with five adults with autism. The Balanced Literacy Framework in this research encompassed guided reading/reading aloud, self-selected reading, word study, and writing activities. These activities were modified to the environment and for individual needs. This research indicated that individuals with autism, immersed in a structured, motivating, and meaningful literacy program, have the potential to increase literacy skills, as was seen across participants in this study.

A very limited sample of the literature discussed the impact of the home environment and family interactions in development of literacy skills. Sandberg (1998) presented results of a questionnaire of parents and teachers of 35 children with cerebral palsy who utilize Bliss symbols to communicate. This research compared this group to two control groups. This research concluded that the parent behaviors related to reading were not significantly different between groups and that early literacy experiences of children did not appear to be linked to low performance of children with cerebral palsy using AAC systems. Koppenhaver, et al., (2001) studied the storybook-based communication interaction between mothers and girls with Rett syndrome. This study demonstrated the ability to increase the meaningful storybook interactions between mothers and girls with Rett syndrome through the application of resting hand splints, light tech AAC systems, and parent instruction in support methods. Interventions with families in literacy experiences with children with complex communication disorders have the potential to increase literacy skills of these children. Families may require intervention in appropriately interacting with children with complex communication disorders when exploring literacy. Sandberg (1998) indicated no difference in reading experiences between individuals with cerebral palsy and individuals without cerebral palsy. Koppenhaver, et al., (2001) indicated increased experiences with literacy with intervention. These reports are contradictory. Sandberg's survey method may warrant additional direct research versus survey research. The two different populations may have also had an impact on these studies.

ASSESSMENT INDICATIONS

The selection of appropriate interventions is difficult without appropriate assessment tools to guide this process. The current literature calls for valid assessment tools to use with individuals with complex communication needs (Vandervelden & Siegel, 2001). In addition to identifying valid assessment tools to meet complex communication needs, there is also a need to identify valid methods that accommodate for the motor access needs of individuals with complex communication needs. There are validity issues when modifications are made to test items to accom-

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modate for motor and or speech impairments. Authors of current literature made a wide variety of modifications to assessment tasks. Foley and Pollatsek (1999) utilized yes/no responses, responding with response cards, and selecting from lists of words in their research and allowed for as many sessions as necessary to complete assessment tasks. Blischak, et al. (2004) utilized alphabetical tiles to point to during segmentation and manipulation assessment activities. Hart, et al. (2007) selected assessment tasks that needed minimal modifications. In their study, testing of subjects with cerebral palsy ranged from eight to 12 hours. While control group testing took 90 minutes. Lund and Light (2006) utilized partner assisted scanning in assessment of reading comprehension. Card and Dodd (2006) Utilized the Queensland University Inventory of Literacy (QUIL) to assess reading skills. Modifications were made to the assessment tool to accommodate for non-verbal responses. Evident in studies reviewed are the varied methods of assessment, as well as the varied methods of modifying the assessments to accommodate for speech and physical impairments.

Of significance to identifying assessment methods in the current literature is that none of the reviewed studies utilized a standard set of modifications to an assessment tool for both individuals who used AAC systems and a control group. This type of study would have the potential to develop guiding recommenda-

tions when making modification to assessment tasks for individuals using AAC systems, with communication impairments, and with motor impairments.

RESEARCH PRIORITIES IDENTIFIED

Five general research priorities can be applied across the current literature: (a) the need for duplication of studies (Fallon, et al., 2004; Hart, et al., 2007), (b) generalization of interventions to include teachers, groups, etc. in the assessment and intervention process (Fallon, et al., 2004; Coleman-Martin, et al., 2005), (c) consideration of the impact of modifications whether this is to assessments or interventions (Falon, et al., 2004), (d) methods available to teach reading skills to individuals who use AAC (this priority was identified by a focus group of individuals who use AAC and their facilitator) (O'Keefe, Kozak & Schuller, 2007), and (e) intrinsic and extrinsic impacting literacy skills (Blischak, et al., 2004; Coleman-Martin, et al., 2005). Each of these components warrant significant research.

CONCLUSIONS

The power of literacy skills for individuals who use augmentative and alternative communication systems should be the focus of interventions for these individuals. High expectations in all academic areas should be established.

Instruction for individuals using AAC systems should be inclusive of literacy skills to enhance growth of communication, language, literacy, lifelong skills, and independence. When addressing literacy, the current literature leads one to use the following guiding principles: (a) provide instruction early, (b) provide instruction in phonological processing and address any weakness in short term memory and the auditory loop, (c) incorporate text-to-speech systems, (d) provide explicit and direct instruction, (e) provide balanced literacy, and, (f) consider carefully the impact of modifications made to assessment.

The current literature indicates the significant need for further research in each of the above identified areas. The need to expand the research knowledge base is critical in confirming the results of the current knowledge base with larger population studies and with greater functionality within these studies. The limited controlled studies discussed in this literature review have encompassed the classroom environment in a very limited manner. The involvement of classroom teachers and parents as instructors is also severely restricted.

As the literature begins to evolve, daily applications of the literature should begin. Methods identified for literacy interventions and assessment should be considered for application across classrooms and homes with the anticipation that individuals who use AAC systems will become literate and independent.

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As Koppenhaver, et al. (2007) conclude in their review of current literacy literature,

Currently, we have neither the experimental science nor the convergence of evidence to argue that a particular literacy intervention is effective in addressing a specific literacy need of children with multiple disabilities. We do have the modest beginnings of a research base, and with a broader view of what constitutes evidence and how it might be used to serve individual children and classrooms, we can begin to support literacy learning more systematically in this population. (p. 87)

The need for literacy is significant for communication, independence, and employment. The current literature is a simple beginning in the field of AAC and literacy, providing a springboard for the future of research in this field.

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ABOUT THE AUTHOR

Janis Doneski-Nicol, M.S., CCC-SLP, ATP is the program coordinator for the Institute for Human Development Assistive Technology Center and the Graduate Certificate in Assistive Technology at Northern Arizona University. Ms. Nicol provides assistive technology evaluations and services and teaches university assistive technology courses. Ms. Nicol can be reached at Janis.nicol@nau.edu. ■

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Proloquo Gives Me Freedom of Speech

By Leigh-Anne Tompkins



My name is Leigh-Anne Tompkins and I am a graphics and Web designer. I was born in Michigan, but have lived in Jacksonville, Florida for approximately the past 20 years. In 1992, I graduated from the University of North Florida with honors in Fine Arts with a track in computer graphics.

I have a complete up-to-date graphic/Web design studio. The name of my company is Graphics Afoot Studio Design. One of my

specialties is doing job outsourcing for local, national and international companies who need help with their overflow graphics and multimedia jobs. A few of the companies that I have done work for are AT&T, Blue Cross Blue Shield, Chase Banks/Home Finance, APL Logistics, Vexure Logistics, Jacksonville Chamber of Commerce, etc. I also do work for individuals. I conduct much of my work via e-mail, instant messaging, telephone, fax and courier.

I have had cerebral palsy since birth. It is due to a deprivation of oxygen during the birthing process. The umbilical cord was pinched. The resulting lack of oxygen caused damage to the motor control portion of my brain. I use a manual wheelchair to get around. I don't speak clearly (a motor control). It usually takes a day or two for someone new to understand my cerebral palsy speech "accent." I have a partial hearing loss (I wear two hearing aids). I'm not able to use my hands for fine motor control. However, I have fine motor control of my right foot. Therefore, while sitting in my wheelchair, I use my right foot to operate my Macintosh computer using a trackball on the floor. Also, I type on the keyboard with a head-stylus (head pointer).

David Niemeijer from AssistiveWare introduced me to the software called Proloquo. I am quite pleased with it. Since I was in grade school my speech therapist advocated my getting an augmentative communicator. For a long time, I subconsciously resented and put off getting one. The communicators were so big that they blocked my view. I wanted people to see me first; not a "big black thing!" Also, during my grade school years, some communicators did not have voices. When I went to middle school, the computer voices in the previous communicators were not clear like the voices are in Proloquo. I stopped searching for a good augmentative communicator and remained patient while trying to make "new" people understand my speech in high school and college. When I saw the software called "KeyStrokes" (on-screen keyboard) by AssistiveWare on the Net, I decided to try it. I love it. I can operate KeyStrokes without using my head-stylus. Instead,

I can operate the KeyStrokes by using a trackball on the floor with my right foot. I was so pleased, I felt I had to write to the developer, David Niemeijer at AssistiveWare.com and tell him how happy I am. After a while, AssistiveWare wrote me back to me and asked if I would be willing to try Proloquo. I did. At the age of 39, Proloquo opened my mind about using augmentative communicators. I have been using Proloquo off and on for two years, communicating with my clients, friends and new people. Proloquo has many voices that are very clear, sounding like men or women. In my opinion, that is a "wow-factor."

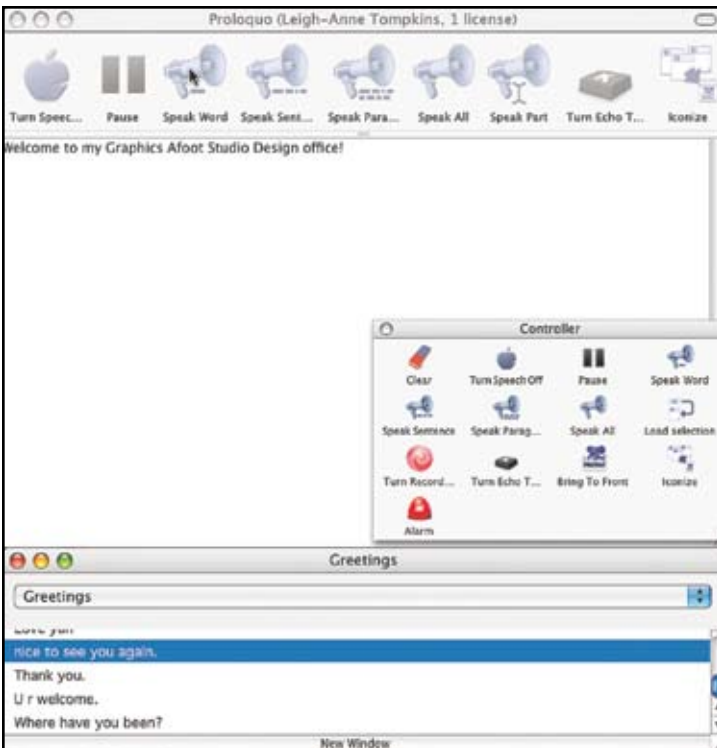
Currently, I'm thinking that if I get a Macintosh laptop or a Modbook, I would then be using Proloquo at parties, meetings and giving presentation speeches. At my age (41 years old), I'm frequently frustrated trying to get my point across. With Proloquo and a portable Macintosh or Axiotron Modbook,

I feel I will gain the freedom I need and want.

I love the feature and flexibility of being able to set up my own custom phrases or sentences in Proloquo. Also, if a voice happens to pronounce a word wrong, I can customize the word so that the voice



Graphics Afoot Studio Design's Web site.



Proloquo's application interface.



Leigh-Anne is typing on her Macintosh computer using her head-stylus and using a trackball on the floor with her right foot.

AUTHOR CONTACT

Leigh-Anne Tompkins, 11234 Portside Drive, Jacksonville, FL, USA 32225; Phone: 904-641-0192; Fax: 866-527-7360; Web site: www.graphicsafoot.com; E-mail: madtoe@graphicsafoot.com. ■



One of my recently created Web designs.

Advertisement

will say it correctly. That is the one of the very big improvements over the years. Woohoo!

By the way, AssistiveWare, also, has another "wow-factor" application you should investigate called, "GhostReader."

I am very pleased with AssistiveWare's Proloquo and their other software applications. I would recommend Proloquo to someone who is having speech difficulties and who is using a Macintosh computer or Axiotron Modbook. AssistiveWare's customer relations and support service is excellent.

ABLELINK TECHNOLOGIES ANNOUNCES THE RELEASE OF JOB QUEST

AbleLink Technologies (www.ablelinktech.com) has announced that it has released a new tool for determining work preferences for people with intellectual and other cognitive disabilities. Job Quest utilizes video clips depicting a variety of actual community job tasks, allowing the user to independently choose between possible work options in a self-directed manner. Job Quest accomplishes this by prompting the user to watch two competing video clips of community work tasks, and then directs the user to “choose the job video that you liked best.”

Individuals with limited literacy skills are generally unable to independently utilize typical vocational interest assessments. In addition, limited exposure to various community work environments and difficulty visualizing work settings also contribute to barriers to communicating job preferences. Schools and agencies often try to facilitate the expression of job preferences by arranging site visits with local employers. However, physical visits to multiple sites can be impractical due to logistics and cost. They can also be ineffective when an individual with memory problems is asked to

remember an earlier visit from the previous week and compare it with the other employment options.

“Students and adults with intellectual disabilities often have difficulty conceptualizing the nature of various jobs, including typical duties, the work environment, tools that may be used, and other elements of work that affect job preference,” said Dan Davies, President and Founder of AbleLink Technologies. “Job Quest provides a more concrete and timely manner for understanding the nature of specific tasks and work conditions, and can serve as an excellent adjunct in planning more precise and timely site visits to confirm Job Quest assessment findings.”

Job Quest provides a default assessment that presents 60 video clips representing 12 categories in a forced choice format. Assessments can also be personalized by staff, who can limit the number of job categories represented, the number of video clips per category, and the length of each video. Reports can be generated in three different formats with varying levels of detail, including a Visual Summary Report designed specifically for the job seeker.

Job Quest is the result of a series of U.S. Department of Education funded research and development projects.

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

CRICK SOFTWARE SHOWCASES THE NEW WRITEONLINE

Crick Software has announced the release of WriteOnline.

WriteOnline is an innovative new writing tool for elementary, middle and high school students. WriteOnline can be used at home as well as at school – in fact, on any Windows or Mac computer with an Internet connection (and even the Asus Eee!).

“Personalized learning is high on everyone’s agenda right now, and WriteOnline really enables teachers to deliver this,” enthused Managing Director John Crick. “This is very much a tool for all students – it will help them to excel no matter what their ability level.”

WriteOnline’s word processor has an industry-standard look and feel, yet contains a number of powerful features that are designed for students who need help with their writing (teachers make these features available only to the students who need them).

The built-in Wordbar is a word bank and writing frame tool that sits beneath the word processor. It’s easy for teachers to create subject-specific Wordbars for new vocabulary, and students can create and edit their own Wordbars. An ingenious tabbing system gives instant point-and-click access to thousands of words.

As a further help to students who need it, WriteOnline includes exceptionally powerful word prediction, powered by Crick’s brand new Wordflow[™] technology. This makes highly intelligent predic-

tions as to the word the user is going to enter next, and gives point-and-click access to the most likely words.

WriteOnline is supported throughout with high-quality software speech that enables students not only to hear what they have written, but also to listen to words in the Wordbar and the word predictor before writing them.

Subscribers to WriteOnline can access the program via many learning platforms, as well as from Crick Software’s new Learning-Grids World, an incredibly easy-to-use learning environment.

PRICES FOR WRITEONLINE

- Elementary School 1st year subscription \$1000
- Middle School 1st year subscription \$1500
- High School 1st year subscription \$1950

PRICES FOR LEARNINGGRIDS WORLD

- Up to 50MB FREE
- Each additional GB \$200
- Additional 5 GB \$500

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

NEWS-2-YOU, INC LAUNCHES THE UNIQUE LEARNING SYSTEM, THE ONLY STANDARDS-BASED ONLINE CURRICULUM BUILT SPECIFICALLY FOR INDIVIDUALS WITH SPECIAL NEEDS

News-2-You has officially launched the Unique Learning System curriculum product to the public. Educators now have access to the most comprehensive standards-based special education curriculum ever to hit the market. This is not a modified curriculum, but one built from national standards that are customized by individual states to easily align with their state specific standards.

The Unique Learning System is based on years of classroom experience, teacher input and study of effective learning strategies for students with the most significant disabilities. The Unique Learning System curriculum is the ONLY product of its kind built from the ground up specifically for special learners. This approach is much different than much of what is currently available. The curriculum is divided into four age-appropriate levels. Each level can be purchased individually. Collectively, the levels cover all students between K-12 at all ability levels. Currently there is a three-year publishing cycle that will guarantee brand new material for the next 36 months. Not only is the information new, but it interweaves directly with the News-2-You newspaper, allowing educators to supplement and reinforce the lessons in the curriculum with current events news. The symbol set utilized throughout the curriculum is News-2-You SymbolStix, creating consistency across all our product lines.

An example of what a district/school can expect to see over JUST the first year of production across all four of our grade bands.

- Eight NEW unit topics each month

- Over 800 lessons, all age-appropriate and all divided into three differentiated task levels
- Over 7,000 pages of content annually
- Science and Social Studies themed with comprehensive activities to cover all five core competencies: Reading, Math, Writing, Science and Social Studies
- All standards-based material
- All Web-based for easy storage, printing and retrieval
- Robust custom-built online student profile tool and progress check points
- Complete integration with News-2-You's weekly newspaper to supplement/reinforce the lessons in the curriculum with current events material
- Utilize all SymbolStix symbols for consistency across all products

The Unique Learning System is the brain child of Kathy Staugler. During her 35 years in education, Kathy has worked as a speech language pathologist, special education classroom teacher and assistive technology consultant. Her interest in curriculum for special learners peaked when training Ohio teachers about the Alternate Assessment process. While teachers became more aware of what standards-based instruction needed to look like, they did not have the time to create the extensive modified materials that were necessary for their classrooms of varied learners. At a conference in 2006, Kathy and News-2-You founder Jacquie Clark began a discussion on how the current events format of News-2-You could be enhanced by including a core curriculum that progressed throughout the grades. The result of this discussion – the Unique Learning System – is a comprehensive standards-based curriculum format to support literacy and content learning for students with significant needs.

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

ENABLING DEVICES SPOTLIGHTS AUTISM PRODUCTS

Enabling Devices has announced that its Fall catalog will feature products for people diagnosed with autism spectrum disorder (ASD). Steven Kanor, Ph.D., President of Enabling Devices, says "with the explosive growth of diagnosed cases of autism, we wanted to identify products that meet the diverse learning needs of people on the autism spectrum. For more than 30 years, we have worked with special education teachers, occupational therapists, speech therapists, and parents to develop products for people with special needs, including autism. Now we've created an eight-page Insert in our upcoming catalog that highlights more than 60 products that are helpful learning tools for people with ASD.

Gail Cocciardi, Director of Product Development, says that "since the needs of people with ASD are so diverse, we chose a wide range of products that would be helpful to people with varying types and

degrees of impairment. We've included communicators, schedulers, picture exchange systems, sensory products, toys to improve fine motor skills, toys for adaptive play, and timers."

The communicators include wall mounted single message communicators (Put-Em-Arounds); simple yet sleek 2, 3 and 4 message communicators (Talkables); a recordable photo album; and versatile communicators that grow with the child as skills increase (Choice 4). For scheduling, products include six different wall mounted picture schedulers (Go! Boards), two of which allow for message recording. To help with sensory integration, Enabling Devices offers massagers and vibrating pens, pillows and tubes. A variety of puzzles improve fine motor skills. Many of these puzzles are also communicators or switches that provide rewards, such as music and lights upon puzzle completion.

For Information, visit www.enablingdevices.com. ■

DYNAVOX ANNOUNCES THE EYEMAX – NEW EYE GAZE SYSTEM PROVIDES GREATER INDEPENDENCE

DynaVox has announced the EyeMax at the International Society of Augmentative and Alternative Communication's biennial conference in Montreal. The EyeMax is part of a new eye gaze system that provides greater independence to individuals living with the speech and physical challenges that accompany conditions such as Amyotrophic Lateral Sclerosis (ALS), cerebral palsy, stroke, and brain and spinal cord injury.

Available for use exclusively with the DynaVox Vmax, the EyeMax accessory raises the bar for eye gaze technology by providing a comprehensive communication solution along with many new capabilities unavailable or available only at additional cost on other eye gaze systems, including:

- The ability to configure a Vmax system with or without the EyeMax accessory, providing flexibility as a user's condition and/or access needs change.
- Access to integrated infrared controls that make it easy for users to manage their surroundings.
- An internal battery that provides portability and freedom of movement.

FREEDOM SCIENTIFIC RELEASES SARA 9.0 WITH NEW FEATURES FOR BLIND AND LOW VISION USERS

Freedom Scientific has released their newest version of the SARA scanning and reading appliance, including numerous enhancements that make the reading experience more enjoyable for both blind and low vision users.

"SARA 9.0 now features built-in Braille support, making the SARA a dynamic reading solution for blind and deaf-blind users," said Dusty Voorhees, Senior Product Manager. "Just connect a portable Braille display – such as a Focus or PAC Mate Braille Display – to the SARA's USB and any scanned document can be read in Braille.

"Low vision users have long appreciated that they can connect the SARA to a monitor for large print access that complements the speech. SARA 9.0 adds new features that let these users control how information is both displayed and read, including 35 new text and background color combinations and options to customize how words are highlighted on the screen as they are spoken.

- Dependable calibration that holds as long as a user's needs remain unchanged, regardless of whether he wears contact lenses or glasses, or uses one eye or two.

- The ability for the user to independently change his own settings and program the device using the access method of choice.

- The ability to trigger an event (i.e., open the main page or have an alarm sound) if the EyeMax is not able to find the user's eyes for a pre-determined period of time.

- Multiple access methods - including Dwell Only, Dwell/Blink combination, Blink Only and Select with Switch – which provide flexibility and allow the device to adjust to a user's changing needs.

- The new Navigator interface, which is designed to allow Vmax and EyeMax users quick access to all forms of communication – speech, e-mail, infrared control, Internet, and more.

The EyeMax began shipping to customers in September, 2008. The EyeMax accessory sells for \$7,000 and does not include the Vmax. Funding is available through Medicare, Medicaid and private insurance.

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

"SARA 9.0 is an extremely versatile and easy-to-use reading solution for people with any degree of visual impairment."

Other new features in SARA 9.0 include:

- Updated Optical Character Recognition (OCR) engines that provide users with the latest in available OCR technology

- BuckScan mode to identify U.S. and Canadian paper currency to determine bill denominations

- RealSpeak Solo Direct to provide faster response in menu and document navigation

- Contrast Adjustment to improve accuracy when scanning low-contrast documents

To learn more about all the features of the SARA and to listen to the wide array of the human-sounding SARA voices, go to SARA Scanning and Reading Appliance.

Existing SARA customers can easily update to SARA 9.0. Contact your local dealer or Freedom Scientific to obtain the update DVD.

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

HUMANWARE INTRODUCES FOUR NEW PORTABLE VIDEO MAGNIFIERS FOR LOW VISION

HumanWare expanded its low vision product line with the announcement of four new video magnifiers.

The new products include:

SmartView Pocket. An extremely lightweight handheld video magnifier that can be used in the home or around town, wherever things are too small to see. Large, intuitive buttons make the unit easy to use. The Pocket provides up to 9x magnification on its 3.6-inch LCD screen.

SmartView Graduate. Ideally suited for helping low vision students fully participate in class by being able to see across the room and magnify items on their desk. The Graduate connects to a notebook computer via a USB interface to provide up to 50x magnification on the computer screen. The camera turns to view the desktop or distant objects. The unit easily fits into a computer bag and weighs only 2.5 pounds, which makes it extremely easy to carry between classes.

SmartView Nano. The smallest video magnifier available at a very affordable price. The Nano magnifies objects from 5x to 20x, making it easy to read fine print on pill bottles, ingredients on product labels, or seat numbers on theater tickets.

SmartView Mobile. A portable video magnifier with a 7-inch screen, providing up to 18x magnification. The Mobile is ideal for those who need a portable device but cannot compromise on magnification and screen size. Perfect for taking to the library, carrying around home or using at the office.

"With these new products, HumanWare has significantly increased its offering of portable devices," explains Ted Judge, Product Manager. "Users want to be able to read regular or small print wherever they are, and these new additions to the SmartView family help people see and read, whether at home, the store, the office, or out on the town."

For more information, visit: www.humanware.com/en-usa/products/low_vision/smartview. ■

Closing The Gap

26th ANNUAL CONFERENCE Assistive Technology in Special Education and Rehabilitation

October 16-18, 2008 • Preconference Workshops October 14-15, 2008
Sheraton Bloomington Hotel & Hotel Sofitel • Minneapolis, Minnesota

**The most practical, practitioner-driven
AT conference in North America.**

26th Annual Conference

Closing The Gap's annual conference has earned a reputation internationally as a leading source for information on innovative applications of assistive technology for persons with disabilities. The 26th Annual Conference builds on a tradition of providing a comprehensive examination of the most current uses of technology by persons with disabilities and the professionals who work with them.

Topics will cover a broad spectrum of technology as it is being applied to all disabilities and age groups in education, rehabilitation, vocation, and independent living. People with disabilities, special educators, rehabilitation professionals, administrators, service/care providers, personnel managers, government officials, and hardware/software developers will share their experiences and insights at what has become known as the most significant networking experience of the year – the annual Closing The Gap Conference.

Preconference Workshops

October 14-15, 2008

The 2008 Conference offers 25 preconference workshops on October 14th and 15th providing in-depth professional skills necessary to successfully implement assistive technology in the lives of persons with disabilities. Each workshop is conducted by a nationally recognized leader in the field.

Preconference Workshops will be held on Tuesday, October 14 and Wednesday, October 15, beginning at 8:00 am and ending at 4:30 pm. The fee for each one-day workshop is \$270. Some workshops carry an additional fee for materials. All participants will receive a Closing The Gap-issued, presenter-signed Certificate of Preconference Workshop Attendance upon completion of the workshop.

In addition, graduate-level academic credit from Hamline University, St. Paul, Minnesota and CEUs are available for a variety of levels of conference attendance.

Over 200 Presentations

October 16-18, 2008

The 2008 Closing The Gap Conference offers over 200 sessions that describe and/or demonstrate successful applications of assistive technology for persons with disabilities. Sessions examine results of current applications, research, development of computer hardware, software, or adaptive devices, model programs, or procedures used by and for persons with disabilities.

Sessions emphasize practical applications rather than theoretical discourse. Through lecture, networking, demonstration, and hands-on lab sessions, assistive technology users of every level of expertise can find valuable information at the 2008 event. Presentations for experienced practitioners focus on needs of persons actively using assistive technology in education, rehabilitation, vocation, or independent living – typically intermediate to advanced level computer users.

For those who are just being introduced to assistive technology, the conference provides a range of presentations that meets needs across the assistive technology experience continuum and facilitates a balanced interchange between special educators and rehabilitation professionals.

Graduate-level academic credit and CEUs are available. A Certificate of Attendance is available upon request at no additional fee.

State-of-the-Art Commercial Exhibits

October 15-18, 2008

The 2008 Closing The Gap Conference features extensive commercial exhibit areas, displaying state-of-the-art computer-related products.

Academic Credit

Graduate-level academic credit from Hamline University, St. Paul, Minnesota is available for a variety of levels of conference attendance. Participants will have the option of one, two or three full semester credits, each requiring specific contact hours and an outside assignment. The contact hours for the desired credit(s) can be met by preconference workshop participation, conference participation, or a combination of the two.

12 contact hours plus an outside assignment = one full semester credit (This one credit option requires one preconference workshop and conference participation; two preconference workshops; OR conference participation only.)

24 contact hours plus an outside assignment = two full semester credits (This two credit option requires one preconference workshop (minimum) AND conference participation.)

36 contact hours plus an outside assignment = three full semester credits (This three credit option requires two preconference workshops AND conference participation Thursday - Saturday).

One semester credit is \$115; two semester credits are \$230; three semester credits are \$345.

In addition to the contact hours, an outside assignment will be required and will need to be turned in to Closing The Gap by November 15th, 2008. Within a few weeks, grades will be issued and then maintained by Hamline.

To register for academic credit, please indicate your preference as to one, two or three semester credits on the registration form, pay the appropriate fee, and complete and return the Hamline academic credit form that will accompany your confirmation letter in the mail. Any questions regarding academic credit and the procedure involved should be directed to Closing The Gap's registration department.

IACET CEUs

AAC Institute is an Authorized Provider of IACET (International Association for Continuing Education and Training) CEUs. CEUs will be offered for all conference learning sessions without charge. IACET CEUs that relate to the practice of speech-language pathology and audiology can be used for ASHA certification maintenance. RESNA accepts IACET CEUs for ATP/ATS credential maintenance. Most state licensure systems accept IACET CEUs or other forms of self-reporting. Pre-conference workshops are offered for up to 1.4 CEUs. The conference is offered for up to 2.0 CEUs. For additional information visit www.aac institute.org/CEUs.

CEU details and documentation will be available at the Closing The Gap registration desk located on the second floor of the Sheraton.

Certificates of Attendance

Closing The Gap-issued Certificates of Attendance for conference participation will be available upon request at no additional fee.

RESNA Certification Exam

RESNA will be hosting the ATP/ATS/RET certification exam in conjunction with the Closing the Gap Conference at the Sheraton Bloomington Hotel on Monday, October 13, 2008 from 1:00 pm - 5:00 pm. For more details about the certification program or about RESNA, please visit the RESNA Web site at www.resna.org.



Conference Schedule

Monday, October 13

5:00 pm - 9:00 pm

Registration Desk Open

Tuesday, October 14

7:00 am - 8:00 pm

Registration Desk Open

8:00 am - 4:30 pm

Preconference Workshops

Wednesday, October 15

7:00 am - 9:00 pm

Registration Desk Open

8:00 am - 4:30 pm

Preconference Workshops

5:30 pm - 8:00 pm

Preview of Exhibits

5:30 pm - 8:00 pm

Complimentary Hors d'oeuvres

Sponsored by InfoCor and the new Satalight

Thursday, October 16

7:00 am - 5:30 pm

Registration Desk Open

8:00 am - 10:30 am

Presentations

10:30 am - 12:30 pm

Exclusive Exhibit Hours

and Lab Presentations

12:30 pm - 4:30 pm

Presentations

9:00 am - 5:30 pm

Commercial Exhibits

Friday, October 17

7:30 am - 5:30 pm

Registration Desk Open

8:00 am - 10:30 am

Presentations

10:30 am - 12:30 pm

Exclusive Exhibit Hours

and Lab Presentations

12:30 pm - 4:30 pm

Presentations

9:00 am - 5:30 pm

Commercial Exhibits

Saturday, October 18

7:30 am - 2:00 pm

Registration Desk Open

8:00 am - 1:30 pm

Presentations

9:00 am - 2:00 pm

Commercial Exhibits

Preview of Exhibits

Open to preconference and/or conference registrants only.

Wednesday, October 15

5:30 pm - 8:00 pm

Complimentary Hors d'oeuvres

Sponsored by InfoCor and the new

Regular Exhibit Hours

Open to conference registrants only.

Thursday, October 16..... 9:00 am - 5:30 pm

Friday, October 17..... 9:00 am - 5:30 pm

Saturday, October 18..... 9:00 am - 2:00 pm

(Commercial Exhibits open to the public at no charge.)

Preconference Workshops

TUESDAY, OCTOBER 14, 2008

PC-1 Implementing Literacy and Communication Instruction for Students with Significant Disabilities, Including Deaf-Blindness: Activities and Strategies that ARE Working

Gretchen Hanser, M.S., OTR, is the Director of Deaf-Blind Model Demonstration Classroom Project, Center for Literacy and Disability Studies, University of North Carolina, Chapel Hill, NC; Toy Dills Booth, M.Ed., NBCT, is a Special Educator, The North Shelby School, Shelby, NC; and Elaine Palmer is a Parent, Charlotte, NC.

PC-2 Autism and Literacy: Assessment Defining Instruction

Susan Norwell, M.A. Special Education, is an Educational Specialist in private practice, Focused Learning Solutions, Buffalo Grove, IL.

PC-3 But What if the Teachers Won't Do It? Making a Difference with Your Consultative Services

Keri Huddleston, M.A., CCC-SLP, is an Assistive Technology Consultant, Teru Langsdale, M.S., CCC-SLP, is a Special Education Consultant, and Moira Soulia, M.S., CCC-SLP, is an Assistive Technology Specialist, all, Washoe County School District, Reno, NV.

PC-4 Getting to Conversations and Communication While Learning Switch Access: Strategies for Children Who Face Multiple Challenges and Complex Communication Needs

Linda J. Burkhart, B.S., is a Special Educator/Augmentative Communication Specialist/Technology Integration Specialist in private practice, Eldersburg, MD; Dale Gardner Fox, M.S., is a Physical Therapist/Assistive Technology Consultant, Hampshire Educational Collaborative, CCATT, Northampton, MA; and Deanna K. Wagner, M.S., CCC-SLP, is an Assistive Technology Specialist, Southwest Human Development, Phoenix, AZ.

PC-5 Boardmaker Plus! Boot Camp: A Combined Skill and Implementation Workshop

Lisa Kehoe, M.S., is an Educational Specialist/Training Manager for Mayer-Johnson, LLC, Des Moines, IA.

PC-6 The Right Tools for the Right Job: A Person-Environment-Occupational Approach for Reading Technologies

Laurie McArthur, B.S., OTR, is the Services Coordinator, Lizna Husnani, M.S., OTR, is an Adaptive Technology Authorizer, Linda Petty, OTR, is a Clinical Specialist, and Charles Silverman, M.Ed., is the SNOW Project Coor-

dinator, all, Adaptive Technology Resource Centre, University of Toronto, Canada.

PC-7 Make It Age Appropriate: Engaging Your Adolescent and Young Adult AAC Users with Severe/Profound Disabilities in Age Appropriate Communication

Elizabeth (Libby) S. Rush, M.A., CCC-SLP, CPM, is an AAC Consultant in private practice, Durham, NC and Leslie Redding, M.S., CCC-SLP, is an Assistive Technology Specialist, North East ISD, San Antonio, TX.

PC-8 Practical Low Tech Instructional Strategies and Behavior Management for Students with Autism Spectrum Disorder

Susan L. Stokes, M.A., CCC-SLP, is an Educational Autism Consultant and Trainer in private practice, Fond du Lac, WI.

PC-9 A Deeper Look: How Technology Can Enhance Written Communication Skills

Judith P. Sweeney, M.A. Special Education, is the President/Consultant, Onion Mountain Technology, Inc., Canton, CT.

PC-10 The Accessible Book Club for Early Literacy and Language Learning: Create-It and Take-It Computer Lab

Pati King DeBaun, M.S., is a Speech Language Pathologist specializing in assistive technology, Creative Communicating, Park City, UT and Dan Herlihy is an Assistive Technology/Technology Resource Specialist, Connective Technology Solutions, Inc., Hoosick, NY.

PC-11 Bringing the Curriculum to iLife

Mark Coppin, B.A. in Speech Communication and B.S. in Special Education, is the Assistive Technology Director and Theresa Hanson, B.S. in Elementary Education, is the Assistive Technology Coordinator, both, Anne Carlsen Center for Children, Jamestown, ND.

PC-12 Accessible Instructional Materials 101: What State and Local Education Agencies and Families Need to Know About NIMAS and Beyond

Joy Zabala, Ed.D., ATP, is the Project Manager, The AIM Consortium, CAST, Inc., Lake Jackson, TX; Kelly Fonner, M.S., is an Assistive/Educational Technology Consultant, Lake Geneva, WI; and Scott Marfilus, M.S., is an Assistive/Educational Technology Consultant, Bayside, WI.

WEDNESDAY, OCTOBER 15, 2008

PC-13 Response to Intervention in Reading: Tier 2 Approaches that Address Individual Learning Needs

Karen Erickson, Ph.D., is a Professor, Dept. of Allied Health Sciences and is the Director of the Center for Literacy and Disability Studies, University of North Carolina, Chapel Hill, NC; Penny Hatch, M.S., CCC-SLP, is a Research Associate, Gretchen Hanser, M.S., OTR, is a Research Associate, and Eric Sanders, M.S., CCC-SLP, is a Research Assistant, all, Center for Literacy and Disability Studies, University of North Carolina, Chapel Hill, NC.

PC-14 Making the Connection: Integrating AT into Current Education Initiatives

Penny R. Reed, Ph.D., is a Consultant, Penny Reed Consulting, Roseburg, OR and Gayl Bowser, M.S., is a Consultant, Assistive Technology Collaborations, Roseburg, OR.

PC-15 Creating Accessible, Tiered, Talking Web Pages

Dave L. Edyburn, Ph.D., is a Professor, University of Wisconsin-Milwaukee, Milwaukee, WI.

PC-16 Beginning Communication, Beginning Language, and Beginning Conversations! Strategies for Students with Multiple and Severe Disabilities: Make-It, Take-It

Pati King DeBaun, M.S., is a Speech Language Pathologist specializing in assistive technology, Creative Communicating, Park City, UT; Sue Aldofer, B.S., is a Speech Language Pathologist, Montgomery County, Perkiomenville, PA; and Karen Biggerstaff, M.S., is a Speech Language Pathologist/Consultant, San Antonio, TX.

PC-17 Designing Two-Switch Activities for Computer Access: Hands-On Computer Lab - Classroom Suite

Linda J. Burkhart, B.S., is a Special Educator/Augmentative Communication Specialist/Technology Integration Specialist in private practice, Eldersburg, MD; Susan Garber is the Executive Director, AT-LAST, Inc.: The MDAT Cooperative, Columbia, MD; Jeanne Noorisa is a Special Educator, AT Team, Baltimore County Public Schools, Monkton, MD; Jan Kurtz, M.S., is an Occupational Therapist, AT Team, Baltimore County Public Schools, Hampstead, MD; and Maysye W. Kaplan, M.S., CCC-SLP, ATP, is an Assistive Technology Team Leader, Baltimore County Public Schools, Timonium, MD.

PC-18 Creating and Using Accessible Curriculum Materials

Jim Kauppila, B.A., is a Teacher Consultant for Assistive Technology, Muskegon Area ISD,

Some workshops fill quickly.

Early registration is encouraged.

Muskegon, MI and Mark Dennis, M.A., is a Consultant for Assistive Technology, Eaton ISD, Charlotte, MI.

PC-19 Sensory Processing, Sensory Integration, and Seating and Access: How to Support Access and Independence with Students in Wheelchairs

Karen M. Kangas, OTR/L, ATP, is an Occupational Therapist, Assistive Technology Specialist, and Clinical Educator in private practice, Shamokin, PA.

PC-20 "Whodunit!" Unraveling the Mystery of Social Relation Skills for Asperger's Syndrome: Practical Uses of Technology for Intervention

Susan L. Stokes, M.A., CCC-SLP, is an Educational Autism Consultant and Trainer in private practice, Fond du Lac, WI.

PC-21 Beyond Emergent Literacy: Supporting Guided Reading for Students with Significant Disabilities

Caroline Ramsey Musselwhite, Ed.D., CCC-SLP, is an Assistive Technology Consultant and Author, AAC Intervention, Litchfield Park, AZ; Nancy Hogan, M.S., is a Teacher/Assistive Technology Team, Agawam Public Schools, Agawam, MA; Laurel Richardson, M.A. Ed, OTR, is an Assistive Technology Specialist, Buckeye School District, Goodyear, AZ; and Kim Daswick, B.A., is a Parent of an AAC User, Litchfield Park, AZ.

PC-22 Technology Supports for Homework

Judith P. Sweeney, M.A. Special Education, is the President/Consultant, Onion Mountain Technology, Inc., Canton, CT.

PC-23 Clicking in the Fast Lane with Clicker 5 and Clicker Paint

Dan Herlihy is an Assistive Technology/Technology Resource Specialist, Connective Technology Solutions, Inc., Hoosick, NY and Darlene Brodbeck, M.S., is the AT Coordinator, ACES, Hamden, CT.

PC-24 Writing with the 6 + 1 Traits for Children with Significant Disabilities

Susan Norwell, M.A. Special Education, is an Educational Specialist in private practice, Focused Learning Solutions, Buffalo Grove, IL.

PC-25 Providing Meaningful Curricular Experiences for Students with Significant Disabilities

Kelly Fonner, M.S., is an Assistive/Educational Technology Consultant, Lake Geneva, WI and Scott Marfilus, M.S., is an Assistive/Educational Technology Consultant, Bayside, WI.

Presentations

Assessment

AT Assessment: Laying the Groundwork for Success (Two Block Session)

Clarifying Assessments and Capturing Understanding with Boardmaker Software Family

Creating and Conducting an Effective Large Scale Assistive Technology Needs Assessment

How to Assess Young Children for Powered Mobility

How to Assess, Teach, and Use the Head as an Access Site for AT

How to Gather Useful Evidence for Access Assessment

Location, Location, Location! Determining the Best Switch Location and Type for Access to Assistive Technology (Two Block Session)

Look What I Can Do: From an Adaptation-Based to an Assessment-Based Approach

Portfolios that Work

RTI, UDL, and AT: Mining the Data to Reveal a Need for Strategies that Use Technology to Enhance Performance

Solving the Puzzle: Data is Our Friend (Two Block Session)

The SETT Framework: Straight from the Horse's Mouth

Understanding Assessment, Access, and Trials for the tango!

Unlock the Mystery of Print: Strategies for Student Reading Achievement

Augmentative Communication

A Comparison of Eye-Control with Switch Scanning: Speed, Accuracy, and Fatigue Levels

AAC and the Classroom

AAC Evaluations: Build Your Own Toolkit

AAC in Medical Settings: Keeping It Simple ... Meeting the Needs

Accessing AAC: Case Studies and Literature Review

Before/During/After: Secrets of the Balanced Literacy Club Project (Two Block Session)

Beyond Eat, Drink, and Potty: Take 2! (Two Block Session)

Beyond Mac or PC: iPhone and Modbook as Assistive Technology

Breaking Tradition: Creating Static Communication Page Sets that Enhance Curriculum Integration and Interaction

Communicating in a Modern World Part 2: Socially Speaking Software

Consistent, Efficient AAC Use: How Language Sampling Can Help

Conversations and Communication while Learning Switch Access: A Smorgasbord of Strategies for Children with Complex Communication Needs (Two Block Session)

Curriculum and Communication Ideas to Meet Standards in Your Classroom

Designing Visual Scene Displays: Choosing Meaningful Images and Practical Teaching Guidelines for Vocabulary Expansion

EZ AAC Kamp: Just Add Kids!

Hands-on Introduction to the Lingraphica Speech-Generating Device

Hands-on Lab: Integrated Computer Access on the DynaVox V and Vmax (Two Block Session)

Hands-on Lab: Making the Most of Alternate Access on the DynaVox V and Vmax (Two Block Session)

How to Talk Cheap: Understanding Options and Making Decisions About Lite Tech, Low Cost AAC (Two Block Session)

Integrated Augmentative Communication Devices Operating Through WordPower

IntelliTools Extreme! New Frontiers with Classroom Suite 4

Lessons Learned with AAC in the Classroom

Meet tango! Lab 2.0 Programming Software: Get Ready to Supercharge Customization for Your tango!

Multimodal Communication Strategies for Girls Who have Rett Syndrome (Two Block Session)

New Developments in Portable Keyboard-Based Speech Generating Device (SGD)

Partner-Assisted Communication: Moving from Receptive Use to Expression

PHOTOSyms: Augmenting a Student's Vocabulary with Custom Symbols

Point-and-Chat: Instant Messaging for AAC Users

Pragmatic Organization of Vocabulary: What is That?

Pragmatic Skills in Teens and Young Adults Using AAC

Strategies that Enable AAC Users to Engage Communication Partners: A Consumer's Perspective

The tango! Creating a Social, Linguistic, and Educational Framework

Understanding Alternate Access on Nondedicated AAC Devices

Vocabulary Building in AAC: A New Tool for Seamless Vocabulary Growth

We Dance, We Sing, We Do All Kinds of Things Working with Infants and Toddlers

Yes They Can: Young Children with Significant Disabilities, Including Deaf-Blindness, as Communicators, Readers and Writers (Two Block Session)

You Oughta be in Pictures: Using AAC to Create an Accessible Early Childhood Classroom

Autism

Asperger Syndrome and School: What Does It Take, REALLY?

Fostering Independence: The Use of Technology in the Instruction of Adolescents and Young Adults with Asperger's Syndrome and High Functioning Autism

From Early Engagement to Beginning Literacy Strategies for Children on the Autism Spectrum (Two Block Session)

Let's Get Visual! Visual Supports in the Home, School and Community

Low Tech AT for Teaching Activities of Daily Living to Students with ASD

Sorting Through Software for Task and Behavior Supports

Technology to Support Visual Language Programming

The "Wicked" Truth About What It Takes to be "Popular, You're Gonna be Popular"... or at Least What It Takes to Improve Your Social Skills

Unraveling the Mystery of Social Relation Skills for Students with Asperger's Syndrome: Practical Uses of Technology for Assessment and Intervention

Using Animated Software to Improve Communication Skills of Young Students with Autism

Video Modeling: Using Activity Trainer Software to Make VM Easy, Practical, and Specific for Student Needs

Cognitive Redevelopment

Cognitive Support Technologies: Coming Full Circle

Curriculum Development

A Unique Curriculum for Unique Learners

Accessible Text Year Two

Aligned and Ready to Learn

AT: The Most Reliable Network

Boardmaker Software Family and the Web: Creating, Sharing, and Finding Symbol Adapted Curriculum

Clicking in the Fast Lane with Clicker 5 and Clicker Paint

Collaboration, Teamwork, Solidarity, Joint Effort, Partnership: Whatever the Name ... It CAN Work!

Creating Accessible Curriculum Activities for the Deaf/Hard of Hearing

Easy to Say - Hard to Do: Making Meaningful Curriculum Modifications and Assessment Easier

Integrating AT and AAC in Your News-2-You Classroom Lessons (Two Block Session)

Make Them Laugh: The Write Way!

QIAT Indicators for State Improvement Plans

Science Strategies and Resources

SOS! Strategies on Standards: Access to Music and Art for Everyone!

Special Needs Education in the Netherlands and the Use of ICT: "I Can Do It Myself!"

Teaching an Old Dog New Tricks

Teaching to the Standards in Math and Science for Students with Significant Disabilities with AT Adaptations

The Fun Factor Lab: Integrating Multimedia into Boardmaker Plus Activities (Two Block Session)

The Missing Link to Your Curriculum: Classroom Suite (Two Block Session)

The Writing Bin and Beyond

Time is the Issue

UDL + DI = Accessible Math

Unleash the Power of Acrobat 8 for Your Struggling Students

Unleash Your Curriculum! Support ALL Students and ALL Tiers of Intervention with Classroom Suite 4

Zien en Begrijpen: Project - Seeing and Understanding

Employment / Job Accommodation / Job Training

Neil Squire Society Uses Wimba Classroom to Provide Career Development Online to Reach More People with Disabilities

Functional Living Skills

Adapting Activities for Maximum Student Participation: Ideas for YOUR Classroom that Work in OURS (Two Block Session)

Read to Learn: A Guided Reading Curriculum in Print and Software Formats for Adolescents to Adults with Significant Developmental Disabilities, Including Autism

Self-Operated Digital Video/Audio Prompting with iPod and Zune Devices (Two Block Session)

Use of Video Prompting, Via a Portable DVD Player, Laptop Computer, or PDA as Self-Prompting Devices for Persons with Moderate Intellectual Disabilities

Funding

Communicating in a Modern World, Part 1: Implications for Funding

Inclusion / Cooperative Learning

Acrobat-ics: Why Your School Needs Acrobat Professional

Equal Access: Universal Design of Instruction

Kurzweil 3000 and Classroom Suite: Invading General Education! Learn How to Combine the Use of Kurzweil 3000 and IntelliTools Classroom Suite to Make Curriculum Truly Accessible for All Students in the Classroom

Old Friends and New: Tools and Ideas You May Not Have Thought of Before (Two Block Session)

Reach Out to Your Pupils/Students at Home, or Wherever!

Ten Things You Need to Know About Visual Literacy (Two Block Session)

Keyboard Alternatives

Comparing Voice Recognition Technology Tools

Computer Accessibility for Those with Physical Impairments

Creating Launch Setups to Simplify the Computer Environment for Switch Users (Two Block Session)

Customizing Access to Mac OS X for Users with Physical Impairments (Two Block Session)

Gaming: The Key to Motivating Kids and Adolescents

Glimpse the Future of AT: Some of the Coolest Ideas that are Coming (iPhone, T9, Swype, and Much More)

Making Speech Commands Work Well on the Desktop: It's All About Steps

No Mouse, No Keyboard -- Full Computer Control: How is that Possible?

One Switch, Two Switch, Red Switch, Blue Switch

Setting Up and Working with Switch Interfaces (Two Block Session)

Switch Access 101: Mac OS X (Two Block Session)

Switch on Learning

Taking Switch Users to the Next Level: A Three-Step Approach

Language Development

Hot Topics for DD Adults: Let's Talk tango!

They Have a Core Vocabulary, Now They Need Sentences

Learning Styles

Catch that Spelling Error: Solutions Beyond the Word Processor

Club Model Expands Assistive Technology in Virginia District

"My AT Does Not Get Mad at Me" AT: The Student Perspective (Two Block Session)

Legislation

AIM Implementation Guidelines for Michigan

Literacy

Accessible Literacy Learning from Penn State and Mayer-Johnson

Adapted PowerPoint Books Using Office 2007, in 10 Easy Steps (Two Block Session)

Alphabet Soup: The ABCs of Adapting Technology for Individuals with Learning Disabilities for Academic Success

Books Please

Exploring Co:Writer and Write:OutLoud

GhostReader: A New Approach to Deal with Reading and Writing Difficulties on the Mac

It Takes a Village: Creating Thematic Visuals and Accessible Literacy Activities

Literacy: A Lifetime of Reading

Measure It, Monitor It: Teacher Tools for Increasing Access to Print Through Use of Text-to-Speech Software

My Students Can't Write. Can They?

Promoting Literacy Through Supported Electronic Text for Students with Moderate Cognitive Disabilities

Promoting Wide Reading and Reading Growth for Adolescents with Significant Cognitive Impairment

Read&Write GOLD and Microsoft Word: The "Write" Tools for Any Student (Two Block Session)

Reading Buddies: Students Teaching Students Through Technology

Research, Review, and Write: Tools for Student Success

Supporting the Writing Process with Kurzweil 3000

Technology Solutions to Help Struggling Readers be Successful in Math

The MEville and WEville with Literacy Starters Program: Comprehensive Literacy Instruction for Children with Significant Disabilities

The Price is Right - Free: Using Free Technology to Support Reading, Writing, and Communication Skills

Using the Read Naturally Software Edition (SE) to Improve Reading Fluency

Write All About It: Creating Writing Activities with Boardmaker Plus (Two Block Session)

Write Away: Composing Stories, Poems and Songs for Beginning Communicators

Write From the Start: Identifying and Using Alternative Pencils for Students with the Most Significant Disabilities, Not the Typical Paper-Pencil Activity! (Two Block Session)

Writing Across the Curriculum

Other

(Accessible Medium for Learning Disabled)

Bookshare.org: Books Without Barriers

(All Areas Independent Skills)

Reducing Prompt Dependency (Two Block Session)

(AT in Dramatic Arts)

Who's Been Switching at My House? Hansel and Gretel: An Adapted Play

(Construction/Switch Adaptation)

Better Than Duct Tape: Creativity and

the Right Materials = Great, Low Cost AT

(Deaf/Hard of Hearing)

Utilizing Lifelike, 3-D Animated Sign Language Characters for the Instruction of K-12 Deaf Learners

(Demo/Loan/Training Centers)

Smooth Operators: Improving the Efficiency and Service Delivery of Your AT Center and Living to Tell About It

(Mouse Alternative)

Body Sensor Computer Control!

(Multisensory Environments)

Multi-Sensory Environments, Augmentative Communication Tools, and How Merging the Two Reaps Bigger Benefits

(Policy)

Accessible Instructional Materials 101: The Cliff Notes Version!

(Pre-service and In-service Training)

The Future is Today: A University Model to Teach Assistive Technology and Universal Design Throughout the Occupational Therapy Curriculum

(Social Communication)

Video Modeling Your Way to Success!

(Social Skills)

Success Stories: Using Video PowerPoints to Teach and Transform

(Systemic Implementation of AT)

Sustaining High Quality Implementation

(Training, Mouse Alternatives)

Computer Activity Progression for Pointing Skills

Professional Development

Collaboration Station and Transition Train: Joining Hands to Move Toward Independence

Data-Based Observations: Technology Makes It Easy, Efficient, and Effective

Every Move Counts in San Antonio (Two Block Session)

On-Going Professional Development: AbleNet Student Achievement Program

Online Resources for the AT Provider

Success with Speech Recognition

Ten Things Everyone Needs to Know About AT, AIM, RTI, and UDL in 2008

Web 2.0 Tools for the Assistive Technology Professional

Research

A Model of An Assistive Technology Program to Increase Pre-service Teachers' Awareness and Skills

Special Education Technology Research: What Have We Learned Lately?

We Have to Do WHAT? A Look at the IDEA Requirement that Interventions be Based on Peer Reviewed Research and How It Applies to AT

Seating / Positioning / Mobility

Sensory Processing, Sensory Integration, and Seating and Access (Two Block Session)

Technology Integration

Assistive Technology in the Theatre

Developing Communication in Young Adults via Multimedia Technology and Assistive Technology

Empowering Students with the Boardmaker Software Family to Manage Behavior (Two Block Session)

Fractions, Decimals, and Percents: Yes They Can!

Hands-on: Accessible Books 'How To,' 'Endless Possibilities!' (Two Block Session)

How Can We Use the Mind Tool Computer for Students with Learning Disabilities?

Intraweb and Dutch Special Education

Maximizing Classroom Technology to Support Written Language FUNDamentals

Offer More with Your AT Services Using Free, Online Blog Tools

Open Source Software: The Universals Design for Learning (UDL) and Response to Intervention (RTI) Solution ... Try Before You Buy

Tailor Made (Two Block Session)

Team Work: Characteristics of Effective Teams

The Magic of 3-D Immersive Environments

The Power and Potential of Working SMART with Special Needs Populations

Tom and Jerry: Using the Power Wheelchair to Control the Computer Mouse

Universal Design and Differentiated Instruction: Helping Teachers Make the Connection

Video Games in Rehabilitation and Special Education: Creating

Customized Video Games for Assistive Technology

Writing Success Anywhere, Anytime, with WriteOnline

You Can Take It with You! Running Applications from Flash Drives, iPods, and SD Cards

Transition

Improving the Transition Planning Process: The Top Ten Things Everyone Should Know About Transition and Fostering Independence (Two Block Session)

Commercial Exhibits

AAC Institute

AAC performance requires evidence-based practice (EBP). AAC Institute offers free and low cost products, evidence, and other resources for professionals and families to support EBP.

AAC TechConnect

New company which specializes in simplifying augmentative communication evaluations with one-of-a-kind evaluation toolkits, online resources, and free workshops provided in your area.

AbleLink Technologies

AbleLink Technologies specializes in research and development of Cognitive Support Technologies for people with intellectual and developmental disabilities, traumatic brain injuries, and age-related cognition issues.

AbleNet - TASH

AbleNet offers a complete line of assistive technology products, including communication aids, switches, environmental controls, computer access, and mounting devices. We also offer research-based special education curricula that meet state and federal mandates.

Accelerations Educational Software

Activity Trainer Video Modeling program with 150 task-analyzed videos allows modifications, collect data, add videos. The DT Trainer instructional

software has 165+ programs, data-collection, reinforcers.

Adaptivation

Adaptivation manufactures switches, communication aids, and environmental controls. Stop by our booth to see new products and application ideas!

Adaptive Computer Control Technologies

Our goal is to increase access to technology by providing easy-to-use products that are cost effective and work in conjunction with existing computer equipment.

Adaptive Switch Laboratories

Adaptive Switch Laboratories is dedicated to designing and adapting devices that allow individuals with severe disabilities to achieve independent movement, environmental control, and communication/computer access.

Advanced Multimedia Devices

AMDi's new Smart/Series Communicators with their interchangeable flash memory system combined with our Smart Ease activities gives you endless communication possibilities.

AlphaSmart, A Renaissance Learning Brand

AlphaSmart Neo is the lightweight, portable, easy-to-use laptop that offers a wide range of computing

capability while integrating effortlessly with your existing desktop and laptop computers.

Applied Human Factors

REACH, Smart Keys, Smart Lists, Sounds Like - Spell, Write!, Smart Speech, Scan Buddy, Mouse & Caret Buddy, One Way, SoothSayer Word Prediction.

Atomic Learning

Atomic Learning provides Web-based software training and is an integral part of a professional development program, a curriculum supplement, and a software training resource.

Attainment Company

Attainment Co. produces an affordable product line: Augmentative Communication devices. "Go Talk" videos, software, print and hands-on materials, research-based literacy, math, and science curriculum too!

Augmentative Resources

Velcro-receptive communication books, display boards, picture schedules, behavior and time management products and literacy aids. Use pictures on our devices to improve communication, language and literacy skills. Check out our "Create-a-Book," "Literacy Strips," "Squeeze & Find Mat," "Slide & Follow Schedule" and "Talking Pockets" - new versatile voice output device.

October 15-18, 2008

The 2008 Closing The Gap Conference features extensive commercial exhibit areas, displaying state-of-the-art computer-related products. The contracted exhibitors to date include the following companies:

Beacon-Ridge

Innovative low tech solutions for reading, writing, math, and organization.

Benetech / Bookshare.org

Bookshare.org is the world's largest online library of accessible media with over 40,000 titles for students and individuals with print disabilities.

Blink Twice

Blink Twice produces the tango!, an AAC device that offers the fastest communication and personalization possible, with multiple modes to address a broad range of individuals.

C.J.T. Enterprises

Modular mounting systems allowing AT devices to be optimally positioned to accommodate an individual's unique needs. Come see our new products for 2008.

Cambium Learning Technologies

Cambium Learning Technologies, comprised of IntelliTools and Kurzweil Educational Systems, is the leading source for research-based educational technology.

Caring Technologies

BI Capture is a video-based "capture and access" system for recording, annotating, and communicating behaviors which occur in classroom, home, or clinic settings.

Clear Vision Midwest

Distributor of Optelec (Clearview+) CCTVs, Ash CCTVs, Optron CCTVs throughout the Midwest.

Closing The Gap

Discover Solutions, the many resources that Closing The Gap has to offer. Try, first-hand, the online subscription tool that allows users to search for and compare the latest in AT products and allows users to find, read, and share articles that highlight product use and effective AT strategies.

Cognitopia Software

Cognitopia Software presents Picture Planner, the innovative icon-based personal organizer. Customizable, cognitively accessible, cross-platform activity scheduling software for desk-top and mobile devices.

Conover Co.

Age-appropriate transition assessment and skill building system: Interest Assessment, Career Exploration/Assessment, Academic/Basic Skills Assessment, Career Information, Self-Determination, Social/Emotional Learning, Functional Skills System.

Creative Communicating

Creative Communicating is dedicated to creating fun, simple and universally accessible resources for communication, early literacy and creativity for students with disabilities. Adapted books, classroom materials and electronic books, as well as support materials for teachers.

Crick Software

At Crick Software our mission is to improve literacy achievement for students of all abilities by providing educators with innovative, research-based solutions that are easy to use and cost effective. Our flagship products, Clicker and WriteOnline, are powerful writing and creativity tools that support and motivate students as they develop their writing skills.

Cyrano Communicator

Cyrano Communicator uses digital pictures from a built-in camera for personalized speech. For those who can type, Cyrano Shorthand provides a text-to-speech engine and vocabulary library.

Daedalus Technologies

Available since 1986, DAESSY Mounting Systems for attaching AAC devices, laptops, and switches continues to grow, meeting today's wheelchair designs and users' needs.

DO-IT/Courage Center

DO-IT and the Courage Center, collaborate to provide assessment, assistive technology, computer training, and academic and career preparation activities for students with disabilities.

Dolphin Computer Access

Dolphin Computer access develops software for people with visual impairment and learning disabilities with the award winning Lunar Screen Magnifier, to the ultimate alternative format tool Easy Converter.

Don Johnston

Don Johnston Inc. is a publishing media and professional services company creating research-based products that enrich the teaching and learning experience.

DynaVox Technologies

DynaVox Technologies is the world's leading manufacturer of advanced AAC solutions, including the V and VMax, EyeMax, Lightwriter and M3.

E-Blocks USA

E-Blocks is an innovative multi sensory, research-based, hands-on method for teaching elementary Math and English as a second language and for initial literacy skills for early learners.

Enabling Devices

Augmentative communication devices, capability switches, adapted toys, media devices, environmental controls, and sensory devices.

Enhanced Vision

Developer of innovative products designed specifically for people who have macular degeneration and other low vision conditions.

EP Global Communications

Providing multimedia education to all ages of the special needs community.

Eye Response Technologies

The ERICA Communication System provides a simple and easy-to-use method to communicate and control a computer through eye movement alone. The Dedicated Communication Device is funded by Medicare and most insurance companies.

Eyetech Digital Systems

EyeTech's eye tracking technology enables users to control their SGD

or computer handsfree using just their eyes. Funded through Medicare, Medicaid, and insurance.

Freedom Concepts

Freedom Concepts custom builds fun and effective therapeutic mobility devices for individuals with conditions such as Cerebral Palsy, Spina Bifida, Muscular Dystrophy, Angelman, and Rett Syndrome.

Freedom Scientific Learning Systems Group

Learning difficulties? Freedom Scientific LSG provides WYNN, the award-winning software tool that transform text for all individuals struggling to read and write and TestTalker, the "talking" accommodation tool for test preparation and test-taking.

Gillette Children's Specialty Healthcare

Gillette Children's Specialty Healthcare combines medical, nursing, therapeutic, technical, psychosocial and other expertise to meet the special health needs of people who have disabilities.

GW Micro

GW Micro provides products for people who are blind and visually impaired, including Window-Eyes, Braille Sense, Voice Sense, SyncBraille, Portable SenseView, and Small-Talk Ultra.

HumanWare

HumanWare provides innovative solutions, empowering people who are blind, visually impaired, or learning disabled.

HumanWare

The Classmate Reader is a unique, portable, and lightweight system with a large LCD screen, ideal for students. This system significantly has the support of teachers who work with students who are dyslexic.

Inclusive TLC Special Needs

Single and 2-switch accessible software for students with severe and profound multiple needs, and alternate input systems for students with physical difficulties.

InfoCor

Infocor is a full service solutions provider specializing in A/V integration systems for meeting and conference rooms, and the interactive learning station for special needs.

Infogrip

Infogrip has creative computer access solutions for people with all types of disabilities. Alternative keyboards and

mice, switches, screen readers, magnifiers, and educational software.

Innovative Products (Mobility 4 Kids)

Manufacturer of mobility equipment to get children easily into a standing position along with recreation bowling equipment.

Jabbia

Manufacturer of AAC devices and software. AAC devices: Tellus 3+, Mobi, Smart, and Allora. Software: Mind Express, Eurovoc Suite, WordSprint (dyslexia).

Judy Lynn Software

Switch and scanning software for students nine months cognitive and up. Age-appropriate software features lively graphics and captivating sounds. Stop by booth 274 for a catalog and demo.

Laureate Learning Systems

Research-based, award winning software for language assessment and intervention, communication, auditory processing, and reading designed to meet the unique needs of individuals with disabilities.

Preview of Exhibits

Open to preconference and/or conference registrants only.

Wednesday, October 15

5:30 pm - 8:00 pm

*Complimentary Hors d'oeuvres
Sponsored by*

InfoCor and the new

satalight.

Regular Exhibit Hours

Open to conference registrants only.

Thursday..... 9:00 am - 5:30 pm

Friday..... 9:00 am - 5:30 pm

Saturday..... 9:00 am - 2:00 pm

(Commercial Exhibits open to the public at no charge.)

**Sheraton Bloomington Hotel
Great Hall**

LC Technologies/Eyegaze Systems

The New Eyegaze Edge: same great eyetracking accuracy at a new low price. Build your own or pick one of our eye-operated communication and control systems.

LifeSpan Education

LifeSpan Education was established as the one-stop source for excellent products and services that specifically cater to the needs of students with significant disabilities.

LiftVest USA

LiftVest makes dangerous painful gait belts obsolete! Stylish vest with attached webbing harness for transferring and ambulating the mobility impaired with safety and dignity. Prevents staff back injuries and student and patient injuries. New product - 2 way deep pressure autism vest.

LightSPEED Technologies

Research is conclusive ... gains in academic achievement occur when a teacher's voice is heard clearly throughout the classroom. Classroom Amplification Technology allows every student to hear every word, every time!

MacSpeech

MacSpeech Dictate is the all new speech recognition solution for Mac OSX. Powered by Dragon from Nuance.

Madentec

Computer access solutions for people with physical disabilities. Scanning and keyboard access is provided by DiscoverPro for Windows or Discover Envoy for Mac software and IntelliSwitch hardware. TrackerPro provides mouse emulation by the use of head movement.

Marblesoft - Simtech

For over 25 years Marblesoft has produced outstanding special needs software for infants through adults. Our Simtech Switch Training Software is also the best kept secret in assistive technology.

Mayer-Johnson

Boardmaker Plus! featuring Picture Communication Symbols is the premier software in special education classrooms. It makes the computer a student learning tool!

Monarch Teaching Technologies

Introducing state-of-the-art Web-based special education software. Quickly create personalized, interactive, computer-based activities for children with autism and other com-

munication deficits. 14,000 plus visuals and extensive lesson libraries.

Nasco

Nasco's Special Education Catalog offers a full line of products and resources for the special education teacher K-12, including software and assistive technology.

News-2-You

Stimulate communication with News-2-You, a current events Internet newspaper serving readers of all ages.

Nokia

Nokia will display devices and applications designed to aid those with hearing, speech, vision, mobility and cognitive impairment. Examples include: devices with screen readers, optical character readers, hearing aid compatibility, voice recognition and hands free adapters.

Nuance Communications

Nuance is the leading provider of speech and imaging solutions for educators around the world. Products include Dragon NaturallySpeaking, PDF Converter Pro, OmniPage Pro, and Paperport.

Origin Instruments

Origin Instruments provides hardware and software computer access products for those with motor and speech disabilities. Offerings include the HeadMouse Extreme for wireless head-controlled mouse emulation. Onscreen keyboards, scanning, low-vision and speech software.

Prentke Romich

Visit the Prentke Romich Co. booth #'s 250-252 and learn about our new device, ECO-14. ECO-14 is opening new doors for AAC communicators through Windows XP compatibility.

Quillsoft

Quillsoft will be highlighting the fully-integrated speech recognition and word prediction software for individuals with learning disabilities: WordQ and SpeakQ.

Quilted Illusions

Deep pressure therapy quilts and vests.

Read Naturally

Read Naturally provides reading solutions for struggling readers, including fluency, comprehension, phonetic practice, and assessment. The flagship program has been used nationwide for over 16 years.

RJ Cooper & Assoc.

Pioneer in AT, software and hardware for special needs.

Saltillo Corp.

Saltillo manufactures and distributes augmentative communication (AAC) products specializing in devices for ambulatory individuals. Visit us to see our expanding line of Chat PC products.

sComm

sComm develops, engineers, and manufactures the UbiDuo Face to Face Communicator. The UbiDuo enables a deaf/hard of hearing person and a hearing individual to communicate with each other face to face without any barriers such as an interpreter.

Silver Lining Multimedia

Quality interactive and photo software for visual learners. Check out our Picture This photo collections, Teaching Hands clock, plus other related materials.

Skyblue Co., Ltd.

Educational software for improving mathematical ability of children with disabilities.

Slater Software

Slater Software offers software: Picture It, PixWriter, Simply Science, and Read and Tell. All utilize Literacy Support Pictures to promote literacy growth. New: PAL Assessment for accountability.

SoftTouch

SoftTouch develops software from cause and effect to early literacy, including My Own BookShelf, Test Me - Score Me, Teaching Access Ability, and curriculum software.

Switch In Time

Fun, accessible music and games for all ages.

Talker

The Talker is an easy to set up, easy to use augmentative communication device for speech impaired adults or children.

Technology for Education

ZonCo Arm supports, special needs keyboards, text-to-speech devices, Dolphin software, Stealth Switch Interfaces.

Texthelp Systems

Texthelp Systems specializes in providing literacy software solutions for individuals with reading and writing difficulties, learning disabilities such

as dyslexia, or who are English language learners.

The Great Talking Box Co.

Manufacturer and distributor of AAC devices including: Dynamic Screen Devices with Touch Speak, PC based devices with Viking Communication, Touch Speak Cellphone, and Digital Reading Devices.

The Writer Learning Systems

Writer Learning Systems introduces FUSION, a fantastic low-cost assistive technology work station that features text-to-speech, word prediction software, variable font size, and much more.

Tobii ATI

Tobii ATI is the developer of the Mercury communication device and other innovative hardware and software solutions for people with physical, cognitive, and speech disabilities.

UCare

UCare provides health coverage plans to individuals, families, and Medicare eligible individuals. We also offer Special Needs Plans to individuals with disabilities.

Ulthera Technologies

PointScribe Interactive Handwriting System is a software program specifically designed to help teach children with learning disabilities and special needs to handwrite.

Vcom3D

Vcom3D technology enhances education and accessibility for all students through the use of engaging, animated avatars by adding sign language or recorded speech and gestures to your multimedia content.

VisionCue

Assisting individuals who are blind with intelligent Braille communication devices and software from ALVA, Optelec, Nuance, and Code Factory.

Words+

Words+ has supplied durable, user-friendly AAC and SGD systems for 25 years. Come see the all new Say-it! SAM Communicator and Say-it! SAM vocabularies.

Conference Headquarters

Sheraton Bloomington Hotel, 7800 Normandale Blvd., Bloomington, Minnesota and the adjacent Hotel Sofitel, 5601 W. 78th St., Bloomington, Minnesota are the official hotels of the conference. All conference activities are held at these two hotels located just 10 minutes west of the Minneapolis-St. Paul International Airport. Limo, taxi, and mobility assistance services are available. Hotel-airport shuttles available for Sheraton Bloomington Hotel, Country Inn & Suites Bloomington West and Crowne Plaza Minneapolis Airport West.

Hotel Reservations

Conference Site Hotels:

Sheraton Bloomington Hotel (952-835-7800), \$149 single occupancy (South Tower) and \$159 double occupancy (South Tower).

Hotel Sofitel (952-835-1900), \$175 single occupancy and \$185 double, triple, or quad occupancy.

Conference Off-site Hotels:

Country Inn & Suites Bloomington West (952-831-9595), \$139 single or double occupancy.

Crowne Plaza Minneapolis Airport West (952-831-8000), \$142 single or double occupancy.

On-line reservations are available at <www.closingthegap.com>.

Cancellation policy for all hotels: A deposit of one night's room rate plus tax is required to reserve a guest room for the Closing The Gap Conference. Guest rooms may be cancelled up to September 11, 2008, with no cancellation penalty and your total deposit refunded to you. Any guest room cancelled after September 11, 2008, will be subject to forfeiture of the entire deposit.

Travel

Closing The Gap has arranged for Northwest Airlines to handle air travel needs for the conference.

For the lowest possible air fares, in the United States and Canada, call Northwest at 800-328-1111 and ask about special Closing The Gap fares (I.D. code NYVNX). Northwest hours are Monday through Friday, 7:30 am - 7:30 pm Central Daylight Time.

Assessible Transportation

To arrange for accessible transportation while visiting the Minneapolis area, have your ADA certifying agency fax your certification information along with the address where you will be staying and dates you plan on being in Minneapolis to 651-602-1660 four weeks prior to your arrival date. Riders must be ADA certified in the state in which they live. For questions regarding certification, call Jim Nieman at 651-602-1665. If you are not ADA certified, call Airport Taxi at 612-331-8294 (special assistance provided if requested).

Off-site Hotel Shuttling

The off-site hotels - Country Inn & Suites Bloomington West and Crowne Plaza Minneapolis Airport West - will provide shuttling services during specified conference hours, to and from the conference site.

The shuttling procedures and schedules will be posted at all off-site hotels and near the Closing The Gap registration desks at the Sheraton Bloomington Hotel and Hotel Sofitel. The shuttling schedule will be posted on Closing The Gap's Web site at a later date.

Registration

Conference Fees:

The registration fee for the three-day conference (October 16-18) is \$420 if received by Closing The Gap on or before September 11, 2008.

Groups of five or more from the same organization may deduct \$20 for each registration (all registrations must be received by Closing The Gap at the same time).

Full-time students may register for \$285. (Proof of full-time student status must accompany registration form.)

Parents may register for \$285. (A letter describing your child's disability must accompany registration form.)

Presenters may register for \$285.

Exhibitors may register for \$285.

Late registration fee (for anyone) is \$455 if received by Closing The Gap after September 11, 2008 and on or before October 2, 2008. All registrations (for anyone) received after October 2, 2008 will be \$505.

A Certificate of Attendance is available upon request at no additional fee.

Graduate-level academic credit and CEUs are available.

Scholarships:

A limited number of scholarships are available for persons with disabilities or parents/guardians of children with disabilities. These scholarships cover registration fees for the conference only (Thursday - Saturday), and do not cover preconference workshops, food, lodging or travel. Scholarships are awarded on a first come, first served basis and one time only per person. Persons that have previously received a scholarship from Closing The Gap are not eligible.

To apply, complete a conference registration form, indicating your scholarship request. Submit the form and attach a letter describing your/your child's disability and telling us why you would like to attend the conference.

Applicants will receive written notification of acceptance or denial.

Preconference Workshop Fees:

All-day preconference workshops are scheduled for Tuesday and Wednesday, October 14-15, 2008 at a cost of \$270 a day. Some workshops carry an additional fee for materials.

There is no additional fee for the Closing The Gap-issued, presenter-signed Certificate of Preconference Workshop Attendance.

Note: Some workshops fill quickly. Early registration is encouraged.

Confirmation:

All who register by October 2, 2008 will receive confirmation by mail.

Cancellation Policy:

Cancellations must be received in writing by Closing The Gap on or before October 1, 2008. All cancellations are subject to a \$50 cancellation handling fee. Replacements are welcome and must be submitted in writing.

No refunds after October 1, 2008. Unpaid balances are due in full.

Conference Directory:

The official Closing The Gap Conference Directory will be given to registrants at the conference site; many of the conference details will be posted on Closing The Gap's Web site.

2008 Closing The Gap Conference Registration Form

First name _____ Last name _____

Mailing address (home / work – please circle which) _____

City _____ State / Country _____ Zip / Postal code _____

Daytime phone _____ Fax _____ E-mail _____

Employer _____ Occupation _____

Is this your first time attending the conference? Yes No

How did you hear about the conference? Web site Conference Brochure Friend / Colleague Other: _____

SPECIAL SERVICES (is reserved for persons with special needs only – must be requested by September 1, 2008)

Adapted Conference Directory MS DOS text file Macintosh text file Text file will be e-mailed.

Sign interpreter (must indicate specific interpreter needs including time frame): _____

REGISTRATION FEE FOR CONFERENCE – OCTOBER 16-18, 2008 (Includes Commercial Exhibits Preview – Wednesday, October 15th, 5:30 pm - 8:00 pm)

\$ _____ Registration (for anyone) received on or before October 2, 2008 – \$455

\$ _____ Registration (for anyone) received after October 2, 2008 – \$505

\$ _____ Registration received on or before September 11, 2008 – \$420

\$ _____ Registration received on or before June 30, 2008 – \$385

\$ _____ Group – Groups of five or more from the same organization may deduct \$20 for each registration.

(All group registrations must be received by Closing The Gap at the same time.) Group Discount is not applicable after September 11, 2008.

\$ _____ Full-time student – \$285 (Proof of full-time student status must accompany registration form.)

\$ _____ Parent Rate – \$285 (A letter describing your child's disability must accompany registration form.)

\$ _____ Presenter – \$285 (Presentation title: _____)

\$ _____ Exhibitor – \$285 (Company name and booth number: _____)

(Exhibitor must be a scheduled representative for the booth to receive the discounted fee.)

SCHOLARSHIP I am applying for a conference scholarship. A letter describing your/your child's disability and telling us why you would like to attend the conference must be included. See page 53 for complete information.

PRECONFERENCE WORKSHOPS – OCTOBER 14 -15, 2008 (Includes Commercial Exhibits Preview – Wednesday, October 15th, 5:30 pm - 8:00 pm)

Please indicate Preconference Workshop choices by number.

\$ _____ Tuesday, October 14th - \$270 1st choice PC- _____ 2nd choice PC- _____

\$ _____ Wednesday, October 15th - \$270 1st choice PC- _____ 2nd choice PC- _____

Participants in PC-15 *MUST* bring their own computer and a 500- to 800-word text document.

I will bring my own computer for PC-17 PC-23 I will use Closing The Gap's computer.

\$ _____ Materials Fee (Note: The materials fee equals the cost of the materials provided.)

PC-2 has an additional \$20 fee for materials.

PC-17 has an additional \$35 fee for materials.

PC-7 has an additional \$30 fee for materials.

PC-18 has an additional \$35 fee for materials.

PC-10 has an additional \$20 fee for materials.

PC-21 has an additional \$15 fee for materials.

PC-16 has an additional \$30 fee for materials.

PC-24 has an additional \$30 fee for materials.

ACADEMIC CREDIT (see pages 46 for complete information and requirements regarding academic credit)

\$ _____ Academic Credit Fee \$115 for one semester credit \$230 for two semester credits \$345 for three semester credits

\$ _____ **CONFERENCE TOTAL** (Payable in U.S. Funds)

ADDITIONAL NON-CONFERENCE OPTIONS – ONLINE SOLUTIONS SUBSCRIPTION (See page 39 for more information)

\$ _____ One-year, Online Solutions Subscription – \$50

\$ _____ One-year, Student Online Solutions Subscription (proof of enrollment required) – \$40

\$ _____ Combination, One-year Print Subscription and Online Solutions Subscription – \$75 (U.S. and Canada)

Site licenses also available. Check here to have a Closing The Gap representative contact you.

\$ _____ **TOTAL AMOUNT** (Payment or purchase order must accompany registration.)

My check # _____ for \$ _____ is enclosed.

Please charge to my Visa MasterCard Account # _____

Exp date _____ Signature _____

Cardholder address _____

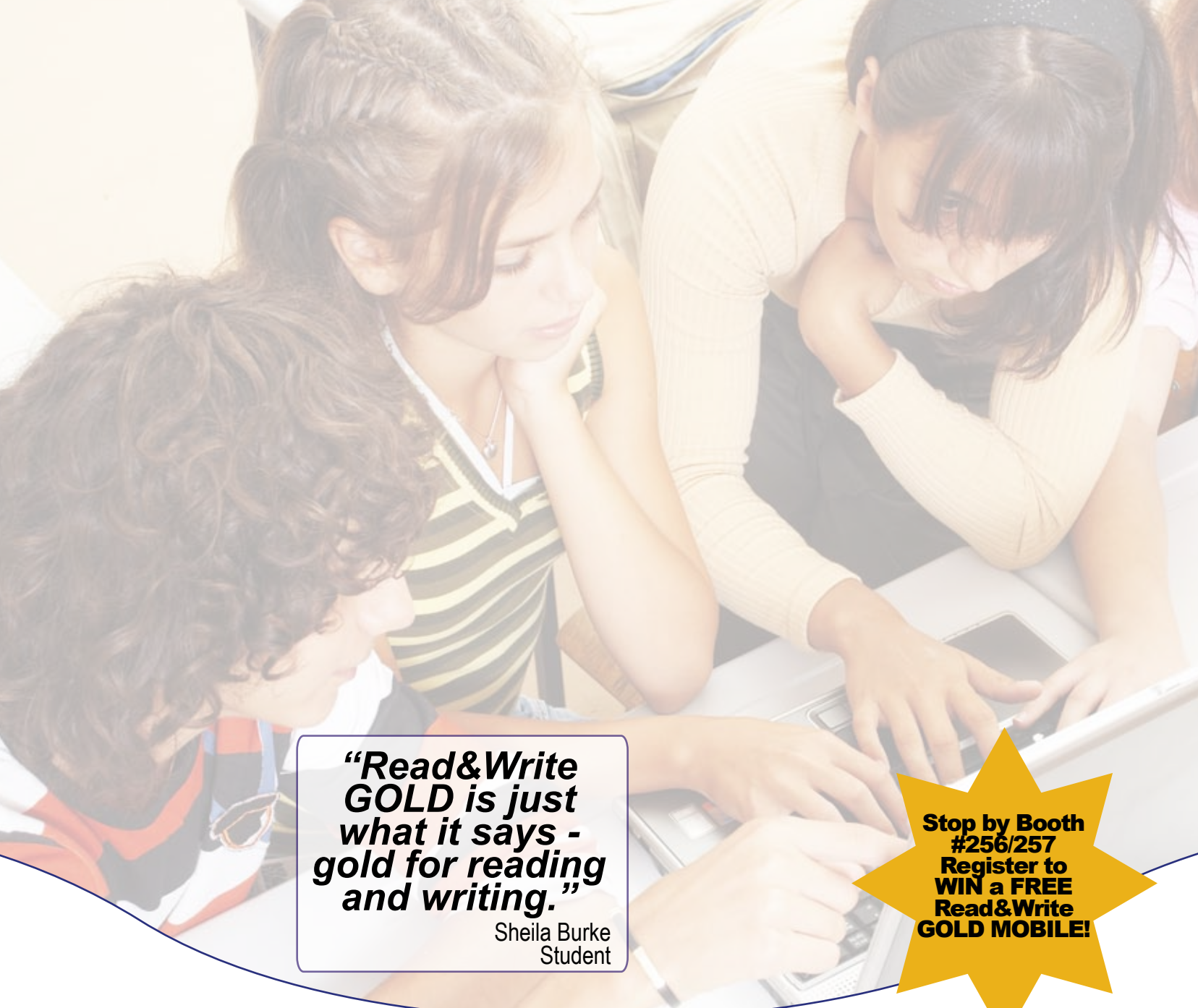
Please bill my agency or school district PO # _____ (Purchase order must accompany registration)

Cancellations must be received in writing by Closing The Gap on or before October 1, 2008. All cancellations are subject to a \$50 cancellation handling fee. No refunds after October 1, 2008. Unpaid balances are due in full. Replacements are welcome and must be submitted in writing.

Mail or fax form with payment or purchase order to: Closing The Gap, P.O. Box 68, Henderson, MN 56044; Fax 507-248-3810.

Or register on-line at: <www.closingthegap.com>. All who register by October 2, 2008 will receive confirmation by mail. The official Closing The Gap Conference Directory will be given to registrants at the conference site; many of the conference details will be posted on Closing The Gap's Web site. For additional information call 507-248-3294 or e-mail <info@closingthegap.com>.

O/N



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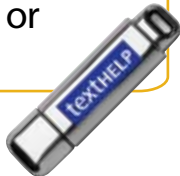
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