



# The Computer Monitor



Volume XII

Fall 2000

## NEW Assistive Technology Services in the CRC

PACER has established a new, comprehensive Assistive Technology Information & Referral Service. It will provide free and current information about assistive technology equipment and services for people with disabilities, their family members, and professionals statewide and nationally. The service's mission is to ensure that consumers of assistive technology easily and effectively receive the information they need.

### Assistive technology information and referral

Computer Resource Center staff will provide information about availability and cost of assistive technology products, including data about adapted computer hardware or software, environmental control, ergonomics, communication, seating and positioning, therapeutic equipment, recreation and sports, orthotics, and more. The service can also inform Minnesotans about vendors of the products; technical services for repair, maintenance, or modification of equipment; assistive technology policy issues; and national Web resources. It will also offer funding resources to purchase adaptive equipment and local assistive technology assessment providers.

Our team of assistive technology specialists will draw on in-house resources, computerized

databases, and partnerships with local and national organizations to locate answers to your questions. Using these resources, we will research and compile the specific information you need.

Contact us when you need information about technology in areas such as:

- |                               |                           |
|-------------------------------|---------------------------|
| Ambulation or Walking         | Mobility                  |
| Architectural Adaptation      | Prosthetics and Orthotics |
| Augmentative Communication    | Recreation or Leisure     |
| Computer Hardware or Software | Seating and Positioning   |
| Daily Living Aids             | Therapeutic Equipment     |
| Environmental Controls        | Transportation            |
| Ergonomics                    | Vision Technology         |
| Health                        |                           |

### Used equipment service

In addition, PACER's Computer Resource Center will provide a free on-line listing of used equipment called the SUPER (Still Useful Products and Equipment Referral) Service, designed to connect buyers and sellers of assistive technology. Sellers of used assistive technology must complete a brief on-line form to post an item for sale, then mail, e-mail, or fax the completed form to PACER Center. Persons interested in purchasing items posted on the site will

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# Assistive Technology

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need to contact the seller directly. Technical support for products on this site will not be available from PACER.

The Computer Resource Center is now accepting equipment ads to post through the SUPER Service. To print the form, visit the [www.pacer.org/crc](http://www.pacer.org/crc) Web site or call PACER Computer Resource Center at 1-800-537-2237 to request a form.

The PACER Assistive Technology Information & Referral Service is funded, in part, with a grant from STAR (System of Technology to Achieve Results). STAR is a program of the Governor's Advisory Council on Technology for People with Disabilities, located within the Minnesota Department of Administration. STAR is funded by the National Institute on Disability and Rehabilitation Research under the Assistive Technology Act of 1998, P.L. 105-394, with programming supported by a Minnesota General Fund Appropriation.

PACER  
workshops  
help you  
make a  
difference  
in the  
life of  
your  
child.

## **PACER's Computer Resource Center is offering the following FREE workshops for parents and professionals.**

### **ABC's of Assistive Technology**

6:30 to 9 p.m., Hutchinson, Sept. 19

### **Getting to Work with Technology**

6:30 to 9 p.m., Minneapolis, Dec. 5

6:30 to 9 p.m., Burnsville, Dec. 12

### **Intro to Communication Technology and Your Child's IEP**

6:30 to 9 p.m., Owatonna, Sept. 25

6:30 to 9 p.m., St. Cloud, Sept. 28

6:30 to 9 p.m., Fergus Falls, Oct. 10

6:30 to 9 p.m., Thief River Falls, Nov. 2

6:30 to 9 p.m., St. Paul, Nov. 16

6:30 to 9 p.m., Marshall, Nov. 21

6:30 to 9 p.m., Hutchinson, Sept. 19

### **Software for Children with Learning Disabilities**

6:30-9 p.m., Brooklyn Center, Dec. 12

**Registration is required. To register, call (612) 827-2966 (V); (612) 827-7770 (TTY);  
or 800-53PACER (for parents in greater Minnesota).**

**ALL participants will receive a free packet of resources.**

**See page 16 for information on our "new home."**

# Using Dragon to Create a Magic Kingdom

By Annette Cerreta



Paula is a bright and outgoing fourth-grader who, like many of her peers, is intrigued by magical kingdoms, witches, and other children. She

has a passion for writing stories about them. As similar as she is to her classmates, Paula has one difference: she writes her stories with her voice instead of her fingers.

Paula was born with cerebral palsy, which makes it difficult for her to use a pencil to write or a keyboard to type. She relied on her parents or teachers to write down her thoughts as she dictated them.

With the new millennium, however, came a new way for Paula to communicate. In January, with the help of her school occupational therapist and the PACER Computer Resource Center staff, Paula began using *Dragon Dictate Classic*. It is a voice recognition computer software program that helps Paula use her voice to control the computer and dictate her ideas.

“I can type a lot faster with my voice than I can type with my fingers. This means I can be more creative,” Paula says. Although Paula loves the freedom of writing on her own, there are some things she doesn’t like about using voice recognition. “It takes a long time to get good at dictation...and you have to learn a lot of

commands to run a word processing program.”

Training of a voice recognition system can be difficult for anyone. Because she is not able to use her hands and because she speaks slowly and quietly, Paula had additional challenges. Initially, the computer had difficulty understanding her speech. Nevertheless, Paula was determined to be successful. For the first month, she trained on her system, which was at school, every day for an hour. By early February, her persistence paid off. She began creating her own schoolwork by voice. Soon, she began taking her laptop computer home on weekends to complete homework assignments.



Paula now uses her voice recognition system independently for school and for her own creative writing projects. She has written two stories, and she says she would like to become a published author someday.

Paula’s occupational therapist says she is amazed at Paula’s commitment and talent. “There are very few 4th graders who would be able to do this. She is extraordinary in her discipline to learn and her passion for writing.”

For more information about voice recognition technology, or to request a free, informal technology consultation, contact the PACER Center Computer Resource Center. Contact information is available on page 16.

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*Dragon  
Dictate  
Classic is  
a voice  
recognition  
computer  
software  
program  
that uses  
voices to  
control  
the  
computer.*

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# Voice Recognition: Can It Help My Child?

By Janet Peters and Annette Cerreta

Voice recognition technology has revolutionized the way people with disabilities use computers. The technology is useful for individuals with physical disabilities who may have difficulty communicating, as well as those with learning disabilities who have difficulty with the cognitive demands of reading and writing. People with speech impairments may be able to improve vocal quality because they must speak clearly and consistently for the system to recognize them.

Whether the challenge is related to physical, cognitive, or speech disabilities, voice recognition technology has great potential to provide people with disabilities access to a world of opportunities.

## What is voice recognition?

Voice recognition, also called speech recognition, enables the user to dictate and control computer functions by voice input (speaking to the computer). People using voice recognition can dictate text into the computer to create a document or to give commands to the computer, such as opening application programs, pulling down menus, and editing work. Speech recognition can also be used to control the mouse to navigate the desktop or Web browser;

to communicate using e-mail and chat rooms; or for applications using numbers, such as math, database, and spreadsheet programs.

Today's new generation of voice recognition products are more affordable and user-friendly than ever before. The ability to recognize a consumer's voice with greater accuracy is much improved, allowing for greater ease of use and efficiency.



Some recognition systems are very sophisticated and offer many options. Others are less expensive with less power, but they may be sufficient for some

individuals. To determine which speech recognition system will meet your needs best, you will need to understand the different types of voice recognition systems.

Voice recognition systems use two different speech models. *Discrete speech* processes the user's voice, word by word, with a slight pause between each word. In many cases, discrete speech recognition works better for individuals with speech impairments or breath support issues.

*Continuous speech* software permits the user to speak in phrases or short sentences in a more natural, fluent speaking

Voice recognition technology has great potential to provide people with disabilities access to the world.

style. Some continuous speech products can recognize speech up to 160 words per minute. Most of the programs available today feature continuous speech. With both discrete and continuous systems, the users must pronounce each word clearly and consistently.

### **Is voice recognition the right tool for your child?**

There are several factors to consider when deciding if voice recognition is appropriate technology for a child with disabilities. A comprehensive evaluation is important to identify the needs, goals, and abilities of the potential user, the environmental demands, and alternative resources for the individual. A team approach is preferable to address these multiple issues. The team typically consists of professionals that work with the individual (such as rehabilitation specialists and teachers), as well as family members and, of course, the child with the disability. They should address the following areas when considering voice recognition.

#### **Needs and goals**

Does your child need voice recognition to control computer functions completely by voice or to dictate written work? Will special software, such as drawing programs, be used? Concrete goals and realistic expectations about voice recognition make a big difference in the success or failure of the system.

#### **Abilities**

It is important to consider the abilities of your child or student. Is he or she cognitively ready for voice recognition? Does he or she understand the operating system (usually Windows or Macintosh) and software that will be used? A person does not need to be a “computer expert”

but using voice recognition requires the user to operate the voice software, word processor or other program, and the operating system simultaneously. The user must memorize a multitude of voice commands.

Another essential skill is the ability to formulate and express ideas verbally. If a person has difficulty organizing and expressing thoughts with spoken language, voice recognition may not be appropriate.

Another very important factor is motivation to train and use a voice recognition system. While voice recognition technology has improved greatly, the training process can still be time-consuming and frustrating. Someone who is seriously considering a voice recognition system should be aware of the work and time commitment involved.

#### **Environment**

The environment in which the individual will be using voice recognition should be considered. Will he or she be using it in a classroom? Background noise can affect some systems. If the system will be used at both school and home, environmental differences could affect the voice file.

In a comprehensive assessment families are advised to consider other assistive technology devices and strategies that may complement the use of voice recognition products.

For additional information about voice recognition technology or to request a consultation, please contact the PACER Computer Resource Center. Telephone (612) 827-2966 or e-mail: [crc@pacer.org](mailto:crc@pacer.org)

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*There are several factors to consider when deciding if voice recognition is the appropriate technology for a child with disabilities.*

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# More Than One Way to SCAN a Cat

By Janet Peters



Scanning means that the computer highlights, by sound or visual cues or both, actions or choices on the computer screen.

Children who have a disability that limits access to the computer often operate a computer by using a switch. Switches offer ways to provide input to a computer when a more direct access method, such as a standard keyboard or mouse, is not possible. Switches come in various sizes, shapes, colors, methods of activations, and placement options.

Several steps are necessary for a switch to work with the computer. First, a switch interface device is required to connect a switch to computer. Switch interfaces are available for Windows or Macintosh computers and have a wide range of feature and price selections. Once the switch is connected to the computer, it can be turned on by a movement or click of the switch. When it is activated, it sends a signal, such as a mouse click, to the computer. The signal then activates an option on the computer screen. Some software programs have been developed specifically for use with a switch and can employ on-screen scanning. Scanning means that the computer highlights, by sound or visual cues or both, actions or choices on the computer screen. When the switch is hit, it activates the software.

While some software programs have scanning options available, the majority of software, especially for older children and young adults, does not. There are additional software utilities that can

allow a switch user access to a program, even if that program does not have scanning built-in. The following are examples of such programs:

*ClickIt!* by Intellitools

[www.intellitools.com](http://www.intellitools.com) or 800-899-6687

*ClickIt!* provides access to software programs by adding “hot spots” that overlay a screen and allow a switch user to scan those hot spots. *ClickIt!* has a variety of highlighting options, including the ability to add auditory cues to the hot spots. *ClickIt!* hot spots contain powerful access features to create step scans with hierarchical sets that branch and to initiate two switch scans. *ClickIt!* is a component of Intellitools’ AccessPac, a comprehensive set of products for creating multiple access methods to the computer. Therefore it integrates well with their other products, such as the IntelliKeys alternative keyboard.

*Discover:Switch* by Don Johnston

[www.donjohnston.com](http://www.donjohnston.com) or 800-999-4660

*Discover:Switch* is the combination of a single switch and on-screen keyboard with scanning. *Discover:Switch* comes with several keyboards that “attach” to programs when the program is opened. For example if you are using ClarisWorks word processor, the on-screen keyboard scans buttons that directly activate ClarisWorks program options. In addition to the standard

keyboard, mouse, and special programs that come with *Discover:Switch*, you can also create your own custom on-screen keyboard using “Smart Markers.” Smart Markers mark certain locations on the screen, which can then be activated by the user scanning the on-screen keyboard.

*Cross Scanner* by RJ Cooper & Associates  
[www.rjcooper.com](http://www.rjcooper.com) or 949-582-2749

*Cross Scanner* uses a unique method of selection by creating a vertical and horizontal split of the screen. The first click (switch activation) starts the movement down the vertical line, the next click stops the line when it gets to the user’s desired vertical point. The final click tells the computer to move the cursor to that point and to perform the chosen function. It is a very intuitive method of scanning. The user can perform mouse moves and clicks, double clicks, drags, operate menus, and enter text.

*WinSCAN* by Academic Software  
[www.acsw.com](http://www.acsw.com) or 800-842-2357

*WinSCAN* works in a similar fashion to the *Discover:Switch*. It superimposes scanning control displays on top of a non-switch application. A switch user can open program groups, select icons, run applications, point and click, cut and paste, drag and drop, use function keys and combination key commands, and enter numbers and text with *WinScan*. A user can also create (or download) custom setups for particular programs and start one’s PC with *WinSCAN* automatically running. *WinSCAN* version 2.0 retains simplicity and ease of use, while offering a host of powerful features.

The PACER Computer Resource Center has the above software available for children with disabilities to try. To learn more about different scanning options, call the PACER Computer Resource Center at 612-827-2966 for a free, informal technology consultation.

**There are different methods of scanning to improve efficiency for the user.**

**Automatic scanning** requires the user to activate a switch to begin the scanning sequence. Each individual object in the array can be highlighted visually by a light or border around it or audibly (with a beep, click or word), and another switch activation by the user is required to select that object. Accurate timing is needed to activate the switch at exactly the desired point. Therefore the user must have the relevant physical coordination and cognitive skills to use automatic scanning. Most products that offer automatic scanning allow the user to set the scan speed, which is the rate at which the objects are highlighted, as well as allowing auditory and visual cues to be turned on or off.

**Inverse scanning** is a type of automatic scanning. The user must press and hold the switch until the desired object in the array is highlighted, then release the switch to make the selection. This is similar to using a mouse on a computer and requires good coordination and motor skills.

**Step scanning** is pressing the switch to move the highlight from one object in the array to the next. This method does not require exact timing skills, but may be a slower access method. The user moves the highlight to the desired object and then activates the switch to make the selection.

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**CHECK IT OUT!**  
Want to have your assistive technology questions answered fast? Try using the Family Center of Technology and Disability discussion board at [www.ucpa.org/fctd](http://www.ucpa.org/fctd).

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# Parents and Teachers Working Together for Success

By Jean Nelson

The mission of Project KITE (Kids Included through Technology are Enriched) is to give all children, regardless of culture, income level, or disability, the opportunity to learn and be included in their classrooms and homes by using computers and assistive technology. The project resulted from a U.S. Department of Education early childhood demonstration grant made to PACER Center in 1994. Currently Project KITE is in the outreach phase of the grant and working with sites in rural Minnesota. The KITE grant called for PACER to work through early childhood programs to develop a model of technology training for early childhood personnel and parents of young children with disabilities.

KITE has four intertwined components: teaming, training, technical access, and technical assistance. KITE provides training to six teams each year. Each team focuses on one child with a disability, age 3-8 years. Team members are the child's parents, teacher, and another

service provider. Training requires five sessions of three hours each, within a five-month period.

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*"I was able to try some augmentative communication... to figure out what would work best for my son. I'm also able to now set up my own computer for him."*

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KITE staff schedule an additional session to videotape a team activity. KITE provides computers for each child's classroom and home during the training. The Project KITE teams receive the additional benefit of experimenting with various assistive technology through a free one-year membership to the PACER Software Lending Library. KITE staff provides technical support by telephone, e-mail and site visits.

The idea of creating parent-teacher partnerships is not new, but the concept of teaching assistive technology to both parties simultaneously is innovative. "We tend to receive secondhand information from

the teacher when a teacher completes other organizations' training sessions," said one parent participating in the KITE model. Through KITE, the parent received training *with* the teacher.

Through the KITE model, the parents and teachers work together to learn about assistive technology and the ways it can improve inclusion in the classroom and home for the focus child. In the school environment, the technology is a tool for enhancing curriculum themes and fostering greater classroom participation by all students. From the family perspective, parents share a vision of the future for their child and see the positive impact of technology. In addition, parents may take a more active role in the IEP or IFSP (Individualized Education Program or Individualized Family Service Plan) process. In some cases, parents become team leaders in technology expertise.

Teachers say the KITE training revitalizes their teaching, fosters open communication with

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*"Even though coming to evening meetings made my day 'extra' long, the information and access to computers made it all worth it! Thank you!"*

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families and other professionals, and offers opportunities to develop a new curriculum using technology with parent input. In addition, teachers can use the parent's contacts to inform the community, including school boards and administration, about assistive technology needs, such as funding.

Although school sites have been selected for the current KITE grant period, other school districts can duplicate the KITE concept. They can:

- n Plan monthly technology nights, in which speakers come

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*"It was a super learning experience, and I'm so glad I was able to participate. It was extremely valuable and helpful for my practice."*

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to educate both parents and teachers about aspects of assistive technology

- n Form parent-teacher teams to instruct children on specific software programs
- n Use the Internet, a Web site or listserv,

in which parents and teachers, together, can communicate and learn about assistive technology

- n Set-up an assistive technology loan program available to both parents and teachers. Participants in the loan program could then train others on equipment they used
- n Use the KITE curriculum
- n Attend a Training of Trainers by KITE next year
- n Request KITE staff speak at a meeting or in-service

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## EXTRA! EXTRA! READ ALL ABOUT IT!

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Resources available to parents and educators to help duplicate parent-professional teaming are:

*Kids Included Through Technology are Enriched: A Guidebook for Teachers of Young Children*, distributed and sold by PACER Center (\$15 per copy or \$12.50 per copy for an order of 10 or more - Order number: PHP-a7). Call (612) 827-2966 or visit the Web site at [www.pacer.org](http://www.pacer.org).

*Young Children and Technology*, a 14-minute video, distributed and sold by PACER Center (\$35 to purchase, \$10 to rent - Order number: VID-22). Call (612) 827-2966 or visit the Web site at [www.pacer.org](http://www.pacer.org).

*The Tech for Trainers* program through AbleNet, Inc. ([www.ablenetinc.com](http://www.ablenetinc.com) or telephone Mary Kay Walsh at 612-379-0956). The program loans assistive technology equipment for short periods to train educators. It also offers teacher and parent resource books published by AbleNet, Inc.

MATLN (Minnesota Assistive Technology Loan Network) loans primarily augmentative communication devices. It can be reached at (800) 328-4827 or through United Cerebral Palsy of Minnesota.

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Visit the  
Software  
Lending  
Library  
Tuesdays  
and  
Thursdays  
from 3 to  
6:30 p.m.  
and  
Saturdays  
from  
10 a.m. to  
4 p.m.

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# Software Can Naturally Enhance A Child's Learning

By Sharon Young and Perrine Dailey

Early childhood educators think of each child as an “active learner,” who explores and interacts with his or her environment in an attempt to make sense of the world. In this age of technology, using computers and appropriate early childhood software is one way to encourage a child's active learning.

Much early childhood computer software is designed for self-directed play so that children have fun, while using it to learn. Such software can be used in three important skill levels that lead to communication and future work at the computer. These levels are manipulation, mastery, and meaning.

Much early childhood computer software is designed for self-directed play so that a child has fun, while he or she is using it to learn.

## Manipulation

In the manipulation stage, a child learns how to use the computer and software. The child may experiment as long as necessary to develop the skills required to control the mouse, trackball, touch screen, or switches. Eventually he or she learns the cause

and effect sequence that will allow control and movement through the program. Selecting various enjoyable programs to fit the interest of the child provides motivation needed for the child to practice and refine manipulation skills. Music or voices, for example, may motivate one child, while color and animation may delight another. The software offers varied feedback to obtain and hold the attention of each child.

## Mastery

When a child learns how to successfully control the computer and software, he or she can proceed to the mastery stage of learning. The child repeats a sequence or activity until he or she masters the skill. Most high-quality early childhood software re-

peats instructions and responses as many times as necessary for a child. Some software use popular characters from books, movies, or cartoons to advance mastery of computer skills. The belief is that

some children are more willing to express themselves or interact with a familiar, recognizable character on a computer screen. To encourage a child to complete activities or tasks, some early childhood software programs are purposely non-judgmental and often rewarding with animation, dancing figures, and music.

### Defining the 3 Stages

#### Manipulation:

The child learns how to control the computer using a mouse, trackball, switch, or other input method.

#### Mastery:

The child learns to operate software consistently to obtain access to content.

#### Meaning:

The child applies understanding to the activities he or she has explored. The child can transfer communication skills that allow him or her to express ideas and share information.

*Continued on page 11*

## Meaning

After a child learns how to manipulate a software program and master the tasks and activities through repetition, he or she can apply meaning to what he or she learned. A child can develop an individual form of creativity to express ideas through words, symbols, or pictures.

Interactive electronic storybooks are one type of software that offers a powerful combination of pictures, words, and voice. The storybooks provide a multisensory learning experience and allow a child to interact literally with the story and illustrations while intellectually processing the text. The expe-

rience leads to understanding what was read or heard. Retelling the story helps the child respond to it in a personal, unstructured way. The interaction makes it possible for some children to learn the alphabet, rhyme, and read.

While early childhood software does not replace other tools of learning, such as interaction with people and toys, families and professionals agree that it is a modern breakthrough. As children develop manipulation, mastery, and meaning, computer software offers a new dimension to learning for children with disabilities.

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*Interactive electronic storybooks offer a powerful combination of pictures, words, and voice.*

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### **Suggestions for Early Childhood Software**

- Stickybear Early Learning by Optimum Resource
  - 800-784-2592 [www.stickybear.com](http://www.stickybear.com)
- How Many Bugs in a Box by Simon and Schuster
  - 800-793-9973 [www.simonandschuster.com](http://www.simonandschuster.com)
- Bailey's Book House, Millie's Math House by Edmark
  - 800-362-2890 [www.edmark.com](http://www.edmark.com)
- My First Incredible Amazing Dictionary, PB Bear's Birthday by Dorling Kindersley
  - 800-225-3535 [www.dkfl.com](http://www.dkfl.com)
- CircleTime Tales by Don Johnston
  - 800-999-4660 [www.donjohnston.com](http://www.donjohnston.com)
- Maggie's Farm by Broderbund/The Learning Company
  - 800-474-8840 [www.broderbund.com/education](http://www.broderbund.com/education)
- McGee Series by Lawrence
  - 800-421-4157 [lpi.com](http://lpi.com)

# Computer Access for Children with Vision Loss

By Annette Cerreta

*Matthew, an 8-year-old third-grader, was born with ocular albinism, a condition that severely limits his vision and causes light sensitivity. He complains that his eyes become tired and his vision blurry when he uses the computer at school. His teacher reports that Matthew tries to avoid participating in computer-based learning activities at school. His parents are concerned he will fall behind academically if he continues to avoid computers.*

Computers have been found to enhance important skills for children.

Computer technology has become an essential component of the classroom and most school curriculums. Computers have been found to enhance learning, communication, and motivation for children. Unfortunately, barriers to computer access for students with visual impairments are still prevalent. This is primarily because most computer programs convey information visually. How then can a child with visual impairment, such as Matthew, reap the many benefits of computer technology and keep up with peers? Interestingly enough, computer technology itself provides the key to the world of computers for these children.

This article introduces a number of computer-based technology solutions that can help children who are visually

impaired learn, play, and interact with others at their school and home. These technologies include screen magnification, speech output, and computer-based Braille technology.



## Screen Magnification

Screen magnification software can make a big difference for a child with partial sight. Enlarging the full or partial screen helps a child visualize text and graphics with greater ease. Most of the programs support magnification levels up to 16 times the

original character size. Many also allow color and contrast adjustments to the text and background, and special “tracking” features for people who need to adapt additional screen properties. Advanced screen magnification software may also provide speech output that reads menu items and graphics aloud. The software can be set up for a young child before a computer-based activity. Older children can learn to operate the software independently with basic keyboard commands or the mouse.

## Speech Output

Speech output programs use synthesized speech to say aloud what is printed on the computer screen. It is an increasingly popular method for individuals with visual impairments to obtain access to com-

*Continued on page 13*

puter application programs, such as word processors and databases, as well as to e-mail and the Internet. Speech output programs come in two categories: text-to-speech and screen readers.

Text-to-speech programs, also called talking word processors, supplement the visuals on the screen by speaking aloud text that is identified and selected. The programs contain many helpful features, such as reading by letter, word, sentence, or paragraph; highlighting text as it is read; and audible spell-check options. Some programs read menu items, toolbar buttons, and other computer screen data, as well. Many text-to-speech programs “speak” text from the Internet or scanned documents, such as books or magazines. Students with limited vision can use text-to-speech programs to assist them with reading, writing, and communicating, but such technology may not provide enough support for children with severe vision loss or blindness.

*Screen reading* programs provide visually impaired children the greatest degree of support available for computer access. These sophisticated programs audibly translate all text and graphics on the screen, such as icons, menu items, and window messages, including Web pages. They offer enough assistance for blind users to independently send and receive e-mail, surf the Internet, create and read documents, and do many other computer-related tasks. Keystroke commands instead of mouse clicks operate the system for those who cannot view the screen easily. Some screen readers offer Braille output as well.

### **Braille for the Computer Age**

For children who communicate with Braille, Braille translation technology may be the best way to use the computer. Braille translation programs convert computer text and information, such as commands and prompts, into Braille output. Translated text can then be printed on a Braille embosser (a

machine that embosses Braille dots onto paper). This information can also be read by refreshable Braille displays. Braille displays are mechanical and lift small, rounded plastic or metal pins to form Braille characters that provide tactile output of the information presented on the computer screen. After a line of text is read, the user can “refresh” the display to read the next line.

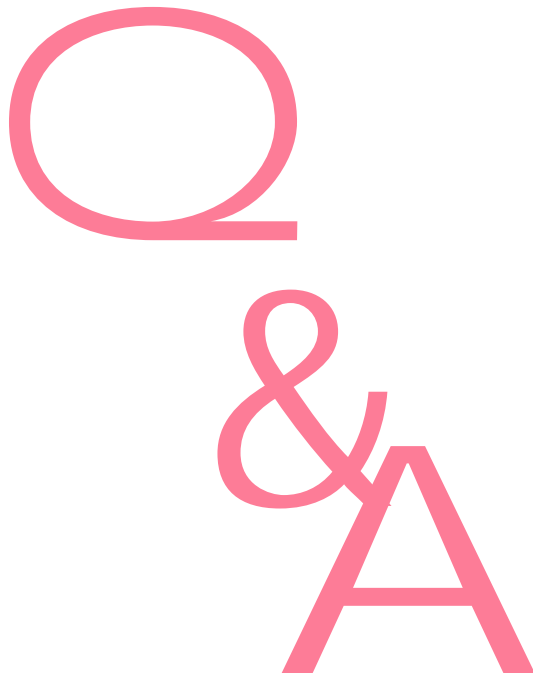
The examples above are a sample of the vast array of assistive technology tools for children with visual deficits. There are many excellent resources to explore in developing strategies for computer access at home, school, or other environment. By creatively blending conventional output methods and assistive technology options, technology can transform how your child or student connects with others and the world in which they live.

To find out more about vision technology or other assistive technology products, e-mail the PACER Computer Resource Center at [crc@pacer.org](mailto:crc@pacer.org) or visit the Web site at [www.pacer.org/crc](http://www.pacer.org/crc).

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*Screen reading programs offer enough assistance for blind users to independently send and receive e-mail and surf the Internet.*

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**Q&A answers common questions people ask about assistive technology. The Q&A column appears in every issue of the Computer Monitor newsletter. Readers may submit a question via e-mail at [crc@pacer.org](mailto:crc@pacer.org). If we print your question, you'll win a prize!**

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Call us at  
800-53-  
PACER or  
e-mail  
[crc@pacer.org](mailto:crc@pacer.org) with  
your  
technology  
questions.

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**Q:** *My 8-year-old daughter has a disability that makes it difficult for her to control a computer mouse or keyboard. Her teacher suggested she try using a switch instead. What exactly is a switch and how can it help my daughter to use a computer more easily?*

**A:** A switch is a computer hardware device that offers a more basic method of input to a computer when a customary method, such as a standard keyboard or mouse, is not possible. Much like an on/off button on an appliance or a light switch, application of a single touch activates the switch. Switches are useful tools for people with limited motor control and are also helpful in training cause and effect.

Switches come in a variety of sizes, shapes, colors, methods of activation, and placement options. Most can be mounted and activated by any part of the body where a person has reliable voluntary movement. For example, a switch could be mounted on a wheelchair headrest, and activated by a turn of the head. Placement of the switch and the amount of pressure needed to activate it are important considerations in choosing a switch.

An interface device and software are usually required to connect the switch to the computer and interpret the operation of the switch. Special software programs have been developed specifically for use with a switch and can employ what is called on-screen scanning. With on-screen scanning, the computer highlights (either by sound, visual cue, or both) user options on the screen. When the prompt indicates a desired keyboard or mouse function, the user activates the switch and the desired function occurs.

# Project KITE's New Coordinator



Jean Nelson joined the Computer Resource Center in November 1999 as the coordinator for Project KITE (Knowledge Involvement through Technology are Enriched).

As the coordinator for Project KITE, Jean has improved the KITE Early Childhood training curriculum and presented with the KITE team, a series of early childhood trainings to parents and professionals in the Duluth and Pipestone areas.

Jean has an extensive assistive technology background. She is an occupational therapist with 15 years experience with both adults and children with disabilities. Jean is also a RESNA (Rehabilitation Engineering and Assistive Technology Society of North America)-certified Assistive Technology Practitioner. At her previous employment, Bethesda Hospital, she helped develop a computer lab that includes environmental controls, computer access equipment, and augmentative and alternative communication devices. Jean is also a certified Lekotek Compuplay instructor and said she enjoys teaching computer classes to children with disabilities and their siblings.

Jean said her favorite part of her job at PACER is working with the parents, teachers, therapists, and young children with disabilities, and she enjoys sharing her love of assistive technology with them. She said she feels a close relationship with several of the children, parents, and teachers with whom she has worked through the KITE training. Jean recalled a situation in which one grandparent was very afraid of the computer on the first night and didn't even want to turn it on. By the end of the KITE training, this grandparent was asking about Internet access!

Jean is married and has 4 daughters.

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*A FREE  
consulta-  
tion is a  
good  
starting  
point in  
discussing  
assistive  
technology  
for your  
child.*

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## **Are You Ready for the New School Year?**

Now is a great time for a PACER Computer Resource Center consultation. At the Computer Center, assistive technology specialists will guide you and your child while experimenting with the newest assistive technology. You can use a consultation as a starting point in discussing assistive technology considerations in your child's Individual Education Plan (IEP) for the year. Consultations are FREE. Call PACER at 612-827-2966 (voice), 612-827-7770 TTY, or 1-800-53PACER toll-free, today for more information!



# The Computer Monitor

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