TECH-NJ 2006

Assistive Technology for People with Disabilities

The College of New Jersey, School of Education
Department of Special Education, Language and Literacy

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TECH-NJ is written by students, staff and faculty in the Department of Special Education, Language and Literacy at The College of New Jersey. It is designed to support professionals, parents, and computer-users in their efforts to use technology to improve our schools and to enhance the lives of people with disabilities. In order to facilitate local networking, emphasis is placed on resources and innovative practices in and around the New Jersey region.

OVERCOMING TWO OBSTACLES: TECHNOLOGY FOR STUDENTS WHO ARE DEAFBLIND

by Meenakshi Pasupathy

Jon is an amazing 16-year-old who is a sophomore at Mountain Lakes High School. He is very enthusiastic and creative, has an excellent memory, and enjoys a variety of extracurricular activities that defy expectations of people who are deafblind, including rock climbing, golf, boxing, bowling, and playing the drums. Jon is profoundly deaf in both ears and is legally blind with 20/400 acuity. He has been diagnosed with Leber's Congenital Amaurosis, a genetic condition that is known to cause blindness. Because of his deafness, he attends the Lake Drive Program for students who are deaf/hard of hearing at Mountain Lakes High School. Jon is the only deafblind student in the program. To accommodate his blindness, the names of all rooms and facilities are marked in braille.

Jon communicates using sign language and often relies on tactile signing, especially when he is unsure about the information presented or when he is tired. He began tactile signing when he was nine years old, at which time his language development took off. Jon's inability to see compounded the problems he faced in acquiring language.

Jon currently takes courses in geometry, science, art, literature and English. He is in self-contained classes for everything except art and receives one-on-one instruction for his language classes. Jon enjoys art and is in his second year in a mainstream art class. His mother commented that "he is developing a style," which could be noticed in the samples included in his portfolio. Jon would love to enroll in wood shop one day.

Jon's Support Team

In addition to his classroom teachers, Jon is supported by an interdisciplinary team. The New Jersey Commission for the Blind and Visually Impaired provides an educational consultant, Ragan VanCampen, who visits Jon at school three times per week. He works with a one-on-one teacher of the deaf, Diane Hewitt, on his language and communication development. She also serves as his one-on-one teacher for literature and English classes and acts as his sign language interpreter in other classes. The Commission has hired Linda Aldrich, a certified braille transcriptionist who also happens to be an art teacher at the high school, to translate school-related material into braille. The final member of his support team is his mother, Kathy, who is actively involved in his education. His access to and effective use of assistive technology, as well as the other excellent services that Jon receives, would not be possible without the concerted and coordinated efforts of these four individuals.

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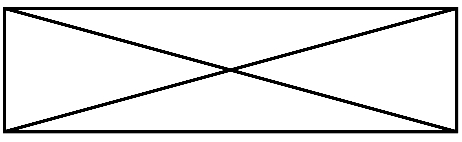

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T E C H - N J 2006

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EDITORIAL

TECH-NJ was published for the first time in 1988. In that Stone Age of assistive technology, we naively believed that if only the hardware were faster, if only the software were cheaper, if only "microcomputers" were easier to use, every student with a disability would benefit from their use. In those days of yore, we thought success was just around the corner and that problems would be solved by improved product development.

Now, eighteen years later, we have learned that getting assistive technology into the hands of people who need it is much more complicated than simply designing a new widget. The challenge is more formidable than building faster processors or low-cost chips that hold terabytes of memory. Helping people with disabilities gain access to assistive technology, receive the training they need, and figure out how to integrate it seamlessly into their daily lives has become a tricky obstacle course. Many students, teachers, and parents never succeed in leaping over all the hurdles in their path.

The question we must ask now, in 2006, is this: What needs to happen for teachers, parents, and students to *implement* assistive technology effectively in the classroom? A major part of the answer is found in the three feature articles in this issue of **TECH-NJ**. The cover story, a profile of Jon, a high school student who is deafblind, highlights the critical importance of a team effort. Teachers, parents, paraprofessionals, administrators, support staff from outside agencies, all collaborated together, making sure each of their roles and responsibilities were clearly delineated and fulfilled. Jon's extensive technology implementation plan could not have been developed or carried out by a single person working alone. His success with assistive technology is directly related to this collaborative approach.

A second answer to this question is found in the attitudes and behavior of the featured technology users in each story. Jon in the cover story, Denise, the augmentative communication user on page 3, and Amy Mintz, the middle school teacher on page 4, all share a set of notable characteristics. They each took the initiative and showed incredible determination to do whatever had to be done to make the technology work. Denise devoted her energies to learning her new augcomm devices so she could use them quickly and be understood even by strangers. She approached mastering her computer with a similar mindset, teaching herself how to create macros so that she could use a variety of applications more efficiently. She refers to this self-study in technology as an "investment."

All three assistive technology users featured in this issue of **TECH-NJ** demonstrated unwavering persistence and creativity in their efforts to implement the technology. Problems were viewed as puzzles to be solved, not as insurmountable obstacles. Amy, the middle school special education teacher, for example, persisted in looking for, and then learning, technology solutions that would meet her student's needs. Trouble-shooting technical difficulties was part of the learning curve. The three were committed to creative problem-solving and persisted through frustrations where others may have given up.

It is easy to admire Jon, Denise and Amy, but that is not the point (and they do not want or need admiration). The point is that teachers and other professionals need to be as determined and persistent in their efforts to implement assistive technology as these three tech users have been. We need to make the same kind of investment in training and self-study that these three have made, and we need to model this commitment for our students so that they, too, will be able to persevere until they have mastered the technology tools that will help them be successful.

A.G.D.

USER PROFILE

A STRONG WILL TO COMMUNICATE RESULTS IN SUCCESSFUL USE OF AUGCOMM

by Kevin J. Cohen

Denise Ghizzone is ready to work. She has been trying to find a job since she graduated from high school in 1988. Denise says that she always knew that she wanted to work, but she had to convince the people around her that employment was a "realistic goal" for her. Now 35 years old, she was born with cerebral palsy. Because of her cerebral palsy, Denise has significant physical and communication disabilities. Denise uses a power wheelchair which she controls with her foot. Since few people can understand her natural speech, she uses a voice output augmentative communication system to talk. Denise believes that her use of so much assistive technology has made it hard for her to find employment. "People see the wheelchair and assistive technology and they don't see that my mind works at light speed, that I am capable and smart enough to have a job".

Early Assistive Technology

By the time Denise graduated from Henry Hudson High School in Highlands, New Jersey in 1988 she was an accomplished user of assistive technology. Several years earlier she had been introduced to assistive technology by way of a personal computer called a *TRS-80* (Radio Shack), one of the very first home computers. The TRS-80 had less memory and processing power than most of today's cell phones. Denise used a word processor connected to a speech synthesizer, in combination with a program developed by Bell Labs that allowed her to scan through word lists using a switch she activated with her foot. This was one of the very first computerized augmentative communication systems ever used. A few years later she received a device called an Epson *Speech Pac*. This device was portable, could store customized voices, and best of all had a female synthesized voice. Denise was able to program this device to make speeches and talk on the phone. Denise also began using technology to write. By the time she graduated high school, she was using a program called *Mindreader* (shareware), one of the first word prediction software packages. *Mindreader* had a dramatic impact on increasing her writing speed while decreasing her fatigue.

Success in College, But . . .

Denise and her team all agreed that if she was to be successful and get a job, she would need to attend college. Shortly after graduating from high school, and with the help of New Jersey's Department of Vocational Rehabilitation, Denise enrolled in Brookdale Community College. Because she has always had an interest in writing and in working with children, Denise began a program to obtain an Associate's Degree in Humanities. She was often able to take only one class each semester which made her associates program take over 10 years to complete. "Everybody was so accommodating to my needs," Denise says, "They had to adapt my work so that I would be able to do it myself. I taught my instructors and other students that even though I had limitations, I could still learn." After over 10 years of attending community college, Denise received her Associates Degree in English in May of 1999.

Denise Ghizzone received her Associates Degree in English in 1999.

"Once I graduated, I thought it would be easy to get a job, but it wasn't. I thought my diploma would prove to employers that I am capable and smart enough to have a job. Unfortunately that was not the case."

Learning to Use an AugComm Device

Around this same time, Denise received a new augmentative communication device, the *Liberator* (Prentke Romich - www.prentrom.com). The *Liberator* was a far more sophisticated communication device than any system that she had used before. In order to use it, she had to learn Minspeak, a sophisticated language encoding system that allows her to recall thousands of words and phrases by combining up to 3 of the icons contained on the device's 128 keys. Her new *Liberato*r also promised to provide her with better computer access, allowing her to access her computer directly from her communication device using the same system of input — single switch scanning with the time-saving Minspeak as her symbol system. Denise decided that the best strategy to help her increase her employment options was to focus her energy on learning the new communication device and improving her computer skills. She enrolled in several training programs, hired a new speech pathologist, and focused her energy on learning her technology. Denise learned Minspeak inside and out and was able to increase her speed dramatically. She became comfortable using the *Liberator* to talk on the telephone, to strangers and to large crowds of people. Today, Denise is grateful for the investment she made in learning her technology, because it has served her on another new device, the

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BEST PRACTICE

Technology's Contributions to an Alternate Assessment

by Tammy Cordwell

In March, eighth graders across the state of New Jersey will be armed with "number 2 pencils" to battle the GEPA. It's not a medieval creature. It's the Grade Eight Proficiency Assessment. Administrators, teachers, parents and students have been told about this day for months now. Administrators have frantically checked the boxes of test materials and trained their faculty on the new rules and regulations. Teachers have put great effort into reviewing all of the curriculum content eighth graders have learned throughout their schooling. Parents have attended meetings and reminded their children on the importance of the GEPA. Some students will sleep uneasily the night before, with butterflies in their stomachs.

Alternative Proficiency Assessment

But, what if you are one of the students in New Jersey who is unable to take the GEPA? What if the GEPA is an assessment instrument that does not lend itself kindly to your learning disability? Is there another option? Yes, there is. It is called the Alternate Proficiency Assessment (APA). Students who are unable to take the regular GEPA because of a disability are given an Alternate Proficiency Assessment. While it may seem like an easy alternative for any student having trouble performing well on the GEPA, it is important to note that the state has strict regulations governing when a student can be offered and ultimately pass the APA.

It is not enough for a student to be predicted to perform poorly on the GEPA or to struggle while taking it. The APA is used only for those students whose Individual Education Plan (IEP) states that they must take a statewide assessment but cannot take the standardized test offered by the state. This decision is made by the IEP team, which must follow the comprehensive guidelines set by the state. When students take the APA, they must perform and accomplish work based on their grade level, so students in an eighth grade special education class must show they are reaching the same New Jersey Core Curriculum Content Standards as all other eighth grade students.

The Alternate Proficiency Assessment is in the form of a portfolio. It must demonstrate that the student has met two literacy goals, two math goals, and three science goals. Along with the New Jersey Core Curriculum Content Standards, students must meet their cumulative progress indicators. The cumulative progress indicators are unique to each student as they are based on the goals listed in their IEP. They are further specified by target skills associated with each indicator. For each cumulative progress indicator, there must be measurable criteria confirming the student has mastered the skill. This record keeping starts at the beginning of the year for most teachers and continues for the allotted timeframe. It involves making copies of work, taking pictures, and printing material that can serve as evidence within the portfolio. In addition, the APA portfolio requires students to self-reflect on their work. At the end of an assignment used as evidence, students must show they have thought about their assignment and comment upon their experience with the material.

One eighth grade student was able to complete his project on the structure of the United States government by having *WYNN* read selected websites to him.

For a student and teacher utilizing the Alternate Proficiency Assessment, the work of achieving the goals and organizing the material as evidence can be daunting. Technology has much to offer this process. Teachers can use digital cameras and printers to document work. Software and hardware can be used to help students overcome disabilities and achieve goals once thought impossible.

Spoken Text Helps Student Comprehension

In Montgomery Township, New Jersey, a teacher, Amy Mintz is utilizing technology in her special education classroom to enable her students to meet 6-8th grade curriculum goals. She bases her instructional strategies on current research on brain-based learning, multiple intelligence theories, and differentiated instruction, and technology plays a key role. She has found two products to be particularly helpful when she is working on an Alternate Proficiency Assessment. The following technology applications were successfully utilized in documenting that a student who has low cognitive abilities had achieved all of his goals.

WYNN (www.freedomscientific.com/LSG), a scan/read program, transforms printed text into the spoken word. It uses a bi-modal approach, simultaneously highlighting text on the screen as it reads the text aloud. Teachers can scan handouts or textbooks and save them as electronic files, allowing students to interact with the material by highlighting, masking, listening to the computer read the text, and easily changing the visual display (for example, the size of the font, line spacing, and word spacing). Students also have access to a *talking* dictionary to look up unfamiliar words. *WYNN* can access the Internet. Students can open websites and interact with this type of media as well.

The students in Ms. Mintz's special education class cannot comprehend reading material at their grade level, so they use *WYNN* to access websites when they are researching current events for the social studies curriculum. For example, one eighth grade student, Brian, who reads far below grade level, was able to complete his project on the structure of the United States government by having *WYNN* read selected websites to him. Brian had a copy of the printed worksheet at his desk and a copy saved electronically to *WYNN*. He used *WYNN* to read the fill-in-the-blank questions. He then minimized the electronic worksheet while he researched the answers on the web. He returned to the *WYNN* version

of the worksheet to type his answers. *WYNN* allowed Brian to hear what he had written, edit it if necessary, and check his answers. He then wrote his answers on the printed worksheet. By completing the assignment this way, Brian was able to prove he had comprehended the material, and Ms. Mintz added the worksheet to his Alternate Proficiency Assessment portfolio.

In science, Brian completed a guided research packet on sources of energy. Using *WYNN* to read aloud websites, he researched solar, wind and hydro power and then prepared a *PowerPoint* presentation on solar power for the class. For a project on scientists, he researched Thomas Edison and made a brochure about him using the text to speech feature of *WYNN* to edit his work.

Using *Start-to-Finish Books*, students whose reading level is far below grade level can still enjoy the story and participate in class activities.

WYNN proved to be useful when Brian had to complete a timeline assignment. He had been asked to create a timeline about himself to fulfill a requirement in the New Jersey Core Curriculum Standards and to meet one of his cumulative progress indicators. *WYNN* helped him create the timeline by reading aloud as he typed the events that had occurred in his life. He used *WYNN*'s dictionary and thesaurus features to find the proper spelling and usage of words. Brian also used *WYNN* to share his work with the rest of the class. He stood in the front of the class and pointed to the various dates and pictures he had created on the poster as *WYNN* read the electronic version aloud for the rest of the class to hear.

WYNN supported Brian during a class reading activity in which students take turns reading a book aloud to the entire class. While other students read the book, Brian listened. He used *WYNN* to keep a journal of the events, characters and summary of the book as others read. Then, he used *WYNN* to go back and read the journal when he needed to review the story. In this way he learned the same material as the rest of the class, even though his reading comprehension abilities were significantly below grade level.

Ms. Mintz had Brian create a personal dictionary. At first, the dictionary only contained personal identifiers such as name, address, and phone number. Brian then used picture cards to indicate what words he would like added to his dictionary, such as pizza, hamburgers, family members' names, and Legos. Words from lessons in the class were also added. Ms. Mintz took a great deal of time to create all of these dictionary pages and make them accessible to Brian. He then used *WYNN* to listen to the words in the dictionary. He was able to check to see if this was the word he wanted to use when completing class materials or filling out forms.

High-Interest/Low-Level Reading Materials Provide Access to the Curriculum

The second technology product Ms. Mintz has found very useful in her class is the *Start-to-Finish Books Series* (www.donjohnston.com). *Start-to-Finish Books* are designed to encourage reading in students whose reading is far below grade level. The series provides a library of abridged books written at lower grade levels but designed for the interests and curricula of higher grade levels. Each book is packaged in three formats: a paperback book to read, an audio book to listen to, and a computer book (CD-ROM) that provides visual and auditory supports. To help with fluency, the computer book highlights the text as it reads it aloud. The narration is digitized speech, not synthesized, so different characters have unique voices, and the reading sounds more like a dramatization than typical computerized voices. This captivates students and involves them in the story. Students can click on unfamiliar words to hear them spoken aloud.

Start-to-Finish Books enable students who are reading on a second or third grade level to read a version of *Treasure Island, Huck Finn,* or *Romeo and Juliet*. If their middle school or high school English class is reading one of these classics, a student whose reading is far below grade level can still enjoy the story and participate in class activities. There are titles available about sports figures such as Jackie Robinson and Muhammad Ali, and historical figures such as Sacagawea and Rosa Parks. As students' reading skills improve, the series offers another set of titles at the fourth to fifth grade reading level.

Ms. Mintz commented that she appreciated the variety of subject materials available and the series' ease of use. Since Brian has a particular interest in science, she chose *Liddy and the Volcanoes* and *Hurricane!*. He also chose a *Start-to-Finish Book* for his personal choice reading which included books that focused on sports. Brian read along on the screen as the computer read the book aloud. Ms. Mintz used the fill-in-the-blank quizzes at the end of each chapter and other assessment tools to check Brian's comprehension. After his quiz was graded, an option to graph the results was available. Ms. Mintz used this feature to display Brian's progress to him and to provide evidence in his portfolio displaying how he was meeting his cumulative progress indicator.

Innovative Teaching and Technology Combine to Provide Success for Students

By successfully utilizing technology and innovative teaching methods, Ms. Mintz created an environment in which Brian succeeded. She spent a great deal of time learning how to best use the software to enhance his progress, and she put great effort in compiling the evidence and documenting his growth in his APA portfolio. Because of her efforts, Brian's portfolio became an organized collection of digital pictures, scanned work, and printed documents that illustrated his mastery of the target skills.

Tammy Cordwell is an alumna of The College of New Jersey (M.S. in Educational Technology) and an assistive technology specialist for the Adaptive Technology Center for NJ Colleges.

Technology for a Deafblind Student

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Early Intervention

Although he is blind, Jon is a very visual learner. He uses his limited vision extremely well, and his mother credits this ability to intensive, early intervention services when his brain was very young and malleable. Jon was enrolled in St. Joseph's School for the Blind's Early Intervention Program in Jersey City when he was 15 months old. His mother reports that he had two phenomenal teachers whose skills in teaching young blind children helped establish all the right connections as his brain was developing. Ms. VanCampen described Jon as a "mixed media learner," that is, he reads both print *and* braille. Since his eyes fatigue quickly, braille is his preferred medium.

Jon works on an assignment using his *BrailleNote*.

Jon's Technology Tools

Jon uses an array of devices to assist him in his education. When I visited him in his school, he cheerfully demonstrated them to me. He uses a *BrailleNote* (Humanware - www.pulsedata.com), which is an electronic notetaking device.

Jon can be described as a "mixed media learner," that is, he reads both print *and* braille. Since his eyes fatigue quickly, braille is his preferred medium.

The *BrailleNote* is available with a Braille keyboard (the BT version) or a QWERTY keyboard (QT version) for input. Jon uses the QT version which provides output in Braille, print or speech. It runs on a Windows operating system. The device has a refreshable braille display so that the Jon can read his work in braille even as he is inputting the information using the QWERTY keyboard. He can control the rate of the refreshable braille display. Jon's mother had taught him keyboarding by placing braille stickers on a regular keyboard. Jon is now a proficient typist.

A laptop computer is connected to the *BrailleNote*. The information Jon enters into the *BrailleNote* is displayed on the laptop screen so that the teacher can follow Jon's work. The *BrailleNote* Jon was using during my visit was a loaner from the Commission, as his device had been sent back to the manufacturer for repair. Although the loaner machine was more advanced, it posed certain problems. It frequently broke down because the software it was running was a beta version and was not very stable. Also, the USB ports were temperamental and did not allow printing on any of the family's printers or the printer at school. The PCMCIA card that the loaner accepted was not compatible with Jon's own device, which meant the books stored on his PCMCIA card that had been downloaded from Bookshare.org and the National Library Service (http://www.loc.gov/nls/) were not accessible and had to be downloaded again.

Low-Tech to High-Tech

Jon also uses a manual *Perkins Braille Writer*. This device directly embosses the braille code that is typed by the user. He most often uses this device when the focus is on learning braille and its mechanics. When Ms. VanCampen started working with Jon about three years ago, he was using Grade 1 braille, which does not include braille contractions. Braille contractions provide a type of shorthand braille, where one braille symbol represents a group of letters or perhaps even a word. Now he uses contracted braille (Grade 2) and is familiar with the complete Literary Braille code. The *Perkins Brailler* is also used as a backup to the *BrailleNote*. When new vocabulary is introduced, Jon usually learns it in uncontracted braille to verify and reaffirm the spelling, and then in the contracted form. Advancing to the contracted form is essential as most braille books use this form and also because braille, even in the contracted form, occupies six to seven pages for every page of print material. Jon is now learning to use Interpoint, which is Braille embossed on both sides of a page. Ms. VanCampen foresees that Jon will soon start learning the Scientific and Nemeth Braille code as he progresses to higher levels in science and math, respectively.

Braille Production at School

A braille production system is used at school. The system consists of a PC, scanner, braille embosser and inkjet printer. The material that has to be converted into braille is given to Ms. Aldrich at least five days ahead of time. She first scans the material using a *HP Scanjet 8200* scanner and then opens the file in *MS Word* so that she can edit and

format it correctly. If it is not possible to scan, then she manually types the material into the computer. The material is then converted to braille using *Duxbury* braille translation software. The translated material is then "printed" as a Braille document using the braille embosser. The embosser is placed in an adjoining closet as it is rather noisy and disturbing to others in the classroom.

There is hope that in the future, with the National Instructional Materials Accessibility Standards (NIMAS), all published material, including textbooks will be made available in accessible electronic format so that conversion to braille will be seamless.

A print version of the braille document, along with the corresponding text, can also be printed on the Epson inkjet printer that is connected to the PC. This enables a person who is not conversant in Braille to follow Jon's reading. Ms. VanCampen hopes that in the future, with the National Instructional Materials Accessibility Standards (NIMAS), all published material, including textbooks will be made available in accessible electronic format so that conversion to braille will be seamless.

Large Display Scientific Calculator

Although Braille is his preferred reading medium, Jon also uses print material, especially for math. He uses a *Sci-Plus*, which is a large display scientific calculator by Sight Enhancement Systems (www.sightenhancement.com). Jon also writes down information when he wishes to engage in conversation with non braille users. This proves sufficient when the conversation is short and simple, but can quickly become tedious. Jon also uses some low-tech devices such as darkline markers and white paper, hand-written and machine-generated large print, optical magnifiers, and binoculars. He also uses a graphite, folding mobility cane (Ambutech) to travel safely and confidently.

Magnification Tools

When Jon wants to use his vision to read he uses a video magnifier/CCTV (Clarity Systems - www.clarityaf.com) which allows for 4-60x magnification. The model that he uses has a swivel camera and allows for distance viewing as well as near magnification. Jon is quite familiar with adjusting and setting up this equipment. The near magnification feature of the CCTV is used for reading material such as pictures, maps and certain books that cannot be readily converted to braille. Jon uses the distance magnification feature to see his teachers and classmates and to see materials such as posters or decorations placed at a distance. He also takes the system into the school auditorium for assemblies and school performances. He can focus the camera either on the speakers or the sign language interpreter on stage to enable him to follow and enjoy the performance. He usually has an interpreter by his side who can sign to him when the camera is focused on the stage.

The Sci-Plus Series 200
Large Display Scientific Calculator

Assistive Technology at Home

At home the smoke/fire alarm and Jon's pager system use a tactile alerting system. For telephone service Jon uses a large print TTY (telecommunications device for the deaf). His mother told me that when he was young Jon had used Tactaid (www.tactaid.com) for almost three years. A Tactaid can help a deaf person understand sounds by providing coded sound information through vibrators placed on the individual's skin. However, the use of this device was discontinued because Jon found the constant vibration to be distracting and annoying, and he wasn't deriving benefit from it.

Equipment Maintenance

Although Jon's is a success story in the effective use of technology for the educational advancement of an individual with deafblindness, the access to technology and service has not always been readily available. Jon's parents usually approach the Commission for the Blind and Visually Impaired for funding when they recognize that Jon needs new equipment. The Commission has a special fund for students who are deafblind which can usually be accessed. If the Commission rejects the request, then they approach the school district. The Commission usually provides them with ample support when they submit a request to the school district. Jon's *BrailleNote* and his braille production system at home wer paid for by a grant written by Jon's home school district, but Jon's parents take care of all extended warranty maintenance costs, as well as shipping and insurance expenses on his *BrailleNote*. The extended warranty has expired, and Jon's parents bear the cost of repair. Jon's father's employer has been generous in providing two laptops.

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Technology for a Deafblind Student

(continued from page 7)

Looking Ahead

Jon's mother would like him to be fully included by the time he completes his five-year high school program. For that to happen, Jon's team has focused its approach on an intensive language arts curriculum, including reading comprehension, vocabulary development, writing skills, communication skills, and social skills, all of which were delayed due to a lack of exposure during Jon's early years and the impediments posed by his disabilities.

Jon is currently working toward independent access to the Internet for research, email, and enjoyment. Ms. VanCampen would like Jon to have access to text messaging as an alternative to the telephone. Text messaging is widely used in the deaf community, but it is not easily accessible to Jon due to his visual impairment. Email and text messaging will increase his communication with his peers and provide opportunities for him to work on his written communication skills. Once Jon learns the software-specific commands to navigate through the Windows operating system and the Internet, he will be able to access the Internet directly through his *BrailleNote* device or through a computer using the *BrailleNote* for its refreshable braille display. These skills will be incorporated into his school day and reinforced at home where possible. According to his mother, Jon has recently started using e-mail to correspond with his family and friends. She would like him to come to rely on it as a means of communication. Currently Jon does not have access to a device that has the appropriate features that would allow him to text message in "real time" with his peers. A device that would help Jon is an all-in-one wireless device, such as the Sidekick, adapted for tactual reading, but such equipment is not available at an affordable price. His mother is looking into the possibility of a variable font cell phone as a start.

One of Jon's favorite pastimes is rock climbing.

Portable System Provides Easy Communication with Sighted Individuals

To enable him to communicate more efficiently and effectively with sighted people, Jon's mother would like him to have access to a new product called *FaceToFace* (Freedom Scientific - www.freedomscientific.com). *FaceToFace* connects the *PAC Mate*, which is Freedom Scientific's braille notetaker, to a regular Hewlett Packard *iPAQ* PDA (Personal Digital Assistant) with a wireless link. If Jon were to use *FaceToFace*, he would use a *PAC Mate* instead of his *BrailleNote*, and he would carry the tiny *iPAQ* with him. When he wanted to communicate with a sighted person, he would hand the *iPAQ* to the sighted person, type on his QWERTY keyboard, and the message would wirelessly be beamed to, and displayed on, the *iPAQ*. The sighted person would then type a message on the *iPAQ* using the regular stylus and onscreen keyboard or an attachable keyboard, and the message would be wirelessly beamed to the *PAC Mate* which would display it on the refreshable braille display for Jon to read in braille. This new product may be a good solution to Jon's communication problems with the hearing and sighted world, and Jon's mother is hopeful that it may soon be part of Jon's technology repertoire.

Meenakshi Pasupathy is a graduate student in the Department of Special Education, Language and Literacy at The College of New Jersey. She is the parent of a child with severe disabilities.

NEW PRODUCTS

FaceToFace™ by Freedom Scientific

FaceToFace™ offers a portable solution for deafblind individuals to engage in real time conversations with others without the need for a specially trained interpreter. Two individuals can communicate wirelessly using Bluetooth™ connectivity at up to 30 feet apart. A deafblind individual uses a *PAC Mate* (Freedom Scientific) keyboard to write messages, and a sighted individual types on an *iPAQ Pocket PC* (Hewlett Packard). The conversation is displayed visually on the *iPAQ* and in braille on the *PAC Mate*. *FaceToFace*™ works with other *PAC Mate* users, and when portability is not needed, there is a copy of the program that runs on Bluetooth™ enabled desktops or laptop PCs.

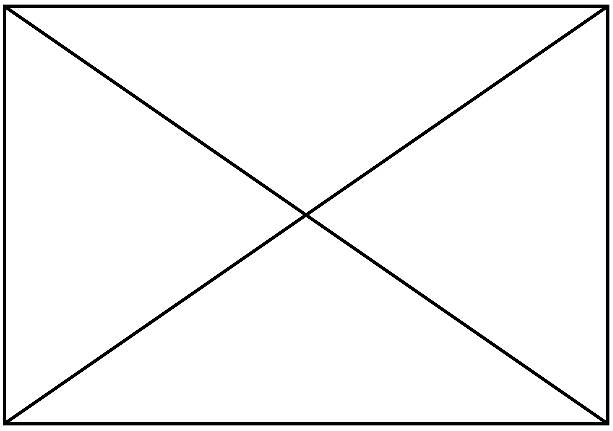
FaceToFace™ includes the application, an *iPAQ* with thumb keyboard, and a CompactFlash™ Bluetooth card. It can be run on a *PAC Mate BX* or *QX*, available with either a 20-cell or 40-cell refreshable braille display (not included).

www.freedomscientific.com

A deafblind individual communicates with a sighted companion using FaceToFace.

Interpretype® System for Face-to-Face Realtime Communication

Interpretype® is a face-to-face communication system that provides real time conversation without speech. For members of the deaf community, this system offers a connection to the non-signing hearing community. *Interpretype*® is a pre-programmed laptop style computer device (ITY™) which has the ability to send and display typed messages to other ITY™ devices or Windows PCs utilizing Interpretype® software. Each ITY™ device is smaller than a standard laptop computer but has a full-sized keyboard for speed and accuracy in typing. The screen is relatively small and has a low profile that enables users to maintain eye contact for a more personal interaction. Users converse with each other by simply reading and typing. Conversation can be captured and printed. An optional Spanish translation module is available. Interpretype® software is capable of inputting and outputting to a braille device, offering this communication option to deafblind users.



www.interpretype.com

IntelliSwitch by Madentec

IntelliSwitch is a wireless switch interface with five switch ports for providing easy computer access. The small IntelliSwitch receiver plugs into any USB port on a computer and the *IntelliSwitch* transmitter can be placed up to 20 feet away. It has two built-in switches and five external switch inputs. Ideally suited for classroom use, up to five different students using separate transmitters can use the same computer (at different times) equipped with a single receiver. When the switch is plugged into a computer, it is USB powered, and when it is used wirelessly, it is powered by 2 AA batteries. *IntelliSwitch* works with both Windows and Mac platforms and is compatible with *Discover* software, Intellitools software, and most self-scanning software.

IntelliSwitch receiver

IntelliSwitch tranmitter

When used with Discover 1.8 software, *IntelliSwitch* enables individuals with motor impairments to perform all keyboard and mouse functions by simply pressing a switch. It is suitable for people with cerebral palsy, ALS, MS, locked-in syndrome, head injuries, and other physical and learning disabilities.

For more information about pricing, purchase plans, and loaner programs, go to www.madentec.com.

smartNAV by NaturalPoint

SmartNAV is a hands-free mouse operated by head movement. This mouse alternative offers access to computers or augmentative communication devices for individuals who are unable to access a standard computer keyboard or mouse due to physical restrictions. The tracking device connects to the computer by a USB port and is mounted on top of the computer monitor or laptop screen. The *SmartNAV* tracks a reflective dot that can be placed on the user's forehead, glasses or mic boom or alternatively, one that is built into a baseball style hat worn by the user. An onscreen keyboard is included with the package, and the system has numerous clicking options: hot keys, voice recognition, switch input or dwell clicking. Multiple users can calibrate the system and store their individual profiles for future use. *SmartNAV* is compatible with both Mac and Windows platforms.

www.naturalpoint.com

The tracking device attached to a computer tracks a reflective dot built into the user's baseball cap.

The Professor® by Telex

The *Professor*® desktop audio system is an all-in-one playback device designed specifically for people with print disabilities. This single system plays digital talking books, talking book tapes, music CDs and radio stations. The CD player is compatible with Daisy CDs, standard CDs, CD-R and MP3 CDs.

The *Professor*® uses phone pad navigation to access functions. Daisy book features include page and chapter navigation, 32 bookmarks for each of 32 books, last position recall on Daisy, MP3 and audio CDs, and variable speed playback from .5x –2.5x with pitch restoration. Cassette book and music features include variable speed control, standard and four-track talking book playback, and playback of standard and half-speed book tapes. AM/FM radio features include spoken radio frequency announcements on demand, direct radio station access via numeric frequency entry, and 32 presets.

For classroom use, Daisy-formatted textbooks and literature can be slowed down to help students at varying levels listen to the content at their own pace. A Telex listening center allows up to eight students to listen to a book or tape at the same time.

The *Professor*® is available for purchase from Recording for the Blind and Dyslexic at www.rfbd.org.

For more information on the *Professor*® go to www.telex.com/talkingbook.

SpeakQ™ by Quillsoft

WordQ (see **TECH-NJ** 2003, Vol 14, No.1), the word prediction software that works with any Windows word processing program, has a new plug-in. *SpeakQ* plugs into *WordQ* and adds simple speech recognition. *SpeakQ* provides speech recognition for individuals who can type but have difficulties with the processes of writing and reading. These individuals can benefit from a combination of word prediction, speech output and speech input to generate text.

SpeakQ helps the editing process by providing support for spelling, word forms, identifying errors, and proofreading. In *SpeakQ*, the typical speech recognition demands are made easier. It has a simple training interface in which the computer prompts the user by voice in what to say. There are no verbal commands for control or correction. Users simply dictate text in either a continuous dictation mode or combined with word prediction. The program provides ongoing speech feedback.

www.wordq.com

A Will to Communicate

(continued from page 3)

Pathfinder(Prentke Romich - www.prentrom.com), an updated version of the *Liberator*.

Learning to Maximize Her Computer

Denise also made dramatic improvements in the way she used her computer. She learned how to program her own serial commands and created a highly customized way of accessing her computer through a series of macros. This greatly reduced her need to use the mouse and afforded her more customization than the off-the-shelf solution offered by the device's manufacturer. Using serial commands Denise could check her e-mail, pay a bill, or begin writing a letter, all by simply activating one icon sequence. Denise also learned many different computer applications, including online conferencing, web page development and desktop publishing. Armed with this new set of skills, Denise again began searching for a job, this time focusing her energy on work that involved helping children, especially children with disabilities.

Volunteer Work at a Museum and Libraries

This time around Denise met success in finding work, but not at finding a paycheck. She found many opportunities for volunteer work and she made the most of them. Denise volunteered at a museum, where she greeted visitors, answered questions, and guided visitors through the exhibits. She programmed answers to frequently-asked questions into the *Pathfinder*'s activity rows for quick retrieval. She also volunteered at local libraries where she programmed children's books into her communication device and used it to read the stories to kids, using different computerized voices for different characters. Denise also volunteered her time at her alma mater, often speaking at disability awareness events and helping the college create printed promotional materials.

Mentoring Another Augcomm User

During this period, Denise found sporadic work for which she was paid. This work included acting as an ambassador for the manufacturer of her augmentative communication device and making presentations at colleges and universities. Perhaps one of the most satisfying volunteer jobs Denise held was serving as an online mentor to another young woman who used augmentative communication. Denise communicated online with this augcomm user for a year to help her set goals and achieve them. Through this program Denise sharpened her skills at problem solving and interpersonal communication, while expanding her skills of using the Internet and online conferencing.

Part-time Work

Only one of Denise's many volunteer jobs turned into paid employment. She had volunteered as a therapy assistant at Ladacin Network in Monmouth County. Working in the speech department, she helps teach children and adults to use their communication devices and encourages them to use their devices. She also helps the therapists prepare materials for their sessions. After several years, this position was turned into a paying job. Denise loves the work, but it is only one day a week and she still wishes to work more.

The Job Search Continues

In 2002, Denise changed her strategy for finding employment again. She began spending time putting together an extensive portfolio of her past work, writings, and presentations. She also began programming her communication device to better handle job interviews. She researched the most common questions that are likely to be asked in a job interview and programmed them into her device's activity rows, a feature which allows for rapid access of messages. Once she had assembled her portfolio and prepared for interviews, it became obvious that she needed to concentrate her energies on obtaining a job for which she was already qualified and could be credentialed. She remained interested in working with children and had obtained most of the requirements to be a substitute teacher in New Jersey.

Denise volunteered at local libraries where she programmed children's books into her communication device and used it to read the stories to kids, using different computerized voices for different characters.

Current Goal

Denise's current employment goal is to work as a substitute teacher in Monmouth County. She has applied to the county for her substitute teaching license and has applied for a job with a local district. She has a unique set of skills that would make her a great substitute teacher for any students, but especially for students who share similar disabilities to her own. She is available to work with students remotely, using video conferencing and online meeting tools.

Denise is anxiously awaiting an upgrade to her *Pathfinde*r. She will begin using the new *Pathfinde*r with the Productivity Bundle, a package which will allow Windows CE applications to run on her *Pathfinde*r. She is anxious to begin using these programs and is especially interested in using *Excel* to view class logs and attendance records. She is hopeful that she will be able to begin working as a substitute teacher soon. She says "There are a lot of unusual things that people with disabilities can do in the work force. Employers need to be opened minded. They shouldn't judge people by their covers, but rather by what they can offer to the job." Denise can contacted at dghizz@aol.com.

Kevin J. Cohen, MS CCC-SLP is an augmentative communication specialist for CATIES (Center for Assistive Technology and Inclusive Education Studies) at The College of New Jersey.

RESOURCES

Captioned Media Program

The Captioned Media Program (CMP) provides a free-loan media program of over 4,000 open-captioned titles (videos, CD-ROM, and DVD). Deaf and hard of hearing persons, teachers, parents, and others may borrow materials. There are no rental, registration, or postage fees. Several hundred titles are also streamed on the CMP web site.

CMP provides all persons who are deaf or hard of hearing awareness of and equal access to communication and learning through the use of captioned educational media and supportive collateral materials. The CMP also acts as a captioning information and training center. The ultimate goal of the CMP is to permit media to be an integral part in the lifelong learning process for all stakeholders in the deaf and hard of hearing community.

CMP supports the U.S. Department of Education Strategic Plan for 2002-2007 by ensuring that all deaf and hard of hearing students have the opportunity to achieve the standards of academic excellence, advocating for accessible media, as well as the establishment and maintenance of quality for CMP captioning, involving its constituents in the selection, evaluation, production, and distribution of its products, and exploring and adapting new media and technologies which assist people who are deaf and hard of hearing in obtaining and using available information.

The CMP acts as a clearinghouse of information and materials on the subject of captioning. These resources are available in print or online. The clearinghouse maintains a database of captioned media available for purchase.

www.cfv.org

AT&T Video Relay Service

For many deaf and hard-of-hearing people living in the United States, sign language is their language of choice. AT&T now offers Video Relay Service (VRS), an online relay service that allows users to sign rather than type their communications. Video Relay Service (VRS) allows people who are deaf or hard of hearing to converse in sign language, through a computer, with people who use standard phones to communicate.

Using a web-cam and a high-speed Internet connection, users log onto the AT&T Video Relay Service website and connect with a Video Interpreter who calls any number the user provides.

On the website, video calling is made possible through two video boxes. The user appears in one and the Video Interpreter appears in the other. The user signs into their web-cam and it appears on screen. The Video Interpreter sees the user signing and translates their message into speech for the person on the other end of the line to hear. Then, when the hearing person replies, the Video Interpreter translates their speech into sign language for the user to see.

In addition to the ability to communicate in sign language, VRS users enjoy increased communication speed and enhanced communication with the use of facial expression and body language gestures.

All AT&T Video Relay Service calls originating from the U.S. and its territories to anywhere in the world are free.

www.consumer.att.com/relay/index.html

Audiovision Radio Reading Service

As a service of the New Jersey Library for the Blind and Handicapped, Audiovision records and broadcasts readings from local newspapers and special interest programs. Audiovision is available without charge to New Jersey residents who live within the Audiovision broadcast area and are unable to read standard print because of a visual or physical disability.

Each eligible listener receives a pre-tuned receiver. Audiovision may also be heard on a stereo TV or VCR with SAP (Second Audio Program) capability, broadcast via New Jersey Network (NJN) on UHF channels 23, 50, 52, and 58. NJN is also available through local cable providers.

Audiovision airs seven days a week, 24 hours a day. The broadcast schedule features local programming Monday through Friday from 12pm to midnight. Additional programming is provided by other radio reading services from New York, Minnesota, Kansas, and Pennsylvania.

For more information or to register for the Audiovision Radio Reading Service call (800)792-8322 or visit the website at www.audiovision-nj.org/rrs.html

NJ Regional Centers for College Students with Disabilities

New Jersey supports eight centers located throughout the state that provide direct assistance to auditorily impaired, visually impaired, and learning disabled students. The goal of the centers is to provide integrated, individualized, direct services to students and technical assistance to other colleges and universities in the state. The Special Needs Grant Program is administered by the New Jersey Commission on Higher Education.

Adaptive Technology Center for New Jersey Colleges at The College of New Jersey

Director: Amy Dell (adaptivetech@tcnj.edu)
(609) 771-2610; http://adaptivetech.tcnj.edu

Learning Disability Centers

Project Assist at Cumberland County College
Director: Sandy Sheard (ssheard@cccnj.net)
(856) 691-8600 ext. 282; www.cccnj.edu/projAssist

Regional Center at Fairleigh Dickinson University
Madison Director: Paul Vico (vico@fdu.edu)
(973) 443-8734
Teaneck Director: Vincent Varrassi (varrassi@fdu.edu)
(201) 692-2298
www.fdu.edu/studentsvcs/rcsld.html

Central Regional Connections at Middlesex County College
Director: Mary Jane Warshaw (Mary_Jane_Warshaw@middlesexcc.edu)
(732) 906-2507; www.middlesexcc.edu/acadsupport/control.cfm/ID/74

Project Mentor at New Jersey City University
Director: Jennifer Aitken (projmentor@njcu.edu)
(201) 200-2091; www.njcu.edu/PMentor/proj_ment_home.htm

Project Academic Skills Support at Ocean County College
Director: Maureen Reustle (mreustle@ocean.edu)
(732) 255-0456; www.ocean.edu/campus/student_services/drc/pass.htm

Deaf and Hard of Hearing Centers

Center for Collegiate Deaf Education at Bergen Community College
Director: Nancy Carr (ncarr@bergen.edu)
(201) 612-5270, (201) 612-5325 TTY; www.bergen.cc.nj.us/oss/ccde.asp

Mid-Atlantic Postsecondary Center for Deaf & Hard of Hearing at Camden County College
Director: Josie Durkow (jdurkow@camdencc.edu)
(856) 227-7200 x 4506, (856) 228-1897 TTY; www.camdencc.edu/dhoh

Serving Students with Cochlear Implants

Date: June 8, 2006
Time: 10:00 AM
Place: The College of New Jersey

A Conference co-sponsored by:

- **Northeast Technical Assistance Center**
- **The Regional Center for the Deaf and Hard of Hearing at Camden County College**
- **The Adaptive Technology Center at The College of New Jersey**
- **NJ AHEAD**

Presentors:
Catherine C. Clark, M.S., CCC-A
Coordinator, Cochlear Implant Program
Communication Studies and Services Department
National Technical Institute for the Deaf (NTID)
Rochester Institute of Technology

Mary Karol Matchett, MSW
Academic Counselor
Office of the Dean
National Technical Institute for the Deaf (NTID)
Rochester Institute of Technology

The number of deaf teens and young adults with cochlear implants attending our high schools and colleges is increasing. To effectively serve these students it is important to understand how cochlear implant technology works and its potential impact on post-secondary education. This presentation will provide an update on cochlear implants and describe key educational and clinical support services requested by cochlear implant users pursuing academic and employment opportunities.

There is no fee for this conference. For more information or registration information, contact Josie Durkow at (856)227-7200 ext. 4506 or jdurkow@camdencc.edu

I recommend the following program/product for consideration for inclusion in a future issue of TECH-NJ:

Part A

Name of Program/Product: _____

Brief Description: _____

_____

Contact Person: _____

School/Company: _____

Street: _____

City: _____ **State:** _____ **Zip Code:** _____

Phone Number: _____

E-Mail Address: _____

My Name/Phone Number/E-mail Address: _____

PLACE STAMP HERE

TECH-NJ
The Department of Special Education, Language and Literacy
The College of New Jersey
P. O. Box 7718
Ewing, New Jersey 08628-0718

(FOLD HERE)

Part C

If you know anyone who would be interested in receiving a copy of TECH-NJ, please fill in below.

Name: _____

Street: _____

City: _____ **State:** _____ **Zip Code:** _____

Name: _____

Street: _____

City: _____ **State:** _____ **Zip Code:** _____

NJ Regional Centers for College Students With Disabilities

The Special Needs Grant Program of the New Jersey Commission on Higher Education supports a system of regional centers to provide support services for students with special needs. There are eight centers located throughout the State of New Jersey.

The Adaptive Technology Center is located at The College of New Jersey. The Center works with service providers at the institutions to provide opportunities for college students who have learning disabilities, or who are visually impaired or deaf or hard of hearing, to meet the academic demands of college. Five Regional Centers serve students with learning disabilities, providing comprehensive support programs for students attending their colleges. Two Regional Centers provide comprehensive support programs on their campuses for students who are deaf or hard of hearing.

For staff at other colleges and universities, the Regional Centers provide technical guidance and support.

For contact information for all the Regional Centers, please see page 14.

Center for Assistive Technology & Inclusive Education Studies (CATIES) at The College of New Jersey

CATIES is a research and service initiative of The College of New Jersey's School of Education. It is dedicated to improving the educational experiences of children with disabilities by linking faculty and staff expertise with the needs of New Jersey's educational community.

CATIES provides the following evaluation and consulation services:

- **Assistive technology evaluations** for children with disabilities to determine which technology tools will help a child access the curriculum and succeed in school.

- **Augmentative communication evaluations** for individuals with speech/language difficulties to determine methods to improve communication.

- **Functional behavior assessments** based on positive behavior support practices.

For more information about CATIES services and initiatives, visit the CATIES website at http://caties.tcnj.edu

THE COLLEGE OF NEW JERSEY

Department of Special Education, Language and Literacy
P. O. Box 7718
Ewing, New Jersey 08628-0718

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