



DIRECTIONS

Technology in Special Education

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What Does the Research Say About Severe Disabilities and Speech-Recognition Technology?

Source: From Passivity to Participation - The Transformational Possibilities of Speech-Recognition Technology, Cavalier & Brown Teaching Exceptional Children July/Aug 1998

More than 2 million children and adults in the United States have physical or mental impairments so severe that they are unable to communicate with other people or effectively interact with and learn from their environment (Bricker & Filler 1985). Learned helplessness frequently characterizes people behaving under these types of conditions (Weisz, 1982). These people often are denied, lay virtue of their disabilities and society's response (or lack of response) to them, the social interaction, access to education, and personal fulfillment to which everyone is entitled.

Because of the severity and multiplicity of the functional disabilities, teachers, family members, and therapists often find that they ore required to provide extensive attention throughout the lifetime of people with severe disabilities (Fredericks, 1965). As a consequence, one of the most critical needs in education is the development and evaluation of intervention techniques that advance the quality of life of people with severe disabilities, are age-appropriate, and are the least restrictive of their personal freedom. An important focus of these techniques far this population is independent choice making. Making choices is a central factor in personal autonomy and feelings of personal worth; yet, opportunities to express preferences, make choices, and exercise control are rare in educational programs for children and adults with severe disabilities (Dyer, Dunlop, & Winterling, 1990; Houghton, Bronicki, & Guess, 1987; Real on, Favell, & Lowerre, 1990).

Computers have the potential to be effective tools in enabling people to make choices. Traditional computer interfaces, such as keyboards and mice, however are not without cost to the user because they interpose additional response requirements into the performance of a task. Thus, they present a major barrier for many people with severe disabilities (Cavalier & Ferretti, 1996; byes & Frankish, 1992). The addition of speech-recognition



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Accessible Learning

by Lorianne Hoenninger

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This month we are going to take a closer look at the IntelliKeyboard, its tools and shareware. The IntelliKeyboard is an alternative keyboard for Apple, Macintosh and Windows computers designed by IntelliTools (1-800-899-6687). This large, colorful, sturdy board assists students who experience difficulty accessing a typical computer keyboard. For your \$400.00 (less from discount vendors) you receive the IntelliKeyboard, 6 standard overlays, 1 setup overlay and a clear protective plastic sheet to use with custom overlays. Many publishers such as KidTech include IntelliKeyboard overlays with their software, rendering the program "IntelliKeys ready to use". Other companies such as Edmark and Broderbund have overlays available for an additional fee. The IntelliKeyboard is also a switch interface and works with most switch accessible software.

The ability to easily create custom overlays for the IntelliKeyboard is one of its most important features. Authoring tools including IntelliPics, Click It, IntelliTalk and Overlay Maker. With these tools, the user can create custom overlays for commercial software, create talking communication boards, and child specific custom software. Digitized photos, QuickTime movies, digitized voice and music can easily be included in your creations.

In my school we use IntelliPics to reinforce the monthly curricular

related vocabulary. I simply choose the appropriate pictures (or scan in my own) from the picture library and add them to one of the templates that is included with IntelliPics. The children touch a picture, choose a number, action and color, then sit back to hear the vocabulary word spoken as it bounces (or melts or...) on the screen.

"But I don't have time to create overlays", you say! Well, that brings us to another excellent feature of the IntelliKeyboard — the online **Activity Exchange** site at <http://intellitools.com/exchange>. Hundreds of terrific activities developed by teachers, parents and therapists are available for the download. You do not need to own the IntelliKeyboard or its authoring tools to use many of the activities. Just download the appropriate "player". Activities are available for art, language, reading, writing and math skill development, for students ages preschool to adult, for both PC and Mac. Some activities are designed for the IntelliKeyboard, some for switch access. There are overlays to support existing commercial software such as Macomb Projects "Art Space". There are quizzes and report formats, recipes and card games. Titles include "A Day on the Farm", "Writing Across the Curriculum", "Book Report Template", "Errorless Sing A Long", "Let's Make Popcorn" and "Numberline". It should be noted that

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DIRECTIONS

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capabilities to computers in busy environments has been associated with superior performance because the use of voice input reduces the burden on the user's attention and minimizes the possibility of response interference. Speech is the most natural way to communicate and to act in the environment. Therefore, it may also be the most natural means by which to empower a person (Cavalier & Ferretti, 1996; Noyes & Frankish, 1992).

Over the past 5 years, speech-recognition technology has advanced to such a degree that it now represents a viable - even versatile - means of alternate access to education and integration for people with severe disabilities. It has the potential to effectively compensate for the limitations imposed by multiple disabilities by providing technological support in meeting many of the special challenges these people face in school, at home, and in the workplace (Cavalier & Ferretti, 1996). Sophisticated speech-recognition technologies also are increasingly more affordable, raising optimism about the prospects for general use by teachers, therapists, and clients. The present study began a program of inquiries into the appropriateness of this technology and of the benefits to be derived by children and adults with severe disabilities (Brown, Cavalier Minea, & Buckley, 1988; Brown & Cavalier 1992; Brawn, Cavalier Sauer, & Wyatt, 1992).

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Assistive Technology Can Facilitate Transition into Adult Services

By Steve Mendelsohn, Esq. and Susan Goodman, Esq.

Transition from school to work or other post secondary education activities has long been a vexing problem for the disability community. Both the Individuals with Disabilities Education Act (IDEA) and the federal Vocational Rehabilitation Act (VR) provide for cooperation between the education and rehabilitation systems in the planning of transition from educational to adult services, including post-secondary education. However, practical experience indicates that implementation of this intended cooperation has been limited and difficult.

One area where the transition problem has been especially apparent is that of assistive technology (AT). Students transitioning from education programs have often been faced with the need to give up vital AT devices and services and to await provision of replacement devices and services by the rehabilitation system. A long interval without technology results in loss of employment opportunities on opportunities for maximum integration in a variety of activities.

The goals of successful transition would be better achieved if students whose technology was relevant to their post school goals could retain and use devices and services without interruption during the transition period. The goals of coordination and cost effectiveness would also be better served, in many cases, if such continuity was possible.

An analysis of why transition has not worked in many cases is beyond the scope of this report. One major factor,

however, has been the fear on the part of school district administrators and rehabilitation agency officials that legal constraints might limit the authority of school districts to transfer title to assistive technology devices to the rehabilitation agency and other post school service systems. Concerns have also persisted regarding the proper procedures and documentation to be used regarding any exchange of funds that would be involved.

In an important interpretation of the law issued on June 21, 1998, the Office of Special Education and Rehabilitative Services (OSERS) in the U.S. Department of Education has responded to an inquiry by Assistive Technology Funding and Systems Change Project (ATFSCP) Project Coordinator, Susan Goodman, with a clarifying letter on this issue. By emphasizing its commitment to effective transition services, the clarification goes a long way toward resolving some of the concerns that have inhibited coordinated and cost-effective use of publicly funded AT devices and services. In this response, Judy Heumann, Assistant Secretary of OSERS, states:

"We agree that coordination between LEAs (local education agencies) and state VR agencies to enable students with disabilities to continue using assistive technology devices as they move from one program to another is an efficient, cost-effective means of facilitating transition from school to work related services and fully support the type of cooperation between the agencies to which you refer. We believe the EDGAR

requirements outlined above support this type of cooperation." Letter dated June 21, 1998 to Susan Goodman, from Judith Heumann, t p.3-4 (quoting 34 C.F.R. § 80.32(c)(1)).

According to the Department, the regulations allow the continued use of equipment by students after leaving school and/or the transfer of its ownership to the rehabilitation system or other entities in all cases where the school district does not have a continuing need for the device. This decision rests within the authority of each school district, but as stated in the clarification letter:

We presume that assistive technology devices purchased by LEA's are often customized or otherwise modified to suit the individual needs of a particular child with a disability, making it unlikely that the LEA would need the device once the child leaves school in

instances in which that is the case, the LEA is permitted to transfer the device to the state VR agency that is serving the former student for whom the device was originally purchased. "Letter dated June 21, 1998 to Susan Goodman, from Judith Heumann, at p.3 (quoting 34 C.F.R. 80.32(c)(1)).

Ordinarily, federal regulations will only apply to equipment with a fair market value of \$5000 or more at the time of transfer. The Department does not indicate how fair market value will be determined but there are a number of simple satisfactory ways of doing this including contacting the manufacturer, consulting Internal Revenue Service depreciation tables, asking local vendors for help, and so forth. In these cases it will be important to maintain documentation of how the value was reached, and what basis of depreciation was used.

Generally, the rehabilitation agency will have an obligation to transfer funds in payment for the technology only in those instances where State Education Agency (SEA) contributed funds to the original purchase of the technology. In those cases where the fair market value (*at the time of transfer*) is \$5000 or above, the SEA has a right to receive its pro rated share of this value. Thus, if the fair market value of a transferred device is \$6000 and the SEA has contributed 10% to its original purchase, the SEA would, in theory, be entitled to \$600 reimbursement. Of course, the SEA is free to waive this reimbursement in any and all cases.

Another point made by the letter is that schools' authority to transfer ownership is not limited to state VR programs. While V programs are specifically addressed by the letter

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Wheels! the latest development of RJ Cooper & Associates, is a 3D action activity, like the ones that able-bodied kids play, but with many changes necessary for kids with special needs:

-Colors are bright and minimally-dithered, textures are clean, lines are thick; in other words, kids with visual disabilities or cognitive challenges can see and 'understand' the graphics.

-Mazes are 2 dimensional and easy to follow. Even non-gamers can play and win.

-'Monsters' are 'evil' clowns and 'mad' robots, but they are very satisfying to 'cream' with pies. No blood. No gore.

-Weapon is a pie-gun, which shoots lemon merengue pies. Monsters shoot blueberry pies at you. 1 shot 'creams' monster (no multiple direct hits necessary).

-Monsters' attacks are mild (compared to those games you buy at computer stores) so that almost anyone can play and win.

-3 difficulty levels for each maze. User can select difficult themselves by simply choosing one of three entrances.

-Setting is in a school, with recognizable objects.

-Designed originally for power-

wheelchair/joystick training so when player hits walls/obstacles, damage is incurred (at Med and Hard difficulties).

-As a player finishes each maze, hallways get narrower, monsters get more aggressive and damaging, and game becomes more challenging.

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(because of its focus on transition), ownership transfer can be made to any "activities currently or previously supported by a federal agency." Letter dated June 21, 1998 to Susan Goodman, from Judith Heumann, at p.2 (quoting 34 C.F.R. §80.32(c)(1)). This means that inter-district transfer of equipment can occur for students who move from community to community, or when equipment currently being stored by one district is identified as being needed by another. Both of these inter-district transfers can occur as freely as transition-transfer to VR program.

The clarification letter recognizes that state law also plays a role. It is possible that, aside from the federal regulations involved, your state may have laws or regulations bearing upon such transfers. Typically, this will not be a law barring the transfer but one that establishes procedural or documentation requirements regarding how it is to be done.

Many states are also likely to have provisions allowing education and rehabilitation agencies to enter into reciprocal agreement to facilitate such transfers. The federal law, likewise, encourages such agreements.

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Conferences & Events

Date: December 6 - 9, 1998

14th Annual DEC International
Early Childhood Conference on
Children with Special Needs.
Chicago, IL
Contact: 1-888-232-7733

Date: January 28 - 30, 1999

17th Annual International
Conference - Technology,
Reading & Learning Difficulties
San Francisco, CA
Contact: 510-594-1249 or 1-888-
594-1249

Date: March 16 - 20, 1999

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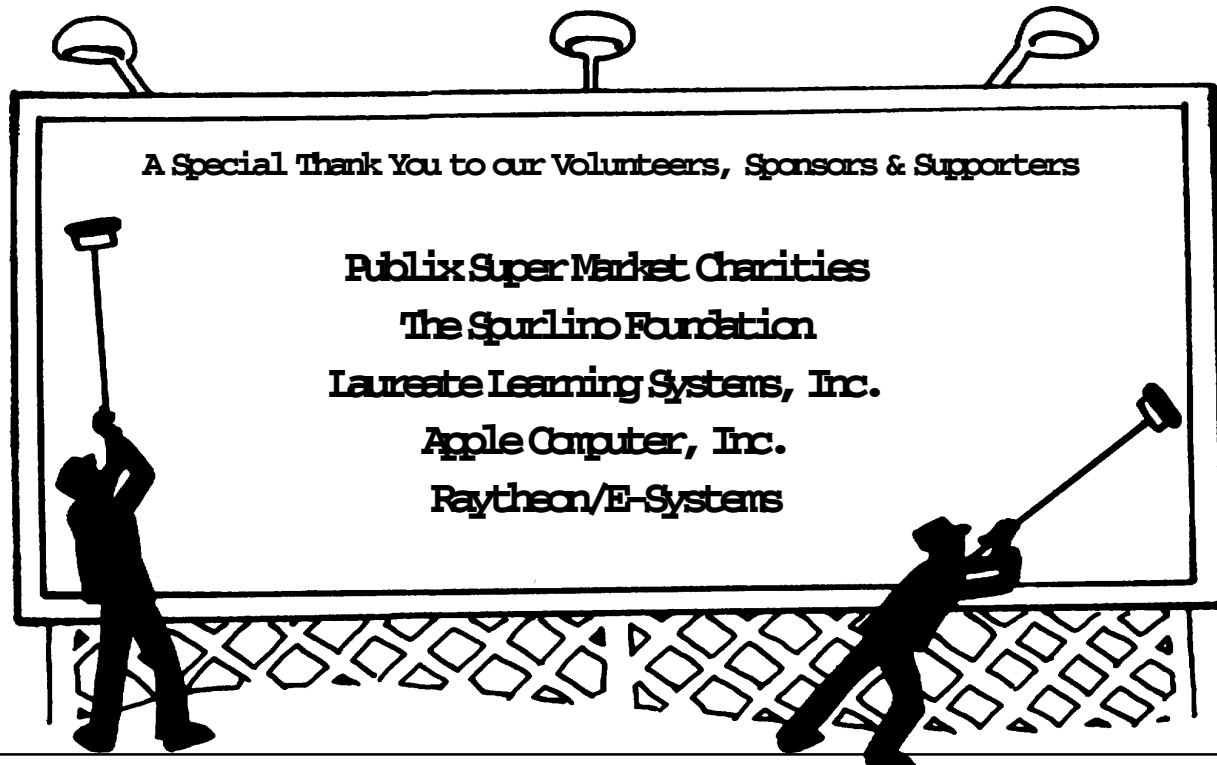
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while the Macintosh titles are self extracting, PC users must download a "Unzip" program such as PKZip (<http://www.pkware.com>) or Winzip (<http://www.winzip.com>) in order to open the downloaded software.

The possibilities inherent in the IntelliTools authoring system are endless, making this an invaluable tool. I recommend that you visit this site!

Next week I will be attending the Closing the Gap conference in Minneapolis (<http://www.closingthegap.com>). I know I will return overloaded with information about the latest technology. The "Best of Closing the Gap" will be the theme of next month's column.

If you have a specific question in the meanwhile, do not hesitate to e-mail me at lorianne@erols.com or write c/o: Accessible Learning Technology Associates, P.O. Box 597, Shirley NY, 11967. See you on the internet! §



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ACTION STEPS

1. Set up a meeting with school district officials to inform them of this new interpretation of the law and to offer your support in assisting them in efforts to establish procedures to implement this guidance.

2. If you know of student who might be affected by this clarification, work to document the benefits to the individual and cost savings to the public that would result in the transfer of technology.

3. Set a meeting with a representative of your SEA to inform them of this letter and request that they issue an advisory to all school districts informing them about this important certification and to issue guidance on its implementation in the LEA's.

4. Encourage your SEA take "positive practices" in transition services into account in the award of discretionary funds to school districts.

5. Set up a meeting with your state VR director or designated representative to inform the agency of their obligation to accept these transfers in appropriate cases. §

E-Mail Bulletin Board

Piano Adaptation

I am looking for adaptive technology for a spinal cord patient so that he can use the pedals of a standard piano Any ideas??? Thank You for your time and consideration
rpbrock@earthlink.net §

Response: My Name is Linda Jaeger and I am the President of the Coalition for Disabled Musicians, Inc. Founded in Feb. 1986, we try to assist disabled musicians in "Pursuing their musical dreams!" Perhaps if you can supply me with a few more details, I can check with our adaptive equipment dept. to see if they have any suggestions. Linda Jaeger, President, Coalition for Disabled Musicians, Inc., P.O. Box 1002 M, Bay Shore, NY 11706, (516) 586-0366 "CDM Was Formed To Give The Disabled The Opportunity To Pursue Their Musical Dreams!" Check out our website at www.disabled-musicians.org

Playground Equipment

Hello. I know you are more on the technical assistance side of things but I am trying to find information and/or an agency or company that could help with playground equipment. I am a member of a neighborhood San Antonio group that has raised money through a carnival to buy items for the area elementary school. We feel that it is an important part of development for all children to be able to play together. Right now our playground has no equipment for the disabled kids to play on. It's hard to play "with" people if you are stuck on the sidelines. Any ideas or suggestions of who we might try? Either companies that make equipment or someone who might add additional funding to our existing funds. Thanks!

gsbrown@swbell.net

Head Control for Nintendo

Hi. I live in Longview, Tx. My son sustained a spinal cord injury in 1996 at the age of 8. He is a C3-4 quad and has no feeling or movement from the shoulders down. He works on a computer with a head mouse at school and at home. I am looking for a head control for the nintendo so that he is able to play video games. I have heard that there is a company in Dallas that makes one but have not been able to find out the name of the company. I was just wondering if you could help me find one. If so please contact me by email. Thank you.

JAS562@aol.com

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