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ABSTRACT

This theme issue of a newsletter that focuses on transition of youths who are deaf-blind discusses the topic of assistive technology. An introduction introduces the issue and notes the vast array of homemade low technology and commercially available high technology assistive aids and devices that enable adults with sensory disabilities to live, work, and play more competently and safely. "How Assistive Technology Enhances Carol's Life" presents an interview with a high school student with deaf-blindness about her use of mobility and communication aids in her daily routine. "A Sampling of Assistive Technology Used by Individuals Who Are Deaf-Blind" describes telephone devices, assistive listening devices, alerting systems, clocks, closed caption decoders, mobility aids, and other communication technology for braille users and print users. A chart lists potential funding sources for assistive technology. Guidelines are offered for identifying, selecting, creating, and evaluating assistive technology. The newsletter issue concludes with a list of assistive technology resources, including organizations and publications. (JDD)

HELEN KELLER NATIONAL CENTER

HKNC TAC NEWS

TECHNICAL ASSISTANCE CENTER

VOLUME 7, NUMBER 2 — *Supporting the Transition of Youths who are Deaf-Blind* — FALL, 1994

Assistive Technology: Enhancements for Daily Life

Our means of gathering information from the environment, for interacting with it and with other human beings, is through our senses of vision, hearing, touch, taste, and smell. Many of the practices and tools we use in everyday life require vision and/or hearing and depend to a lesser extent on use of the other three senses. Thus, people rely most heavily on their senses of sight and hearing. When one of these two vital senses is impaired, the individual must learn to compensate by depending more heavily upon the other vital sense. When both vision and hearing are impaired, the individual must learn to more effectively use any residual vision and/or hearing and to depend more heavily upon one or more of the remaining three senses. Vision and/or hearing impairments can impact all aspects of an adult's life—from expressive and receptive communication and mobility to competitive employment, recreation, and other everyday tasks.

Assistive Technology. These words may sound intimidating and expensive. Before the advent of technology in this century, adults with sensory impairments used relatively *low tech* strategies for dealing with their environment and other people. Modern technology, including radio, telephone, mass transportation, television and computers, offers *high tech* opportunities for assistance. Assistive devices, as defined by the Technology-Related Assistance for Individuals with Disabilities Act (1988), include "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities."

Today, a vast array of homemade low tech and commercially available high tech assistive aids and devices enables adults with sensory disabilities to live, work and play more competently and safely. For example, there are assistive devices that enable a person with hearing and vision impairments to prepare meals using braille, large print, or picture recipe cards or books, vibrating timers, and aids to assist in measuring and pouring liquids. In employment settings, the possibilities for adapting specific job tasks are as endless as the variety of job tasks themselves. Similarly, many games and recreational activities may be adapted by adding tactual cues. For example, braille or other tactual cues can be used to mark playing cards, game boards and playing pieces. Some adaptations are simple and only require resourcefulness on the part of families, education and rehabilitation personnel whereas others may require the advice of specialists such as audiologists, speech-language therapists, low vision specialists, O&M specialists, or rehabilitation engineers.

This issue of *HKNC-TAC News* describes some of the technology available for adults who are deafblind. Because commercial technology changes almost daily and homemade technology is limited only by our understanding of an individual's sensory impairments and our creativity in addressing functional needs, the resources in this newsletter should not be considered exhaustive or as person-specific solutions. Instead, it is our hope that the examples, resources and guidelines for identifying, selecting, creating and evaluating assistive technology included here will enhance the lives of individuals with deaf-blindness in a myriad of ways.

Technical Assistance Center of the **Helen Keller National Center** (HKNC-TAC) is a national technical assistance center funded by the U.S. Department of Education, Office of Special Education Programs, Agreement #HO25E20001.

HKNC-TAC's purpose is to provide national training and technical assistance to education programs and adult agencies providing school-to-adult-life transition services to youth with deaf-blindness.

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January 1995—New Book to be Available

Supporting Young Adults Who are Deaf-Blind in Their Communities - A Transition Planning Guide for Service Providers, Families and Friends

Edited by **Jane M. Everson, Ph.D.**, Project Director, Technical Assistance Center, The Helen Keller National Center for Deaf-Blind Youths & Adults, Sands Point, NY, and Associate Professor, School of Allied Health Professions, The Human Development Center, Louisiana State University Medical Center, New Orleans, LA.

Forward by **Robert J. Smithdas, L.H.D., Litt.D.**, Assistant Director, The Helen Keller National Center for Deaf-Blind Youths & Adults.

■ Contents ■

Royalties from *Supporting Young Adults Who Are Deaf-Blind in Their Communities: A Transition Planning Guide for Service Providers, Families, and Friends* will be donated to The Helen Keller National Center for Deaf-Blind Youths & Adults.

Order: Stock #1618—Everson, *Supporting Young Adults Who Are Deaf-Blind*; Approx. $39.00; November, 1994; Approx. 400 Pages; 7X10, paperback.
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Paul H. Brookes Publishing Co., PO Box 10624, Baltimore, MD 21285

Call TOLL-FREE 1-800-638-3775 or FAX 1-410-337-8539

How Assistive Technology Enhances Carol's Life

Carol Kaplin, a high school student, uses many different types of assistive technology in a typical day's activities to make her life run smoothly.

Carol, please tell us about yourself.

My name is Carol Kaplin. I am 19 years old, and I am deaf-blind. I have macular degeneration and a 20/70 acuity loss in both eyes. I don't see objects or people clearly, especially in my central field. My hearing loss is mild to moderate in both ears. I hear some speech and most environmental sounds—cars, trains, planes—if there's no background noise.

Mornings I go to Roosevelt High School. In the afternoon, I'm learning work skills for a job after graduation. My mom works the night shift and my dad works days, so I'm pretty independent at home.

How do you travel?

I learned how to use a cane to travel indoors. I also use a visual and tactual map, large print compass, telescope, and various cane techniques. Recently, I attended a dog guide school and received a dog guide, Sasha. She and I travel indoor and outdoor routes that are familiar to both of us.

How do you communicate when you travel?

Some people who don't know me well have a hard time understanding my voice. Most of them don't understand American Sign Language (ASL) either. If an interpreter isn't with me, I use communication cards or a print-on-palm system. People print letters of the alphabet on my palm to talk to me. I print on paper or sometimes on their palm to talk to them. It works, especially for emergencies.

What types of "tech aids" do you use?

I use a folding cane with a marshmallow tip, communication cards, map, note pad, and my dog guide for indoor travel. When I leave my house, I use a large print compass, telescope, cane, communication cards, note pad, and my dog guide. I don't use all of them each time I travel. I choose "tech aids" based on where I'm going and the activity. I tend to use different aids for familiar and unfamiliar settings.

Tell me about the ones you used today.

This morning, at home, I trailed to find the different rooms. But when I needed to go downstairs to the laundry room for my wash (It's full of things I could trip over), I used my cane. The marshmallow tip helps it glide over uneven surfaces.

Before school, I took my dog Sasha for a walk. This way we both get some exercise. I took my preprinted communication cards in case of an emergency or if I get confused. I wore my telescope around my neck on a string and used it to cross a quiet road. It enlarges and expands my viewing area to make up for my central field loss. And, Sasha helps me cross streets. She's trained not to move when I give her a command if a car is in my path. Once she knows the route, I won't need the telescope for our morning walk.

This afternoon, I went to a job interview across town. My mobility teacher reviewed the route with me last week. I use a large print compass and a telescope to cross low-traffic streets. My cane skills are good. Based on my skills and comfort level, my instructor and I agreed to meet at the building. I didn't take Sasha because she didn't know the route. I located the right bus with my telescope and showed my preprinted communication card to the driver before sitting down. It must have been my lucky day! He remembered to tap my hand so I knew when to get off. I found the direction with my compass, walked to the building using my cane, and identified the address with my telescope.

I had a visual and tactual map of the building, with landmarks on it so I knew where I was in the building. My mobility instructor was there but I didn't need her. The hallway was too dark to see the office numbers, so I stopped someone and asked for help. I wrote "Office #237?" on my note pad. He wrote, "two more doors" and pointed down the hallway. I found it. Luckily, I left my house early. Being on time for a job interview is important!

A Sampling of Assistive Technology

Most assistive technology for adults who are deaf-blind is hybrid technology adapted from deafness and\or blindness technology, but much of it is useful to persons with dual sensory impairments.

Telephone Devices (TDDs or TTYs)

A **TDD** (Telecommunication Device for the Deaf) or a **TTY** (Teletypewriter for the Deaf) is a specialized device that allows people to communicate over standard phone lines to other individuals who have a similar device. Messages appear as typed words on a display screen on the unit using a typewriter-style keyboard. Some units also produce a printed copy of the conversation. Several companies have linked their braille computer displays to TDDs from the Ultratec company, producing braille TDDs. These devices include all the features of direct connect TDDs such as automatic dialing and an answering machine, and can be interfaced with a computer, a printer, or a braille embosser.

The **Infotouch**, created by Enabling Technologies, does not have a mechanical braille display, but it does have the advantage of producing a braille embossed copy of the conversation. The Infotouch keyboard can be used as a standard typewriter keyboard or as a six-key brailler. It also has the capacity to act as a phone answering machine. When not in use with the phone, the system can be used to braille other materials in either grade one or two braille.

For TDD users who are not braille readers, two adapted TDDs are available. Ultratec markets a **TDD with a large visual display** (LVD) that has figures both larger and bolder than the usual one and is able to change the color of the display. For a printed copy of a conversation, another company, KRI Communications, manufactures a **TDD with a variable size printout**, in which the type is printed about 1/3 larger and bolder than regular TDD type.

An increasingly popular telephone technology is the **Relay Service**, which is provided through the telephone company. This service enables a TDD user to call a hearing partner who does not possess a TDD, or visa versa. The operator uses both voice (to communicate with the hearing individual) and a TDD to *relay* the conversation as a third party interpreter. As a result of the ADA (Americans with Disabilities Act), all local and long-distance telephone companies nationwide were required to provide telephone relay services as of July 26, 1993. The call to the service is free; long distance calls are charged at the usual rate.

Assistive Listening Devices (ALDs)

Assistive listening devices are used to improve the quality of sound for a listener with hearing impairments and are especially helpful in noisy environments or when sound is coming from a distance. **ALDs** are not intended to substitute for a hearing aid. Instead, they extend the reach of a hearing aid in order to distinguish and pick up selected sounds when there is background noise. These devices can be very helpful when an adult who is hard of hearing and either blind or visually impaired cannot depend on speech reading to fill in lost auditory information. Additionally, ALDs can be attached to talking book machines, tape players, voice-output computers, and other voice out-put devices. (For more information about ALDs, see "Maximizing Hearing During Recreational Activities" in the HKNC-TAC News, Vol. 6, No. 1. Copies can be obtained by contacting Mary Ross in the HKNC-TAC office in New York.)

Other Communication Technology

Braille Users

An example of a *tried and true* communication device is the **TeleTouch**, a small mechanical device that enables a braille reader who is deaf or hearing impaired to communicate with the general public. The speaker types a message to the person who is deaf-blind, who reads it by means of one mechanical

Used by Individuals Who Are Deaf-Blind

braille cell. The machine measures 9"x10"x2 1/2", has a typewriter-style keyboard and also a braille keyboard on one side; when turned around there is a braille cell with small metal pins that pop up in the braille configuration of the letter typed. The device is used mostly by persons who have been blind for some time, then lose their hearing, so that English or another spoken language is their primary language; most Teletouch users express themselves verbally. A common conversation would be for a sighted person or speaker with a visual impairment to type a message to the individual who is deaf-blind, for the person who is deaf-blind to read the braille, and then to respond verbally.

Also for fluent braille readers, there are braille access devices which allow a computer user to read what appears on a computer monitor in a braille format. For example, the **Braille-N-Print** is a device that allows a Perkin's Brailler user to simultaneously produce hard copies of both braille and print. This device interprets the movements of the Perkin's Brailler and converts that information into a standard printer format. It converts both grades one and two braille into proper English format.

Another useful device is the **Navigator**, a braille display system manufactured by TeleSensory Corporation to allow a braille reader to access a computer using refreshable braille. Navigator has a single line of refreshable braille and two sets of directional keys to control the cursor and the display window. The Navigator uses a slight variation of braille, including the braille code for numbers, (known as Nemeth code) and changes a few of the punctuation symbols.

The **TeleBraille** is a refreshable braille communication device with three operational modes: face-to-face, telephone, and Navigator. In the face-to-face mode the TeleBraille can be used as a print-braille interpreter with the braille reader reading information from a braille display and a sighted user reading from a print display. In the telephone mode TeleBraille acts as a TTY with a refreshable braille output. In Navigator mode, TeleBraille acts as a 20-cell Navigator (described above).

Larry Pick and Jeff Hess are having a conversation with the assistance of the TeleBraille.

For computer users who want braille printouts, the **VersaPoint**, a braille embosser (printer), produces a hard copy of braille. VersaPoint prints in various braille formats (grade one, grade two, foreign languages) at 40 characters per second and comes with software to type out pictures or graphics in a braille image.

For situations when sophisticated high tech devices are not needed there are many other devices. For example, a **slate and stylus** and **braille writer** take the place of the pen and typewriter for persons who are blind and can read braille. The braille writer is the size of a small typewriter and not very portable, but is appropriate at home or on the job. The slate and

More Assistive Technology For

stylus, the size of a checkbook, can easily be carried in pocket or purse. It is especially useful for jotting down notes.

The **braille labeler** is an embossing device that makes braille labels on vinyl or magnetic tape. The tape is adhesive and can be used many ways at home, for example, to identify canned, packaged or leftover foods. At work, it be used to identify room numbers or file slots. Creative people will find numerous uses for this handy device.

Print Users

For individuals whose vision is improved by magnification, a computer screen magnification system can provide access to computer use by magnifying the image on the screen. **Vista**, a text-enlarging system by TeleSensory controls all commands through a special mouse. The system magnifies the screen image from 2 to 16 times the original size. Vista can magnify all or part of the screen. **Zoom-Text**, another text-enlarging system manufactured by the Ai Squared company, has similar features. Instead of using a mouse, this system is controlled by several command keys.

For low tech writing technology for individuals who write print, a simple writing guide enables a person who is blind or deaf-blind to write within a confined space on a straight line. The **Marks Writing Guide** is a board with a double metal bar that is movable to adjust to the appropriate line/area on the paper. Variations may include flexible string lines and or plastic. There is also a check guide which is a plastic frame that has cut out places to conform to the details of information necessary on a check, such as *date, pay to..., amount, endorser*. A signature guide, the size of a business card, can be carried easily in a wallet. Print labelers are available in either regular or large print for persons with low vision, or those who are blind and know the printed alphabet. These can be used in the same ways as the braille labeler already described.

Alerting Systems

Individuals with hearing impairments often cannot hear traditional signals or alerting sounds at home or at work. A whole range of devices has been designed to help them better respond to these sounds and in turn, lead more independent, safer lives. Several alerting systems have been developed for adults who are deaf-blind over the years, but only one is currently produced. The **SilentCall** system incorporates a receiver together with its transmitters for the doorbell, phone, smoke alarm, and sound detector. The **VibraCall**, the receiver in this system, vibrates once to signal the user, then stops. It has four push buttons replacing the lights on the regular device. Once alerted, the user answers by pushing the buttons. When the receiver vibrates a second time, the user knows he or she has been alerted to the item corresponding to that button.

Clocks

Although many vibrating clocks have digital readouts which work for a person who is deaf and visually impaired, individuals who are totally blind will not be able to use these clocks to read the time, nor are they able to set them themselves. The **James Remind-O-Timer** (American Time and Signal) has a large-faced analog clock which can be purchased in an adapted model with a braille face, an on/off switch, and plug-in bed vibrator options. Pins around the perimeter of the face are used to set the alarm time, and the vibrator can be used as the alarm. The **SilentCall** company has adapted a braille clock by adding a plug-in vibrator. This unit is the same size as many bed-side clocks. The clock runs on both AA batteries (for the clock) and electricity (for the added vibrator). Newer on the market, SilentCall is much easier to use than the James model.

Closed Caption Decoders

A closed caption decoder displays subtitles (captions) for TV programs. Captions are transla-

Individuals Who Are Deaf-Blind

tions of the TV soundtrack into words which are shown on the viewer's TV screen. Many people who are deaf-blind are frustrated because they do not get news and other information in a timely manner. Since about two-thirds of all prime time programming is now close-captioned, a solution for individuals who are deaf-blind is a braille version of the **closed caption decoder**, developed by Dewtronics. The devices which make this system possible are a TV, a VCR, a decoder, a computer with the necessary software, and a TeleBraille for use as a braille display. Playback speed is controlled by the computer. The system can also provide captions in large print on a computer monitor and provide braille readout in either grade one or two. The system can also be used with commercially available captioned videotapes.

Henry Palmer uses a card to request assistance in boarding a bus: "I am waiting for a bus. Please help me board the bus. Thank you."

Mobility

Individuals who are blind normally depend heavily on their hearing as an important information source for mobility. Hearing is used both to obtain auditory information from the environment, as well as to communicate with others when assistance is needed. With limited or no usable hearing, other information gathering and communication methods must be used. Some individuals use sensing devices such as the **Mowat Sensor** or **Polaron** in conjunction with a dog guide for street crossings or to aid in finding a person to assist them. Others use the **Safe-T-Lite** cane (Safe-T-Lite Enterprises) to provide added visibility while traveling. This cane has a small but powerful red strobe light built into the body of the cane, directly under the hand grip.

When it becomes necessary to seek assistance to cross a street or in boarding the correct bus, the individual who is deaf-blind is at a great disadvantage. The traditional method for getting help has been to hold up a card requesting help, then wait for assistance. It has been shown that using a tape player with a message tape from a phone answering machine with a pre-recorded message asking for assistance works much better (Florence and La Grow, 1989). **The Attention Getter** (Companion Products) is a small device which can record up to 20 seconds of information, and play it back in up to four separate messages. It uses digital technology and a computer speech chip, so no cassette tapes are necessary. Anyone can make the recording, so the playback voice can be male or female, young or old, to match the user. Once someone offers assistance, indicated by a tap on the user's shoulder, a card with specific information can be given to that person.

Using a combination of these and other high tech and low tech assistive technology available, with creativity and a focus on each individual's unique needs, adults who are deaf-blind have increased independence to participate more fully in the activities of every day life.

For more information about the products described in this article, as well as other assistive technology information, see Assistive Technology Resources in this newsletter.

Potential Funding Sources

Funding assistive technology is an area that is receiving more and more attention. Although various funding sources do exist, any single source or agency may not be able to provide the full amount of funding needed, particularly for more expensive pieces of equipment. It may be necessary to obtain partial funding from a variety of sources to complete a *funding package.* It is important to know exactly what each particular funding source provides, and what language is appropriate to use when applying for funding from any particular source. For example, under IDEA, equipment that is justified as expediting educational goals of the student is covered, therefore individuals looking to obtain funding will want to stress the *educational necessity* of such equipment. Individuals seeking funding from state vocational rehabilitation agencies will want to stress the *vocational necessity* of the equipment, whereas with Medicaid programs emphasizing *medical necessity* will be more beneficial.

The following chart on potential funding sources for assistive technology is adapted from: Brant, B. & Rice, B. D. (Eds.) (1990). The provision of assistive technology services in rehabilitation: Seventeenth institute on rehabilitative issues. Las Vegas, NV, October 1990. Hot Springs, AR: Arkansas Research and Training Center in Vocational Rehabilitation, pp. 64-66.

FUNDING PROGRAM	LEGISLATIVE/ LEGAL BASIS	ELIGIBILITY	EQUIPMENT PAYMENT POLICIES
Special Education	Individuals with Disabilities Education Act & Amendments, Chapter I (Elementary and Special Education Act)	Children with disabilities aged birth through 21.	Equipment that is justified as expediting educational goals of students. Also now responsible for meeting the family support needs of families with preschool age children. In many states equipment is owned by and remains at the student's school.
TEFRA	Tax Equity and Fiscal Responsibility Act of 1982. Birth through six.	Provides coverage for children deemed diagnostically eligible (as established by Social Security Income, SSI, definition), but would be financially ineligible for SSI due to parent income. Children must meet medical necessity requirements for institutional care.	The intent is to provide the necessary services, including equipment for the child, to remain in the home versus an institutional setting.

For Assistive Technology

FUNDING PROGRAM	LEGISLATIVE/ LEGAL BASIS	ELIGIBILITY	EQUIPMENT PAYMENT POLICIES
Medicaid	Title XIX of the Social Security Act	Categorically needy persons who are eligible for AFDC or SSI programs. Some states exercise options and cover *optional categorically needy* and *waiver populations.*	Varies from state to state. Generally follows Medicaid policies. Most states pay for home medical equipment (HME), many pay for prosthetics and orthotics. Augmentative communication devices are paid for by growing number of states. Medical necessity is critical factor for payment.
	The Early Periodic Screening Diagnostic and Treatment Program (EPSDT) - OBRA (1989) PL 101-238	(Same as above). EPSDT is a provision that requires states to provide periodic screening (including vision and hearing screening to children under age 21.	States must provide all *treatment* reimbursable under Section 1905(a) of Title XIX, whether or not such services are covered under the state plan. These include physical therapy, occupational therapy, prosthetics, speech therapy, and tools recommended by therapists.
Private insurance for health, disability, and liability Self-insured employers' insurance	Insurance contract	Persons recognized as beneficiaries and/or dependents under a particular insurance policy.	Depends upon the terms of the contract. In some cases, such as eyeglasses, equipment is specifically excluded. Often equipment is not explicitly specified in the contract. Payment depends upon insurer's legal obligations, and the role of the desired equipment in meeting those obligations.
Credit financing	Federal Reserve regulations including anti-discrimination law (Regulation B) and Truth in Lending Law (Regulation Z).	Based upon applicant's credit history, collateral used to secure the loan, and other assurance of likelihood that loan will be repaid.	Equipment that is difficult for a bank to resell in event of default may need to be secured in otherways. Borrower, however, basically determines what is to be financed.

More Potential Funding Sources

FUNDING PROGRAM	LEGISLATIVE/ LEGAL BASIS	ELIGIBILITY	EQUIPMENT PAYMENT POLICIES
Federal/State Rehabilitation Title I VR Services Title VI Supported Employment Title VII Independent living (elderly blind)	Rehabilitation Act of 1973 and Amendments (Title I)	Working age persons with disabilities who have some potential to benefit. Emphasis on persons with severe disabilities. Other Titles of Rehabilitation Act stress independent living/supported employment, where vocational potential is not the determining factor.	Equipment that is justified as expediting goals of vocational placement. In many states, rehabilitation agency retains ownership to equipment.
Social Security Work Incentive Programs: 1. Impairment Related Work Expenses (IRWE) 2. Blind Work Expenses (BWE) 3. Plan for Achieving Self-Support (PASS)	Social Security Act Title XVI -Supplemental Security Income (SSI)	A person eligible for SSI must be disabled, blind, or aged AND have little or no income and resources. To be eligible for the work incentive programs, the individual must be incurring expenses, or setting aside income, to purchase equipment or support services that enables the individual to work or reach their vocational goals. To qualify for Blind Work Expenses, the individual's visual acuity must be 20/200 or less in better eye with correction or field of vision less than 20 degrees. Contact the Social Security Administration for more information. Note: Individuals who receive Social Security Disability Insurance (SSDI) benefits also qualify for the Impairment Related Work Expenses.	Individuals can set aside funds to purchase work related equipment. Examples include guide dog expenses, visual and sensory aids, computers, or other adaptive equipment that enables a person to perform their job. Funds set aside are not counted as income when determining SSI payments.

Guidelines for Identifying, Selecting, Creating and Evaluating Assistive Technology

Choosing appropriate assistive technology for an individual who is deaf-blind involves a three step assessment process. The individual who will use the technology is vital in this process. He or she must be at the center of and intimately involved in the decision-making process. If this is not the case, there is a greater chance that the technology selected will not satisfy the requirements of either the situation or the individual and it will be rejected. In addition, depending on the person's needs, there are a variety of service providers who should be involved: the audiologist, the low vision specialist, the rehabilitation teacher, the orientation and mobility specialist, and the case manager.

Step 1: Conduct a functional assessment of the individual's abilities. This should include obtaining updated and current vision and/or audiological assessments as well as assessments of physical and cognitive abilities and limitations, noting progressive losses as appropriate. Special attention should be paid to the individual's personal preferences and previous history of assistive technology usage.

Step 2: Evaluate the individual's environment(s). This includes an analysis of the tasks the individual wants or needs to perform, along with a discrepancy analysis of the individual's current skills and abilities. Will environmental modifications make it possible to perform the required task(s)? Are natural supports (e.g., people or cues) available in the environment?

Step 3: Research both commercially available options and homemade strategies. Once the capabilities of the individual and the requirements of the environment are known it is time to search for the appropriate technology to meet the assessed need(s). Guidelines for evaluating assistive technology continue on the following page.

Eleni Tauili'ili and Laura Rocchio playing a card game with large print cards.

Assistive Technology Guidelines

1. Look for simple solutions. They are usually less expensive, often easier to use, and more frequently used than some of the more complex solutions. People tend to abandon devices which are too difficult to learn or too difficult to use. Simple, low tech equipment breaks down less often, and is easier to fix. Further, it makes most people feel more comfortable if they do not need to use a lot of special equipment.

2. Consider the learning and work styles of the person who will be using the device(s). Does he or she enjoy using aids and devices? Does he or she resist equipment that sets him or her apart from peers? Which senses are strongest for use to compensate for hearing and/or vision losses?

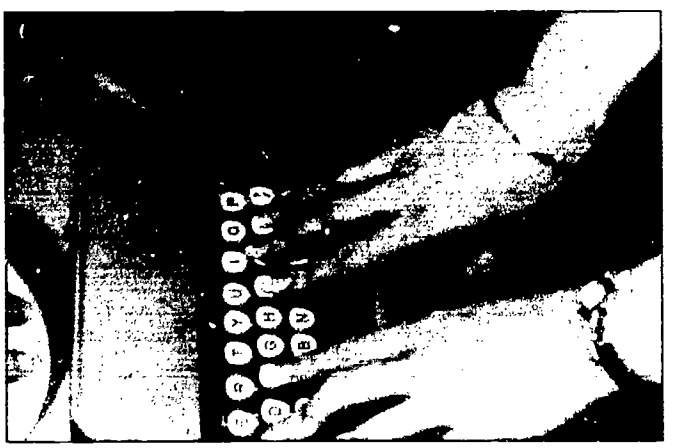
3. Consider the long range implications of the hearing or vision impairments. Will this product or method be something which will work long term? Will there be the need to repeat this procedure if the individual losses more hearing and/or vision? Are there options that will work for this person for a longer period of time?

4. Look at each piece of equipment with the following things in mind: How easy is the device to assemble or setup? How easy is it to use? To maintain? How long will the device last? Will it be outdated shortly? Can it be updated easily? Will the individual continue to have the same needs over time? Is the device easily adaptable to a wide variety of situations and uses? If portability is a factor, how portable is the device? Does this device have a history of dependability? Durability? If it breaks, how easy is it to get the device fixed? Is there a service contract? Is technical support easily available (by phone) if there is a problem?

5. Investigate all options. This can be done by talking to other consumers at consumer organizations, support groups, or rehabilitation agencies. Many agencies have technology centers where hands-on trials and lending libraries are possible. Many consumer organizations have conferences with exhibits of adaptive and assistive devices. Ask lots of questions! Catalogs offer a place to view a variety of devices. For the more technical equipment, it is best to see it in person and talk to the sales person before ordering. For other devices, catalogs are a great way to shop.

6. When comparing similar equipment from different manufacturers, look at: What features and options does each have? What is needed for the task? Is the manufacturer or brand dependable? Will the manufacturer stand behind the equipment even if that model is discontinued? Make a list of the pros and cons for each device.

7. Some devices should only be purchased after consulting with a professional in the field. For example, an audiologist should be consulted for hearing aids and assistive listening devices (ALDs), a low vision specialist for magnifiers, monoculars, and other optical aids, training from an orientation and mobility specialist before using a mobility cane or buying an electronic travel aid, and an employer for modifying a job site or work equipment and materials.



A Teletouch machine (described in detail on page 4) allows conversation between people who are deaf or hearing impaired and the general public.

Assistive Technology Resources

Organizations

HKNC has a wide array of assistive technology products for persons who are deaf-blind. To learn more about high tech communication technology, contact Jim Belanich at HKNC, (516) 944-8900 ext. 251 (Voice); (516) 944-8637 (TTY). Ask for **High Tech Aids and Devices**, which shows the approximate costs of these and other products and their manufacturers or distributors. For information about other communication devices mentioned in this newsletter such as writing guides, alphabet cards, braille or print labelers, Teletouch, etc. contact Nancy Yaremo in the *Communication Department* at extension 282. If you want to know more about assistive listening devices (ALDs), use extension 235 to reach John Mascia in the *Audiology Department*. For travel technology, contact Richard Kelleher at extension 289 in the *Orientation and Mobility Department*. Joan Houghton, TAC program associate, is another good source of information about O&M technology. Contact her at 4330 Shawnee Mission Pkwy, Suite 108, Shawnee Mission, KS 66205. (913) 677-4562. HKNC's regional representative in CA, Rustie Rothstein, provides consultation on assistive technology. She can be reached at (818) 782-9935 (voice); (818) 782-9936 (TTY); (818) 782-9639 (Fax); address: 6851 Lennox Avenue, Van Nuys, CA 91405-4097. Ask for her resource list.

ABLEDATA database at the National Rehabilitation Information Center (NARIC) contains descriptions of more than 17,000 commercially available products for rehabilitation and independent living. Contact NARIC, 8455 Colesville Road, Suite 935, Silver Spring, MD 20910. (301) 5889284; (800) 322-0956.

RESNA, an interdisciplinary association for the advancement of rehabilitation and assistive technology, is a good source of information about assistive technology. **The A.T. QUARTERLY** is their informative newsletter published by the RESNA Technical Assistance Project. For information or to be added to their mailing list, contact RESNA, 1700 N. Moore St., Suite 1540, Arlington, VA 22209-1903. (703) 524-6686 (Voice); (703) 524-6639 (TTY).

State Assistive Technology Projects assist individuals in obtaining access to assistive technology devices and services. While, as a rule, they will not buy devices for individuals, they will assist an individual in obtaining devices and/or services though various funding sources such as Medicaid, Medicare, PASS, SSDI, SSI and private insurance. Forty-nine states, the District of Columbia, Puerto Rico, and American Samoa each have a Technology Project. For a list of these project and contact information contact RESNA, listed above, and ask for the State Contact List.

Careers & Technology Information Bank (CTIB) of the American Foundation for the Blind (AFB) is a network of 1500 blind and visually impaired people who use assistive technology at home, work or school. A database of information based on interviews gives career and what assistive technology they use to do their job, how they learned to use and who purchased the equipment they use. For more information, contact CTIB, AFB, 15 W. 16th Street, New York, NY 10011; (212) 620-2080.

Indiana's Technology-Related Assistance for Individuals with Deal-Sensory Impairments (ITRAID) Project provides training, information and technical assistance for individuals with both hearing and visual impairments. A training module and video tape are available. Contact: ITRAID, School of Education - 502, Indiana State University, Terre Haute, IN 47809. (812) 237-4380 (Voice); (812) 237-3022 (TTY).

The Assistive Technology Project is an organization providing information about job accommodations, the latest developments in technology, legal expertise, resume referral services and job opportu-

More Assistive

nities, UMKC School of Education, 4731 S. Cochise, Suite 114, Independence, MO 64055-6975. (816) 235-5337; (800)647-8557; (816) 373-9314 (Fax).

Publications

Adaptive Technologies for Learning and Work Environments by J. Lazzaro, (Director of the Adaptive Technology Program, Massachusetts Commission for the Blind) describes barriers confronted by people who have disabilities, and using mainstream technology, tells how to adapt it to allow them to work side-by-side with the non-disabled employee. The publication costs $35. Write or call: Order Department, American Library Association, 50 East Huron St., Chicago, IL 60611. (800) 545-2433.

Tax Options and Strategies for People with Disabilities addresses issues that include assistive technology, with emphasis on subsidizing the costs of assistive technology in employment, education and independent living, and all other expenses involved in living with a disability. Cost is $19.95 and can be ordered from Demos Publications, 386 Park Avenue S., Suite 201, New York, NY 10016. (212) 683-0072; (212) 638-0018 (Fax).

Solutions: Access Technologies for People Who are Blind: Espinola, Olga and Croft, Diane: National Braille Press, Boston, MA 1992. This book contains information specifically on computer access technology for persons who are blind. It also contains lists of access technology vendors, newsletter, other blindness-related publications, technology training centers, etc. and is a good source of general information. It can be obtained by contacting National Braille Press, 88 St. Stephen Street, Boston, MA 02115. (617) 266-6160.

Independence Through Technology, a 13 minute video in different languages, produced by TIP (Technology Information Project), introduces viewers to a range of products that might make their everyday lives much easier and satisfying. This video is available in English/open captions, English/ASL, Haitian, Creole, Khmer, Portuguese, Spanish and Vietnamese. Copies may be borrowed at no charge, for up to 30 days. For more information, contact TIP, P. O. Box 341, Lincoln Center, MA 01773. (800) 886-8477.

"The use of a recorded message for gaining assistance with street crossings for deaf-blind travelers" Florence, I. J., & La Graw, S.J. (1989, November). Journal of Visual Impairment and Blindness, pp. 471-472.

Funding for Assistive Technology and Related Services: An Annotated Bibliography contains 30 pages full of national sources for finding funding for an individual's assistive technology including state and federal programs, private organizations and businesses, newsletters and other publications, and more. For a copy, contact Montana University Affiliated Rural Institute on Disabilities, 52 Corbin Hall, The University of Montana, Missoula, MT 59812. (800) 732-0323; (406) 243-5467; (406) 243-2349 (Fax).

The National Information Center on Deafness publishes fact sheets on hearing aids, assistive listen systems, alerting and communication devices are available from the National Information Center on Deafness, Gallaudet University, 800 Florida Avenue, NE, Washington, DC 20002-3695. (202) 651-5051 (Voice); (202) 651-5052 (TTY).

Making Life Better, a "catalog of catalogs," published by The National Easter Seal Society includes good sources of adaptive, low tech equipment for people with disabilities. Adaptive equipment, hearing, vision, and mobility impairments are categories in this publication. For a copy, send a check or money order for $5 to Making Life Better, National Easter Seal Society, P.O. Box 06440, Wacker Drive Post Office, Chicago, IL 60606-0440. Or, for more

Technology Resources

information, you may contact this the Easter Seal Society at 230 W. Monroe, Suite 1800, Chicago, IL 60606; (312) 726-6200 (Voice); (312) 726-4258 (TTY); (312) 726-1494 (Fax).

Technology Resources Nationally is a 61 page annotated bibliography (updated last November) of resource, research and technical assistance centers, consumer and professional organizations, networks and databases, newsletters and more. It includes a list of the state "Tech Act" Projects. The index makes finding specific information easy. To receive a copy, contact Center for Rehabilitation Technology Services, South Carolina Vocational Rehabilitation Department, 1410 Boston Ave., P.O. Box 15, West Columbia, SC 29171-0015; (803) 822-5362 (V/TTY).

Implementing the Americans with Disabilities Act by Gostin, L.O. & Beyer, H.A., is available from the Paul H. Brookes PublishingCompany (1-800-638-3774 voice or use the relay service).

Where to Obtain Travel Aids and Their Approximate Cost

These mail-order businesses also have other products for people with hearing and visual impairments, as well as other disabilities. Contact them for their product catalogs.

AmbuTech
670 Golspie Street
Winnipeg, Canada R2K2V1 (204) 663-3340

Folding Canes	$11.75-$16.00
Marshmallow Tip	$2.75- $3.75

Mobility Services Inc.
761 Peachtree Street NE, Suite 3
Atlanta, GA 30308 (404) 876-2636

Folding Canes	$11.00-$18.00
Marshmallow Tips	$1.35

American Foundation for the Blind
Product Center, 100 Enterprise Place, PO Box 7044, Dover, DE 19903-7044 (800) 232-5463

Folding Canes	$17.50-$18.50
Compass	$37.95

Independent Living Aids, Inc., 27 East Mall, Plainview, NY 11803 (800) 537-2118

Folding Canes	$16.95
Marshmallow Tips	$1.99

Maxi Aids, PO Box 3209, Farmingdale, NY 11735 (800) 522-6294

Folding Canes	$11.75-$15.95
Marshmallow Tips	$1.50- $2.49
Compass	$38.75
Telescopes	$23.50-$99.95

(Need to receive an examination by an optometrist or a certified low vision specialist to obtain appropriate power and magnification).

Dog Guides

Guiding Eyes for the Blind
611 Granite Springs Road
Yorktown Heights, NY 10589
(914) 245-4024

Leader Dogs for the Blind
P.O. Box 5000
Rochester, MI 48307
(313) 651-9011

Pilot Dogs
625 West Town Street
Columbus, OH 43215
(614) 221-6367

Southeastern Guide Dogs
4210 77 Street East
Palmetto, FL 34221
(813) 729-5665

TAC NEWS

A Farewell from the Editor

I know many of you so well that I wish there was a more personal way of telling you this: my husband and I have decided to relocate out of the New York area and so I have resigned my position as Project Coordinator at the Technical Assistance Center.

Since the summer of 1986, when the HKNC-TAC News was first published, I have served as its editor. We at TAC have tried to keep you informed about a myriad of topics relating to deaf-blindness and transition during this time. Looking back at the very first issue I hope that what I wrote as editor has been true for each of you over these years: "If the HKNC-TAC News assists you in generating an idea, a different slant, a helpful hint, a new approach in solving a problem, then we will have realized our goal".

Since I will have left Helen Keller before this issue reaches you, I want to extend to you now my best wishes, both personally and professionally.

Sincerely,

Terry Carr

Theresa Carr

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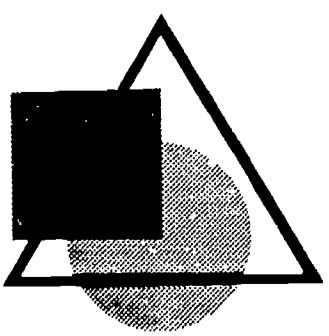

"Every human being has undeniable rights which, respected, render happiness possible—the right to live his own life as far as may be, to choose his own creed, to develop his capacities . . ." **Helen Keller**