DIRECTIONS

Technology in Special Education

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Quality Indicators of Effective Assistive Technology Services - Part 2

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Quality Indicators during AT Intervention

· Assessment/evaluation data is utilized in planning the intervention.

· AT intervention is directly related to the implementation of the IEP (including goals and objective, related services, and/or supplementary aids and services).

· AT intervention is integrated into curricular and environmental activities and occurs appropriately in multiple environments.

· Training for the student, family, and all staff is an integral part of the intervention.

· AT intervention proceeds according to a collaboratively developed plan and is provided by multiple implementers.

· Management and maintenance of the technology is part of the intervention.

· AT intervention involves on-going/dynamic assessment which is adjusted based on student performance data.

Following is an illustrative case description for intervention.

Sam is six year old boy with autism who is included in a general education first grade with approximately one and a half hours of resource support daily. He also receives speech/language and occupational therapy services twice weekly. Sam has no oral speech and has recently acquired a powerful voice output communication aid (VOCA). Sam's IEP includes goals and objectives that integrate the use of the VOCA into various instructional activities. He also has a behavior management plan that includes communication behaviors

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Inside

In the News

The FootRat

Much like a standard mouse, this mouse has one especially unique characteristic.... **IT HAS FOOT PEDALS!** The foot pedals let you perform 100% of your activities that require the mouse without using your hands. Just place this mouse inside The FootRat, lay the foot pedals on the floor in front of you, and you are on your way! Or, you can use this mouse on your desktop and place the pedals on the floor. Our headlining product, The FootRat is the key to better using your computer. Made of an extremely durable polypropylene, The FootRat has an easy-glide bottom, a foot-strap with velcro attachments, and a non-skid top surface. The strap can be optionally used if you get up from your desk often. Nowhere else can you find a cheaper, more efficient, way to use your computer.

The Rat Mat makes the perfect companion for The FootRat. Made of a durable nylon, The Rat Mat is much larger (12" x 14") than the average mousepad. The Rat Mat has anti-skid studs on the bottom so that you can use The FootRat without problems such as running off of the mat or having the mat slide around.

The Propagated Development Group
2434 Zagreb Avenue
Pacific, MO 63069
www.TouchTime.com

RJ Cooper - *Wheels*

R.J.Cooper has developed a 3D arcade-type game fully customized for children with special needs. The original intent of the program was to provide simulated power wheelchair driving for training. *Wheels* is a fully immersive game designed specifically for SAM-Joystick (Switch-Adapted Mouse) and other alternative input devices. It is very forgiving, has incremental levels, pie-throwing clowns and robots, great sound effects and music, and important feedback for power wheelchair training. Control can be by: joystick, mouse, trackball, IntelliKeys, keyboard, Tracker, Headmouse, and other alternative pointing devices. Available for Mac and Windows for $99. Contact:

R.J. Cooper & Associates
24843 Del Prado #283
Dana Point, CA 92629
(949) 661-6904
Fax (949) 240-9785
E-mail: <info@ijcooper.com>
Web: <wwwrjcooper.com>

Environmental Control

TASH announces *Sicare Pilot,* a portable and programmable natural-speech recognition system for controlling the environment. Contact:

TASH
Unit 1 —91 Station Street
Ajax, ON LIS 3H2
(905) 6864129
E-mail: tashcan@aol.com

DIRECTIONS

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ATACP '99

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The Center on Disabilities, in conjunction with the College of Extended Learning at CSUN, announces openings for this Summer's ATACP workshops. The ATACP is a comprehensive, 100-hour certificate course (equal to 10 CEUs) in Assistive Technology (AT). It will provide a practical approach to AT applications to meet the needs of individuals with disabilities in a variety of settings. Graduates of the ATACP to date have come from 26 states, Guam, Saipan, the Virgin Islands, Canada, England, Hong Kong, Japan, Kuwait, Greece, Brazil, and Australia.

WHEN AND WHERE?

South Lake Tahoe, Nevada: June 7 - 11
Houston, Texas: June 21 - 25
Los Angeles Area: July 12 - 16
Orange County, California: July 19 -23
Chicago Area: July 26 - 30
Washington, DC: August 9-13

FOR MORE INFORMATION:

ATACP - Center on Disabilities
California State University, Northridge
18111 Nordhoff Street
Northridge, CA 91330-8340
(818) 677-2578 VFFTY/Message
(818) 677-4929 Fax
Email: ltm@csun.edu,
Web: http://www.csun.edu/cod/

WHAT ARE THE COURSES?

- Introduction to Assistive Technologies
- Leadership Challenges
- Funding and Policy Issues
- Assistive Technology Applications
- Guiding the Process
- Focus on Specialized Areas: Seating, Positioning, and Mobility; Augmentative and Alternative Communication; Devices for People with Sensory and Learning Disabilities
- Required, Written Certificate Project

COST:

The cost of the program is $1,995 per person. A special 10% discount is offered if three or more persons from the same organization register at the same time, on the same purchase order, credit card, or check.

Sponsored in part by NEC foundation of America

ATFSCP Notes

The Assistive Technology Funding and Systems Change Project

Source: Tech Express, December 1998

<http://www.ucpa.org/html/innovative/atfsc_index.html>

RESOURCES

Several resources exist that address assistive technology needs of children and adults with disabilities. These national and state organizations can answer questions about assistive technology and your child.

NATIONAL ORGANIZATIONS

The Alliance for Technology Access (ATA)
2175 East Francisco Blvd., Suite L
San Rafael, CA 94901
Phone: (415) 455-4575,
(415) 455-0491 (TTY)
Fax: (415) 455 0654
E-mail: atainfo@ataccess.org.

This organization, headquartered in San Rafael, CA, is a national network of technology resource centers and technology vendors: 41 community-based technology centers in 27 states and the Virgin Islands, and 60 technology designers and developers. ATA technology resource centers help children and adults with disabilities, parents, teachers, employers, and others to explore computer systems, adaptive devices and software.

Assistive Technology Funding and Systems Change Project
1660 L Street, NW, Suite 700
Washington, DC 20036
Phone: (202) 776-0406,
(800) 833-8272 (TDD)
Fax: (202) 776-0414
E-mail: atproject@ucpa.org

This project provides families, individuals with disabilities and other interested persons with information and technical assistance on assistive technology funding issues. It is composed of a consortium of six national organizations and spearheaded by the United Cerebral Palsy Associations (UCPA) in Washington, D.C.

FEDERAL PROGRAMS

Resources for funding for assistive technology exist through the following federal programs:

Individuals with Disabilities Education Act (IDEA)

Assistive technology devices and services are defined in IDEA and can he considered special education, related services or supplementary aids and services. According to the IDEA Amendments of 1997, assistive technology devices and services must be considered for each student when developing an Individualized Education Plan.

School districts must pay for a child's assistive technology devices and services if it is determined by the IEP team that s/he needs them to benefit from the educational program. Many children throughout the country are able to benefit from the use of assistive technology because school personnel and parents worked together to make technology a reality in the child's life.

Vocational Rehabilitation (VR)

The Rehabilitation Act provides for assistive technology (called rehabilitation technology) for individuals with disabilities who are receiving employment-related services through the VR program. Each state has designated an agency to operate the program. If you do not know yours, contact your Governor's office. Look in the phone directory under state government agencies, or, if all else fails, contact the US Department of Education's Office of Special Education and Rehabilitative Services in Washington DC at 202- 205-5465.

If you are having difficulty in dealing with the vocational rehabilitation system, each state operates a client assistance program (CAP) which works to resolve disputes between the VR agency and those receiving services. VR personnel should provide you with a reference to the CAP if requested, or the agency's central office should do so. If you are unable to obtain the information, contact your state Protection and Advocacy agency.

Medicaid

Funding may be available for assistive technology for children and adults who are eligible to receive Medicaid. Medicaid also operates

through designated state agencies. The eligibility determination must again be separated from the determination of exactly what medical services an individual will be provided. To locate your local Medicaid agency, contact the state Department of Health or the Department of Social Services. You also may ask your Governor's office or your state legislator for the name of the Medicaid program.

State Tech Act Programs

The RESNA Technical Assistance Project can provide contact information for the project in your state that operates a program under the Technology-Related Assistance for Individuals with Disabilities Act which should be able to assist you with problems related to assistive technology. They may be reached at phone: (703)524-6686, (703) 524-6639 (TDD), fax: (703) 524-6630, e-mail: resnata@resna.org.

State Protection and Advocacy Agencies

Each state has a Protection and Advocacy Program for persons with disabilities whose purpose is to provide legal services. In addition, each state Protection and Advocacy system has special funding to address issues related to assistive technology. If you believe you have a legal problem, you may contact their state offices.

If you cannot locate the Protection and Advocacy program in your state, call the National Association of Protection and Advocacy Systems (NAPAS) at phone: (202) 408-9514, (202) 408-9521 (TDD), fax: (202) 408-9520, e-mail: napas@earthlink.net.

Parent Information & Training Centers

If you have difficulty with obtaining assistive technology (or any appropriate special education services) through the school, other parent assistance and advocacy resources exist. To find the number for the Parent Training and Information Centers in your state, contact: The Technical Assistance Alliance for Parent Centers, phone: (612) 827-2966, (612) 827-7770 (TDD), fax: (612) 827-3065, e-mail: pacer@pacer.org. §

Conferences & Events

Date: June 8 - 11, 1999
11th Annual Postsecondary Learning Disability Training Institute
Storrs, CT
Contact: 860-486-0273

Date: June 22 - 24, 1999
NECC '99
Atlantic City, NJ
Contact: 541-346-3537

Date: June 24 - 27, 1999
MOVE International Training
Bakersfield, CA
Contact: 800-397-MOVE

Date: June 25 - 29, 1999
RESNA '99
Long Beach, CA
Contact: 703-524-6686

Date: October 6 - 9, 1999
Assistive Technology Industry Association
Orlando, FL
Contact: www.atia.org

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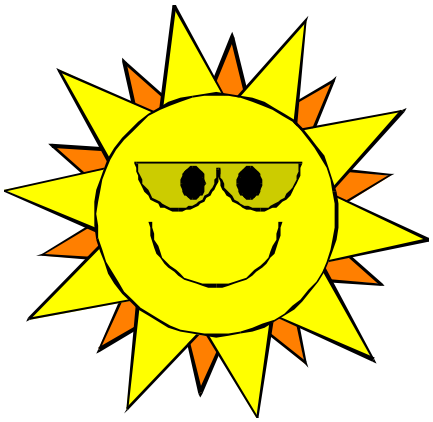

Almost Summer !

QUALITY continued from page 1

involving the use of the VOCA to supplement other communication strategies and assist in decreasing acting-out behavior which has been determined to worsen when he is required to complete work tasks. Both the IEP and the behavior management plan were developed collaboratively by members of the IEP team and used to guide implementation of the IEP The team felt it unnecessary to develop an additional action plan

Sam's general education teacher and classroom assistant were very concerned about his behavior and its effects on Sam's learning and that of the other children. They consistently used all of the strategies in the behavior management plan and were anxious to learn to use the VOCA. The speech/ language professional (SLP) demonstrated the use of the device to them, but they were not able to implement the specific one-to-one instructional strategies she suggested in the classroom. They were unclear about what they were expected to do with the device and what they could expect Sam to do with it. They made sure that it was always available to him, but only requested that he use it to tell them what he needed when he displayed signs of agitation which generally predicted the onset of acting-out behavior. They asked for additional training with the device.

Other team members had different ideas about the value of the VOCA. Sam's resource teacher did not have to use any of the strategies in the behavior management plan because neither she nor the other children in the classroom were bothered by Sam's acting-out behavior. The SLP used the VOCA in pull-out therapy sessions twice weekly. During that time, Sam was an active participant in language activities and used the VOCA with increasing independence. The occupational therapist did not use the VOCA at all.

Progress reports sent home indicated erratic progress with both behavior and use of the communication aid at school. Sam's parents attempted to work on the IEP by using both the strategies in the behavior management plan and the VOCA. They saw increases in Sam's communication and decreases in acting-out behavior. They were puzzled by the reports from school and requested a meeting with school staff to review Sam's program.

Use of the Quality Indicators for AT Intervention.

Without a collaboratively developed action plan for integrating the communication aid (VOCA) and behavior management strategies into the activities which took place in Sam's customary instructional environments, interpretation of when and how implementation should take place was left to the individual interpretation of each staff member. Though the IEP included all required information, it lacked the specifics required for consistent implementation by various people across instructional environments.

In this illustration, the staff did not have a set of quality indicators from which to work. Failure to develop an action plan which identified tasks which occurred in Sam's natural instructional environments and specified instructional strategies, expectations, responsibilities and time lines resulted in the lack of several AT intervention quality indicators. Sam's communication and behavioral needs were not met.

Quality Indicators during Evaluation

· Information is solicited from and analyzed by all involved stake-holders: the user, parents, family and appropriate school personnel.

· Evaluation is oriented toward goals identified to increase participation, productivity and/or independence.

· Evaluators are capable of making objective decisions and empowered to do so.

· Regular evaluations are conducted across natural settings in an appropriate, cost effective manner.

· Growth towards accomplishing IEP goals is objectively documented through data collection regarding one or more of the following: quantity, speed, accuracy, frequency, or spontaneity of a targeted behavior.

· Data collection is an ongoing process and provides a means to perform data analysis in order to identify where modifications or revisions in the student's program need to occur.

·Data that supports recommendations for change is documented, reported, and acted upon.

Following is an illustrative case for evaluation of effectiveness. Samantha is a twelve-year-old girl with Osteogenisis Imperfecta (OI). She is very bright and is fully included in her

sixth grade classroom. She has multiple physical deformities because her bones break very easily. She uses a power wheelchair and is unable to use her hands for writing tasks. A personal care assistant takes dictation for Samantha when she has written assignments. Any modification to Samantha's educational environment must take into account her safety.

Samantha's IEP goals for the last three years have included her need to learn to operate a computer to do written work. While the district's assistive technology team has worked with her several times a year to identify an alternative way for her to operate the computer, they have never been successful at determining a solution to her specific needs. As a result, Samantha has had the same long-term goal for computer use for all three years. Each year when the IEP team met, the staff assigned to Samantha's case reported that they were still working on a plan. The specific computer access goal on Samantha's IEP stated Samantha will learn to operate a computer, using the school's word processing program to complete written assignments of up to 100 words. No assistive technology related services were listed on the IEP

In this year's IEP team meeting, Samantha's parents were unwilling to accept this goal for the fourth time. They insisted that the district provide a computer for Samantha on a full time basis and asked that an independent contractor be hired to identify the alternative computer access that Samantha needed. The LEA representative for the district stated that the proposed IEP goal for Samantha was adequate and that the district did not have the funds to hire an outside consultant. Samantha's parents requested mediation in this disagreement and stated their intention to file a due process complaint.

Use of the Quality Indicators in Evaluation of Effectiveness.

Samantha's team did not have access to Quality Indicators for Evaluation of Effectiveness, nor did the district have a system in place to review effectiveness of annual goals and objectives before developing a new IEP Because of this lack of criteria and process, the district became embroiled in an adversarial dispute which failed to serve the needs of either party. Samantha's needs for assistive technology were not addressed in any meaningful way and in the long run the district was required to expend many resources and much staff time to participate in the mediation and due process hearing that resulted.

A more proactive approach could have occurred if the team had quality indicators for evaluation of effectiveness to use to identify the places where the process was breaking down. Had this been done, the team might have decided to collect data on what had already been tried for Samantha, what specific writing tasks she needed to accomplish, what district resources had already been accessed, and what internal or external resources were needed. A more capable and responsive evaluation team might have been identified and data regarding Samantha's performance on options she had already tried might have been analyzed in order to identify and implement other potential solutions.

An Invitation to Comment

You are invited to comment on the concept and on specific quality indicators. If you are interested in the project, you can keep yourself up to date and join the QIAT listserve by checking the QIAT web site at http://www.sac.uky.edu/~jszaba0/QIAT.html. All Consortium members welcome your feedback, comments and input regarding this exciting project. §

Disability Discussion Forum on the Web!

Hi! I'm Jim Hasse. I have cerebral palsy and facilitate a discussion forum which helps people with disabilities share stories about their personal experiences.

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AAC: Principles, Research, and Outcomes to Guide in System Selection

Barry Romich, P.E., Prentke Romich Company
and
Bernard Spiegel, Ph.D., CCC-SLP, University of Toledo

Introduction

Augmentative and alternative communication (AAC) as a field, while perhaps not mature, is well beyond the stage of infancy. Electronic AAC devices have been provided to people with severe communication impairment for over a quarter century. In that time the field has made remarkable progress, spurred in part by technological developments that include the microprocessor, synthetic and digitized speech, and other elements that constitute the components of high tech MC devices. Today tens of thousands of people world wide who rely on MC are enjoying the benefits of these developments.

For most people who rely on AAC, personal achievement is a vital function of the ability to communicate. Currently they have the potential for high personal achievement that far exceeds what was possible even a few years ago. Unfortunately, however, this potential is not always realized. Too often people are being limited rather than liberated by their MC systems. Further, they may not even know of the availability and effectiveness of other options and features. There can be many reasons why users are not familiarized with all the potential AAC system paradigms. These reasons include funding availability and pressures, limited professional providers and service resources, and lack of awareness of the options available and their relative performance.

A brief look at those individuals who rely on AAC who are communicating at the highest levels of "real-time" interactive communication can be illuminating. The selection of AAC systems for these high-end users was based on sound principles, research findings, and observation of outcomes.

Principles

A common thread among those high achievers who rely on AAC is the clear vision of high achievement as the original goal. Providing the best or optimal system was the goal from the very beginning. There were to be no compromises in the name of funding, administrative or professional convenience, service delivery, or other artificial barriers to full achievement.

For speech-language pathology professionals providing services in AAC, this position is consistent with the ASHA Code of Ethics (ASHA, 1994) as articulated in the introductory statement to Principle of Ethics I:

"Individuals shall honor their responsibility to hold paramount the welfare of persons they serve professionally."

This message is quite clear. Professionals are bound by their code of ethics to provide quality standards of care and service. Nothing is more important than acting in the highest interest of the person who relies on AAC, no matter what the presumed potential for achievement. If circumstances preclude behavior that is compliant with the Code, then a full disclosure to all involved is in order.

Research

Various research projects have contributed to the knowledge base that guides the clinical activity yielding the highest levels of performance. People associated with the success of high achievers have been diligent in following this work. Here are a few examples.

Gardner-Bonneau and Schwartz (1989) compared the rate of transcribing sentences using Words Strategy (WS) with that using spelling. The study consisted of six tests and included training in WS. As expected, those who used spelling were faster initially, but their performance quickly plateaued. However, after the third test (approximately fifteen hours of training), subjects using WS were functioning at a rate faster than spelling. By the end of the study, the WS rate was over 32 words per minute (wpm) as compared to 25 wpm for those using spelling. The WS subjects did not reach a performance plateau by the end of the study, but analysis of the learning curve indicated an expectation of 42.4 wpm, 70% higher than those using spelling. Consequently, the results conclusively indicate that WS as an encoding system achieved a significant rate enhancement.

Many years ago, word prediction held the promise of enhancing the text generation rate of people who could spell. Even though word prediction clearly reduces the number of keystrokes, several studies indicate that there is little, if any, rate enhancement.

In a study designed to explore the effect of the size of the word prediction list on communication rate, Venkatagiri (1994) found that there was not necessarily an increase in rate. Further, this study suggests that searching the word prediction list results in significant cognitive/perceptual demands.

One would expect that word prediction would be at its best when people use a scanning selection technique rather than a keyboard because of the slow selection speed. However, again, research indicates otherwise. Koester and Levine (1994) found that word prediction did not yield a statistically significant improvement in text generation rate. The general lesson here is that an apparent improvement may not be an actual improvement.

So why doesn't word prediction increase rate? The general belief is that the cost of the distraction of the changing tasks (selecting a letter, reading a list, processing the information, and then repeating this cycle over and over) and the associated increase in time per keystroke balances the benefit of the reduced number of keystrokes (Treviranus & Norris, 1987) (Koester and Levine, 1994). Further, such a system, by its very nature, can never become automatic. Automaticity is the unconscious and transparent use of a method. Touch typing is a good example. Automaticity is key to spontaneous communication. It allows the full cognitive energy to be devoted to the content rather than the process. The fastest people who rely on AAC are using systems that enhance and promote automaticity.

The most advanced AAC system has both word prediction and semantic compaction (Minspeak). The high end users of this system report that over 90% of their language access is by semantic compaction and the remainder is by either spelling or word prediction. Users report that, by combining these methods, the word prediction system does not need to include those items accessed by Minspeak and thus is more efficient.

Outcomes

In the early days of AAC, there were few model users of systems. Consequently, AAC professionals were left to their own resources as to how best to proceed with system selection and intervention. Since results were generally better than no intervention at all, success was the usual result. Without research and role models, professionals had a tendency to rely on paradigms that were familiar and comfortable.

Today there are many people who rely on AAC who are spontaneous and articulate communicators. Their performance sets the standard, indicating what is possible. The selection of AAC systems today can be based on actual performance rather than speculation. This performance can be observed in formal studies as well as more casually.

Most of the research summarized above was based on subjects without disabilities. There have been few studies based on actual people who rely on AAC. In a recent study, however, Burger (1997) compared the performance of people using dynamic display systems with others who used Minspeak and others who spoke naturally. Those using AAC systems were matched as closely as possible for age, gender, employment, and education and all used direct selection although the results were not normalized for variations in these areas. The researcher expresses concern that the quantitative results, strongly favoring Minspeak over dynamic display, could at least in part be the result of variations in these factors.

Qualitative results included the observation that, while those using the Minspeak systems were sequencing icons in a manner consistent with the original intent of the Minspeak method, each subject using a dynamic display system was using it as a spelling board or with word prediction rather than by navigating screens of single meaning pictures. Based on the Gardner-Bonneau and Schwartz study, one would expect Minspeak to be 70% faster, all else being equal.

Questions are raised by this work. Did the subjects using dynamic display systems actively choose to use them in a spelling manner because they had already tried to navigate screens of single meaning pictures and found that method to be less effective than spelling? Are dynamic display systems based on single meaning pictures less effective for the same reason that word prediction does not significantly enhance rate? The dynamic display method using single meaning pictures which can be placed at various locations also cycles through motor, receptive, and processing tasks, precluding automaticity.

Personal observations of and interactions with people who rely on AAC are another way of learning how the various systems compare in performance. The most effective environments for this are the many gatherings that attract numbers of people who rely on AAC, such as summer camps,

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institutes, and conferences. While most of these people are using Minspeak, the more significant observation is that of the higher level of communication skill exhibited by these people as compared to people using other systems.

Another observation made at gatherings is the nearly total absence of laptop computers being used as AAC systems. While there was a trend in that direction when laptops first became available, the reports from those who tried them and returned to dedicated devices cite problems with funding, reliability, and service. However, the primary factor seems to be that the only AAC software available is based on dynamic display using single meaning pictures, spelling, or word prediction. These paradigms simply are not able to produce the outcomes available from higher performance dedicated AAC systems.

For those individuals unable to attend such gatherings, an alternative is personal conversation with people who use the systems being considered. All reputable manufacturers can provide references to people who use their systems. A brief personal interaction or telephone conversation can be revealing. Today only those systems that can demonstrate proven performance based on effective and efficient strategies to access vocabulary should be considered. Professionals, family members, and users need to emphasize that achieving language superiority and interactive communication takes priority over the technology. With anything else the user will not be empowered to achieve full potential and independence.

Summary

The field of AAC continues to change and mature. When it comes to selecting a system, there are many possibilities that offer many different outcomes. The research and outcomes studies and observations are reasonably consistent and suggest that the general ordering of AAC methods by performance, for the populations studied and observed, would have Minspeak as the best, followed by spelling and word prediction, and then dynamic display using screens of single meaning pictures. The ideal high performance dedicated AAC system might use Minspeak for core vocabulary and simultaneously provide access to other methods for less frequently used vocabulary on either a static or dynamic display.

In selecting an AAC system, when one adheres to the highest guiding principles, knows the options available, and knows their relative performance, the right choice generally is clear.

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PRC offers a complete line of communication and computer access products. Contact them for information and a free catalog at:

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PBJlessons@yahoo.com

Computer Donation

I'm sorry, but there is so much info out there and I don't know where to turn. There is a single mom on welfare that has an eight year old boy who is Autistic and badly falling behind and a girl two years younger that doesn't have much of a childhood either. She is trying to find someone who will donate a computer as a learning tool for him. She also has an opportunity to train to do possible medical billings from home, but she also would need a computer for that and DSHS can not help her out with that. Do you know of an organization for such donation. I would really appreciate in finding out. Thank you very much if there is some info you can send our way. In God We Trust.

vicki_campbell@msn.com

One Handed Typing

Hello I was browsing for info on a one handed typing skill. My son has CMT and is also ADHD. He is supposedly right handed but has lost the use of his fingers, wrist and forearm. He writes by holding the pencil and pushing with his shoulder. Very difficult. I am trying to get and IEP with OHI and let him use a lap top for school (class) work. He is currently doing homework on a computer. When we were at the OT's office. She mentioned a one handed typing skill. I have had no luck in finding it or anything. (Software or book) Just wondering if you have heard of it?

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Help Needed

To whom this may concern I`m trying to find a program that could assist a friend financially with money to purchase a computer for her seriously autistic son. Thank You.

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