



**Family Center on
Technology
and Disability**

FCTD Conference Series: Assistive Technology and Occupational Therapy

March 10 – April 13, 2003

Assistive Technology and Occupational Therapy

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EXPERT'S CORNER

Introduction

Occupational therapists (OTs) are front-line users of assistive technology (AT). In working with children with disabilities, their focus is generally on ameliorating and/or working around the child's physical limitations. To do so, OTs draw upon many tools. In this discussion, our expert, who oversees the occupational therapy services for the Arlington County, Virginia public school system, addresses both the theoretical and practical aspects of using AT devices. Occupational therapists have to be creative in acquiring, developing, and augmenting existing AT products. They are adept at making alterations to an item that greatly expand its use and tailor it to the individual needs of their clients. OTs have to be creative as well in working within challenging funding and insurance environments and within prescribed Individualized Education Program (IEP) protocols. In this discussion, many of those creative approaches will be shared. We hope you'll bring your questions and experiences to the discussion, so that all may benefit.

Expert's Perspective

How an occupational therapist uses assistive technology to support students in the schools.

In a school setting a teacher evaluates a child on how they demonstrate their knowledge of a specific curriculum area. An occupational therapist (OT) evaluates the performance areas required by the student to "demonstrate" knowledge.

When a student is found eligible for special education services an individualized education plan (IEP) is written. If occupational therapy is a related service to the IEP the OT will use a variety of interventions to assist the student to achieve the IEP annual goals. The approach to interventions may fall within the following formats:

- to establish a higher level of functional performance,

- to adapt a task or provide assistive technology to compensate for activity limitations,
- or to provide environmental modifications.

This discussion will address how an occupational therapist uses assistive technology to compensate for a student's activity limitations.

Preschoolers with neurologically based motor impairments such as cerebral palsy may not be able to independently participate in many of the daily activities of being a child. Activity limitations could include any of the following:

- maneuvering through the classroom environment
- acting on the environment
- responding to the environment
- interacting with others physically
- interacting with others through language

When the IEP team recognizes a student will not be able to acquire skills, the occupational therapist would seek ways to adapt a task or provide assistive technology to compensate for the activity limitations. To move around the environment, a child might use an electric wheelchair, an adapted tricycle or the Go-Bot. These devices allow the child with motor impairments to maneuver, act & respond to the environment and to interact with peers physically and most importantly independently. In the realm of preschool centers such as dress up, play with toys, manipulation of materials such as blocks, colors and markers adaptations and assistive technology can be purchased devices or created by the OT. For an example, to make an adapted coloring device take an old Fisher Price car and use a soldering gun to burn a hole through the center of the car. Make the hole just big enough to push a crayon into, point down. You now have a coloring tool for a child who has arm movements but a poor grasp. As they drive the car on a sheet of paper they can draw wonderful designs of their own creation. There is now a device you can attach sidewalk chalk to which attaches to a wheel chair. A child can then draw on parking lots and concrete outdoor play areas in sidewalk chalk while they drive their wheelchair.

Activities done in pairs allow a child with a severe physical disability to activate the machine aspect while their partner places the paper, or adds the paint. The switch adapted spin art machine has been a favorite for years to make pictures and cards. The switch adapted stapler has been a useful tool for pre-vocational activities. Enabling Devices and AbleNet are companies that have made adapted tools and toys for many years. If there is a way to include a child in an activity through switch access they have created it.

Using language to interact with others should flow through all the daily activities of a child. Many times due to disabilities there are children who need supports in this process. It is important to start early with augmentative and alternative communication (AAC) because language is an important way children learn to control their environment. Waiting for verbal language to come without giving the child with a disability some means of communication risks that child losing interest in using AAC in the future. One of the most frustrating things to hear from families and professionals who work with non-verbal older students with significant disabilities is, "oh, well he gets his meaning across" (usually with grunts & gestures). The OT works with the team usually guided in this area by the Speech and Language Pathologist to help integrate the use of a communication system into all aspects of the child's day.

As a child with disabilities grows into an elementary and secondary student their performance requirements become more complicated and specific. They are now expected to produce written work, read and comprehend text, listen to and follow verbal directions, verbally provide answers to questions and verbally participate in classroom discussions, participate in physical education, art and music classes. They are expected to follow a schedule, collect materials, manage materials,

and meet timelines. Socially they are expected to handle their personal needs, travel through the building, manage a lunch and interact with their peers in a positive manner. The supports for all the above are reduced as the child moves through the grades. A child with a disability continues to receive support through their IEP so that they can participate and benefit from a free and appropriate education (FAPE).

The OT assist in evaluating the performance areas listed above and as a member of a student's IEP team assists in considering assistive technology to meet the established educational needs. Written language supports begin with classroom computers and county wide available writing software. If these tools don't meet the educational needs of the student with a disability the OT could try a variety of tools ranging from pencil grips and slantboards to Franklin Spellers to support software (PixWriter, Boardmaker, Write:Outloud, Co:Writer, Read & Write, JAWs,) to electronic keyboards such as the AlphaSmarts, a laptop computer, or an adapted input device, such as a special keyboard. The OT has a working knowledge of these tools and will frequently help in training and integrating the tools into the learning environment.

If a student is unable to hold a book, turn a page, if they are visually impaired or severely learning disabled in the area of reading, they may read or listen to a digital version of their books on a computer. Screen reader software for the person who is blind or visually impaired has been available for many years. Text reader software with additional learning tools has emerged more recently. The OT is key is helping the team set up such a reading station, especially when the student has a physical disability. The OT assist in finding the best position for the student, the perfect distance from the screen, and the input device which allows the student to comfortably and most efficiently access the reading software.

An OT may go into art or music and help the teacher adapt an activity or use AT to provide access to an activity. Computer draw software with an alternative input device such as a joystick instead of a mouse may allow a student with physical disabilities to demonstrate their understanding of an art concept and create a product independently. An OT may recommend low tech devices such as large grips to make tools easier to hold or an easel to position work for easier access due to a visual or physical disability.

An OT as a member of the IEP team will help problem solve if a student needs picture schedules to guide them through their day or social stories to help them interact appropriately with peers at lunch. They may recommend picture symbol or word based activity guides which assist the student to stay on task and complete an activity independently. These guides allow the teacher to fade out verbal cues and the student's dependence on adults. The OT may assist a student to be better organized by teaching them to use a folder system to keep homework organized and available to be turned in. They then may teach that same student to organize their work in folders on a computer, so the student handles less paper.

Occupational Therapists have a long history of supporting students in school performance through adaptive devices and environmental adaptations. Supporting the IEP team and the student in considering assistive technology and then implementing it use in the school setting has been a natural expansion of the OT's role.

Expert's Bio

Grace Williams M.Ed.OTR/L is an Occupational Therapist licensed in Virginia. She received a Bachelor of Science Degree in Occupational Therapy from Virginia Commonwealth University in 1981 and a Masters in Education with a focus in Special Education Technology in 1995 and a Masters in Educational Administration and Leadership in 2000.

Ms. Williams trained over 20 twenty years ago as an Occupational Therapist and began working with children in a hospital setting, and then transitioned into providing occupational therapy in the public schools. Currently she is a Special Education Coordinator in Arlington Public Schools. Her responsibilities include providing technical assistance to a center-based secondary program for students with significant disabilities, coordinating the Assistive Technology team and providing assistive technology services to staff and students. As an AT provider in the schools Ms. Williams assists in evaluating educational needs and makes recommendations for implementing AT recommendations, through training and modeling interventions with students.

Ms Williams has worked with assistive technology in schools systems since 1983. She has taught educational technology courses at the college level. Ms. Williams also provides regular training for teachers, therapists and parents in the use of assistive technology for educational and developmental reasons. She is also a member of the American Occupational Therapy Association and participates through multiple volunteer positions with the Virginia Occupational Therapy Association.

CONFERENCE

Transcript: AT and Occupational Therapy

- **AT & OT by Grace Williams**

Good Morning to everyone, welcome to my ongoing discussion of how occupational therapists (OTs), primarily those working in schools use assistive technology (AT). I look forward to using this forum as a learning tool for professionals and novice alike. I have found we all learn from each other because the field is too big for one person to know it all.

I would like to bring up two issues that require a lot of my professional time and energy. The first is the process of "considering AT" in the school setting. IDEA requires that every IEP team "consider AT" as they write a student's individualized education plan. How is that interpreted in your child or student's school? How can it be improved? The second seed for discussion is the use of technology for inclusion of students with multiple disabilities in general education classrooms. How is that process working out there? I look forward to hearing what is happening out there.

- **Re: AT & OT by Jackie Hess**

I'd like to add my welcome to yours, Grace, and present a few of my concerns. During our funding discussion last fall, a number of people commented on the resistance by school officials to include AT in IEP plans, because of the burden of cost it would place on the school. In the current economic climate this problem would seem to be larger than ever. In your opinion, how should special education professionals balance student needs with dwindling school budgets? Have you seen any creative approaches to the problem? My second concern has to do with professional development - that is, providing adequate training for mainstream teachers so that they can be supportive of a child's AT device or service. Without sufficient training, teachers may view AT supports as added burdens which must be accommodated within already overcrowded days. What type of training is available to teachers in your system?

Again, thanks for participating and welcome to the discussion.

- **Re: AT & OT by Discussion Board Guest**

I have a particularly interesting role with the public schools of Florida. I work for an

We host trainings on various aspects of AT intervention in the schools. We support a network of Local AT Specialists in each school district of Florida. In addition, we operate a lending library of equipment that can be used for evaluation with students. In these times of shortened budgets, that is a very good tool to utilize, to prevent waste.

As far as improving consideration of AT process, I think that when faculty and staff, including administration, are properly trained in the use of AT, they will understand its benefits, and more openly consider it as prescribed by IDEA. I mean that, just as when you invest money for retirement, you look for the sure thing. When you can see a good return on investment and minimal liability, you invest there. If we appeal to the business sense of some administrators, this may help them understand how powerful a tool AT is and the results it yields for many students.

For teachers, I think the actual training to understand a supportive environment is most important. Helping a teacher understand that AT is not another thing to add to their list, but rather a tool that can make their lives easier. Then, share anecdotal evidence of simple low tech interventions to help them understand that it is not all electronics and computers that are AT, but also includes post it flags, pencil grips, raised line paper, etc. - Matthew

o **Re: AT & OT by Discussion Board Guest**

Just came from my child's IEP-The consideration of AT was sort of "standard"-oh, yes he needs a calculator and we have alpha smarts (but the kids hate them) Some computers are available. This emanated from auditory processing and myriad English difficulties. What happened to teaching singular and plural nouns and diagramming sentences? Is their AT geared toward grammar, before we completely lose these kids? -Jean

▪ **Re: AT & OT by Discussion Board Guest**

There is software geared toward teaching grammar, phonetics, reading etc. It may help to talk to the districts curriculum expert and see if they know of such software. May I ask what state you are in? Matthew

▪ **Re: AT & OT by Grace Williams**

Dear Jean: Not knowing all the particulars, I would guess that your IEP team forgot to ask a few specific questions such as where in English class does your child's performance specifically break down. If he needs to be taught singular & plural nouns and how to diagram sentences, then he needs to be taught. If your child is in secondary school, check out Read & Write software from TextHelp www.texthelp.com - Grace

o **Re: AT & OT by Joan**

I am the AT consultant for MN's Education Agency. When we discuss the need to consider AT for students, I propose that we consider whether the student is making adequate educational progress. If so, then no additional tools are needed (don't fix what isn't broken) If the student is using tools or AT services, continue using them, document the use in the IEP. If the student is not making adequate educational progress, then the team needs to look at what will help the student in making progress. This can be AT tools, or other strategies. However, as a fan of AT use, I certainly think this is essential.

- **Re: AT & OT by Matthew**

I agree that determining whether or not further intervention is needed as a first step to AT intervention. If it doesn't need tweaking, don't mess with it. On the other hand, an important key point to remember is to make sure the IEP team is looking ahead toward the long term plan of the child/family as the age of transition is reached, to ensure that adequate for today is still adequate for tomorrow. - Matthew

- **Additional concerns by Lynne Deese**

Hi, Lynne Deese from North Carolina Assistive Technology. In working with school systems, I find that many therapist have little or no exposure to AT and find the decision making process very intimidating. They often have a hard time making a decision they can support. We assist by providing access to devices that can then be used in trials and we work cooperatively with IEP teams in the decision-making process.

- **Re: Additional concerns by Phil Goodman**

I am seeing the same. I work with students transitioning (contract With Voc Rehab) and a lot of OT's are clueless about AT. IT IS a big field and I can understand, but unfortunately a LOT of kids get ready to transition with virtually no accommodations to get them into the work place, or higher education.

I don't think administrations and teachers are going to be as accepting of these accommodations as they should be until they are the norm rather than the exception. Funding is a big barrier but it is unlikely that additional funding sources (mainly government) will be created for these children and schools unless THEY are heavily involved in promoting the worth of the accommodations. I would be interested in any outside or creative funding sources others have found (if any).

- **Re: Additional concerns by Discussion Board Guest**

Do any AT Organizations have training sessions that Occupation Therapists and teachers can attend to get introduced to the uses and benefits of AT? A good way of making AT and OT more mainstream could simply be the introduction of AT in a staff meeting or a short info session with an Occupational therapist who uses AT.

- **Re: Additional concerns by Matthew**

ATEN of Florida does this year round for free, including the CEUs to go with it. If you want more info, email me at press_m01@firn.edu and I will happily get some to you! (We of course serve Florida, but we have some nice info on our website that may be helpful to others outside of FL) - Matthew

- **Re: Additional concerns by Grace Williams**

Matt, ATEN sounds like a wonderful resource. We have VATS (Virginia AT System) but they cover all AT across the life-span and have little that is specific to school system needs. What is ATEN's web address? Are many of the AT specialists in the schools OTs? Do you separate out for specificity the augmentative communication specialist from the AT specialist?

- **Re: Additional concerns by Molly Shannon**

I am an OT who has specialized in AT for 17 of my 22 years as an OT and cannot imagine being an OT without having at least a beginner's

- **Re: Additional concerns by Grace Williams**

In the state of Virginia an OT can get AT training at one of the 5 T-TAC (technical assistance centers) at state universities. Our local one is at George Mason University. 703-993-3670. The Virginia Occupational Therapy Association sponsors an annual School System Symposium which always features presentations on using AT in schools. The American Occupational Therapy Association features a technology lab and presentations on AT every year at its annual conference. The grandfather of all AT training the annual Closing the Gap conference in October in Minneapolis, MN. There are many other sources that maybe others can add.

- **Re: Additional concerns by Matthew**

Don't forget CSUN in March in California; and ATIA in January in Orlando! ATIA is vendor based, but a good show none the less. CSUN I have never gotten the chance to attend! - Matthew

- **Re: Additional concerns by Joan**

In Minnesota, there are 2 larger conferences specific to AT in special education, sponsored by the state education agency. The first is Charting the Cs, which this year is 4/28 & 29. Many OTs attend and present at this conference. There is also a summer institute which we hold with a twin city university, the week of 8/11-15. There will be multiple topics of interest to OTs in school practice.

We frequently hold other learning activities dedicated to AT, which are appropriate for OTs and other practitioners. Our intent is to develop AT Teams on local levels, with input from multiple disciplines. We have started last year to provide at least 2 events a year via satellite broadcast, so they are accessible to learners across a large state. This is particularly helpful when we have the interesting weather that is possible in Minnesota in the winter.

- **Re: Additional concerns by Grace Williams**

Virginia has tried to imitate some of Minnesota's weather this winter. State assistance in developing local AT teams is a must, especially if a state has many small school districts. It is my experience that the smaller districts struggle the most because they have such a small population of students with disabilities. Frequently it is difficult to make up a multidisciplinary team because they may have only 1 OT who works part-time and a speech therapist who carries a caseload of 65 with no time for extras like AT/AAC. I would be interested in hearing how other states support local AT teams, with both device loans & training.

- **Re: Additional concerns by Joan**

I was in Virginia for one of this winter's storms. I was impressed- a good blizzard even by Minnesota standards!

You are so right about the problems with small districts and staff stretched too thin. We are working hard to make sure our related service staff do not regard AT/AAC as an "extra" but an integral part of their job. It is definitely an opportunity to stretch a mindset for some folks. One thing we have done here in MN to assist in access to devices is to develop regional training kits, with a range of AT devices. We try to add to the kit each year. These are theoretically used for staff development, but many regions also use the devices for student evaluation. As the state specialist in AT, I consider that to be appropriate- anything that helps find the right tool for that particular student. We have also provided grants to statewide loan programs to add equipment to their libraries. We cannot maintain a library of items at our state agency, as I am the entire AT staff, and am stretched fairly thin already.

I certainly would be interested in learning how other states provide access to tools for evaluation or educationally necessary devices (v. medically necessary, for which our schools can bill medical assistance). I know we can do better.

- **Re: Additional concerns by Jackie Hess**

Matthew: The Family Center will be at CSUN and, if you'd like, we can pick up extra copies of materials distributed there and snail mail them to you. Send me an e-mail with your address if that would be helpful. It's jhess@aed.org. - Jackie

- **Re: Additional concerns by Judie Schoonover**

I hope this response does not come out sounding defensive, as I do not mean it to sound that way, but as an OT, I guess I would have to ask in what area of AT are people finding many OTs clueless? Traditionally, the practice of OT has included many aspects of AT (formerly called adaptive equipment). Providing access to functional and meaningful "occupation" is the foundation of the practice of OT. I would have to agree that many OT's as well as other members of educational and rehabilitation teams are not as versed in the high-tech end as they should be, and "necessary vs nice," as well as understanding the "least restrictive environment" blur some issues. Time and financial resources seem to be the biggest barriers to advance access and effective use of AT (from no-tech to high-tech. Training requires time and personal investment and many pieces of equipment are too expensive to be

available for trial or training purposes. The field of AT is so amazing (and moving so fast) to those involved in it, that it is easy to forget that some people are still struggling with programming their VCRs and using email.

- **Re: Additional concerns by Grace Williams**

Hi Lynne: I would hope the occupational therapist or speech language pathologist isn't out there trying to make a decision by themselves. As was stated earlier by another participant, decisions should be made by the IEP team who keep data on the progress made on the goal/objectives being supported by the chosen AT. A member of our AT team just brought the following book back from a conference, "How Do You Know It? How Do you Show It?" Making AT Decisions by P. Reed, G. Bowser, and J. Korsten. 2002. www.wati.org I have just glanced at it but it looks like a great resource to help a team make a decision they can support.- Grace

- **Re: Additional concerns by Lynne Deese**

I was launched into preparing for surgery but now that I am recovering at home and I have had a chance to return to this post. I wanted to let you know that NC Assistive Technology as well as numerous other State Tech Act programs conduct workshops on assistive technology, as well as individual technical assistance and consultations. The following link will take you to the RESNA site where these programs are listed: <http://www.resna.org/taproject/at/statecontacts.html>

- **AT & inclusion by Grace Williams**

The weekend is here. No one has posted anything about how they as an OT or any educational professional is using AT to support the inclusion of students with multiple or physical and or cognitive disabilities into general education classrooms. This is an area where OTs should be very involved in the access issue, not adapting curriculum but working with the IEP team to facilitate adapted or alternative ways for a student to approach and complete a task. These adaptations can range from something as simple as a tool with a sticky end for picking up game pieces, an art easel with binder clips to hold paper for painting, making sure a computer screen is positioned just right when a student needs to touch a touchscreen, a paper-holder to stabilize and put a paper at perfect viewing position for reading or copying into a word-processor. These simple examples can make the difference between having someone do for the student and having the student truly participate. There are many other possibilities and I'd like to hear what others are doing to facilitate inclusion.

- **Criteria for Promoting Keyboarding v. Paper/Pencil by Sue Cusack**

I am looking for criteria that will assist OTs in navigating decisions about when and under what circumstances students should be encouraged to use a computer (AlphaSmart, Dana, handheld, etc.) instead of paper and pencil to generate written output. Thanks, Sue

- **Re: Criteria for Promoting Keyboarding v. Paper/Pencil by Discussion Board Guest**

Sue: Unfortunately, in my experience there was no OT input, the decision was based upon the child's reaction after a parental request.

- **Re: Criteria for Promoting Keyboarding v. Paper/Pencil by Grace Williams**

I use a loosely structured set of criteria. Consider the student's disability. In this case I am discussing a student with a learning disability which affects written language output. Consider grade level work expectations. Evaluate the student's handwriting,

was the child taught handwriting, has handwriting been improving each year, is child able to write fluidly for his grade level or is he still forming letters incorrectly and slowed by the mechanical process. then evaluate the student's ability to use the computer. Does he demonstrate an awareness of where the letters are on the key board? Does he demonstrate emerging touch typing skills such as maintaining hands on homerow keys? Is extreme frustration demonstrated during the act of handwriting? The IEP team needs to analyze the writing problem in detail to isolate language problems from mechanical problems from sequencing & organizational roadblocks to written production. Compare collected samples of paper & pencil work and time it took to complete with written output on a classroom computer or AlphaSmart. Make sure they know how to move around the wordprocessing environment. Your comparisons of work should provide you with the data you need to present to the IEP team, so the team with your input can make a decision on how the student will complete work. To summarize, all students should go to middle school as experienced keyboardists with a strong foundation in word-processing and other computer production tools. This is even more important for students with documented dysgraphia.

- **Re: Criteria for Promoting Keyboarding v. Paper/Pencil by Discussion Board Guest**

Spelling may still remain problematic for producing a good document. Why not bypass keyboarding and go with voice recognition input when spelling is not the focus of the lesson?

- **Re: Criteria for Promoting Keyboarding v. Paper/Pencil by Judie Schoonover**

Voice recognition software has gotten a lot of attention in the past several years as a possible "magic bullet" for many learning differences. It was initially developed for business as an update of the dictaphone. Numerous skills goes into successful use of voice dictation software, which is why it is essential to have a team approach to AT assessment. First, there has to be the proper computer platform to support voice dictation software, and it generally requires a separate or quiet room to be used successfully. Calibration to the dictator's voice must take place by reading a list of words. To be most effective, the reader/user needs to have more than a passing understanding of grammar, pragmatics, and parts of speech as the computer simply records utterances. Capitalization, punctuation, etc., must be dictated or added through an editing process. If mispronunciations take place, they are typed phonetically, so some spelling skills may be required. The user must have fairly consistent voice level, volume, and breath control. This program can be VERY frustrating and time consuming for some users. This is not to say it should NOT be considered, only that an informed understanding of the requirements is important when making decisions. Other alternatives could include Co-Writer and WriteOutLoud, using spell check, macros, Franklin Speak&Spell, etc.

- **Re: Criteria for Promoting Keyboarding v. Paper/Pencil by Grace Williams**

Hi Judie: Thank you for laying out the reasons why voice recognition is frequently not the answer. I have been asked to work with an adult professional who is trying to use VR for writing reports and even with past "professional training" is still frustrated with the results. This is to illustrate the frustrating & time consuming aspect of this particular intervention.

- **Basic skills by Joan**

I am interested in what skills in assistive technology an OT should have when entering the field. How are institutes of higher ed addressing these? I have been blessed with many skilled and wonderful OTs as peers in my AT work, but also have had the opportunity to teach many basic skills. I am concerned that students and youth with disabilities do not have access to appropriate AT as team members lack essential information about the possibilities provided by appropriate tools and services.

- **Re: Basic skills by Grace Williams**

Each OT higher ed program has an AT course or integrates knowledge of AT into an interventions course. It is important for an OT to have been exposed to low to high tech interventions and how they can be used to solve problems through a client's lifespan. They should have learned the problem solving techniques which support a good match between the task they are trying to complete and the tool which assists them in that completion. They should have a strong personal integration of current mainstream technologies into their own lives. And most important they should know where to look for AT suggestions such as this website. Your concern about AT teams lacking essential info is well founded. School systems must decide education in AT is important and find a way to spread the AT knowledge.

- **Re: Basic AT skills by Jackie Hess**

Having worked as a consultant to a number of teacher training colleges, I have to say that my impression is that they do not do a very good job of preparing students adequately with respect to either assistive technology or, more broadly, educational technology. The problem seems to be a combination of inadequate faculty expertise and the lack of teacher-friendly materials. While other countries have national curricula, we have hundreds, if not thousands, of locally-developed curricula. It's been economically impossible for the developers of technology-assisted programs to tie their programs to individual curricula. Therefore the onus has been on the teacher, to independently determine how to integrate the technology-based program into the approved curriculum. This can be a difficult and time-consuming task and, thus far, only the best teachers (perhaps the top 20%) have made the effort. I believe we need to: (1) greatly increase the quality of training received by teachers at both pre-service and in-service stages; and (2) produce adequate support materials to make it far easier for teachers and other professionals working with students to integrate technology-based programs.

- **Re: Basic AT skills by Grace Williams**

I agree there has to be more & better training in integrating technology into approved curriculum. Teacher computer workstations help teachers learn how the computer can be a daily management tool but I'm not sure it aids in teaching them how technology can be a learning tool for students.

What is helpful are in services with hands on activities in which you actually have to prepare lesson plans for learning software. What is also helpful are lead teachers going into classes and modeling technology integrated lessons. As school systems gain more educational technology teachers, you will see more support materials being created.

- **Re: Basic AT skills by Judie Schoonover**

You're absolutely right, Grace, knowing about and using "what's out there" is everyone's responsibility. Schools (higher education) should teach the problem solving foundations that any person should use

- **Re: Basic AT skills by Joan**

I agree that school administration holds significant responsibility in providing supports for services. Some of that support must include appropriate budgeting, staff time- including time for training.

As a state consultant, I provide what I believe to be very high quality staff development opportunities state wide. Yet, the follow up evaluations show that a significant number of professionals feel there is not the time nor the money to implement what they have learned. At least in this state, we will continue to provide the training, but develop strategies to help school administrators in supporting the professionals in incorporating what they have learned.

- **Re: Basic AT skills by Annette Cerreta**

FYI, here is some interesting information that I came across while researching technology trends in the schools that I think corroborates much of the discussion on the need for more technology training for school professionals: "According to the most recent data from Market Data Retrieval, a Shelton, Conn.-based market research firm, the number of students per instructional computer improved in nearly every state last year. Nationally, in 2001, there were just over four students for every instructional school computer, and the number of students per Internet-connected computer in schools dropped from 7.9 in 2000 to 6.8 in 2001.

Still, other trends related to training and the use of technology are lagging. Spending on staff development and training decreased as a percentage of school technology budgets from 2000 to 2001. The percentage of schools where a majority of teachers use computers daily for planning or teaching rose slightly across schools overall, but remained flat in schools where more than half the students are members of racial or ethnic minorities."([source: http://www.edweek.org/sreports/tc02/article.cfm?slug=35tracking_h21](http://www.edweek.org/sreports/tc02/article.cfm?slug=35tracking_h21))

- **Re: Basic skills by Molly Shannon**

I remember in my final year of OT school hearing the previous year's OT graduates coming back to visit and telling us that "we learned a little bit about everything, but not enough of one thing". Does this make sense? The field of OT is extremely diverse within it's own right not even considering the great wealth of AT knowledge and skills out there. I agree that in OT school our best asset learned is learning how to analyze

activities! This applies to AT as well. OTs have always done adaptive devices...AT is just more of the same truly. I really hear from most new-grads in OT that they do NOT feel they are getting much exposure to AT, yet most professors say they are. Who knows? I feel the setting in which we find ourselves as OTs will dictate how much AT we use and need to learn. We have to be ongoing resources for many things as OT and AT is just a very vital component I feel.

- **review & back to OT & AT by Grace Williams**

we've discussed places to get training, thank you to all who passed on great resources. We all recognize the lack of trained educators/therapists in the school systems. we have heard how some states support special ed staff. Let's return to OTs & AT in the schools and get some feedback from OTs. Computers are tools, which you customize for the student so they can participate in written language, take tests, complete math problems, read books through digitized text, learn basic concepts. If the student can complete these tasks on their own, it also increases independence. The OT may be the one with the AT knowledge but if not they are a part of the team which needs to find a way for the student to access and use the tool.

- **Re: review & back to OT & AT by Judie Schoonover**

Just a point of clarification, before we move on to the role of OTs in schools. Computers are one of many tools to access education. It is easy in discussion of AT to assume that the solutions concern something which is plugged in. Additionally, an OT may or may not be the one with "computer knowledge and training," but based on the foundations of the profession of occupational therapy, the OT is the accessibility expert. It takes more than a computer to educate a child. It takes analysis of the environment in which children learn, as well as consideration of learning styles, visual motor control, academic readiness, cognition, attention, memory, positioning, endurance, etc. Some AT failures are more the result of poor match of tool to child. We all recognize the potential of the tool, but need to remember the user directs how the tool can be used. It is important for OTs to be knowledgeable about teaching techniques (manipulatives, graphic organizers, TouchMath), because sometimes those are the best and easiest solutions. Some OTs and educators need to "discover" and recognize the talents of their professions and seek each other out. Consultation time needs to be built in IEPs. Administrators can also help set the tone for this professional dialogue by setting up collaborative in service times and being inclusive of OTs in the day to day school climate. OTs bear equal responsibility to "get themselves out there" and showing their stuff.

- **handwriting and distractibility by susan**

I am the mother of a child with limited coordination, and hand strength. He is in K for the second year now, and we are looking to move into 1st grade next year. He labors with handwriting and formation of letters. I have been of the assumption that we will need to move on to some AT

(alpha smart?) in this area, because he will most likely never master it based on agenesis of the cerebellum. I seem to meet resistance by the IEP team, and would be interested in your thoughts and suggestions in both strategies and possible alternatives to present to the IEP team.

The second question I have is regarding focus and distractibility. My son has difficulty staying on task for any length of time. We are temporarily trying out an auditory trainer in hopes of helping him focus on the teacher's directions. Are you aware of any other device that is available that may bring success? Thank you for your help.

- o **Re: handwriting and distractibility by Grace Williams**

Susan, I would ask the IEP team, which you are a member of, to focus on the tasks the teacher expects your son to complete. As a graduating K I would guess that would be writing his name, being able to write all the alphabet letters, and some very basic inventive writing. If his disability does not allow him to have success with these tasks then the team is obligated to find ways for him to progress in these areas. If that means pecking out the letters on a classroom computer, or being taught to write with a modified handwriting program and modified writing tools a match needs to be found. Go to this website to learn about the SETT Framework. [It is a tool to guide decisions about assistive technology](http://www2.edc.org/NCIP/workshops/sett/SETT_home.html) http://www2.edc.org/NCIP/workshops/sett/SETT_home.html Good Luck.

- **home-based versus school-based OT by Jackie Hess**

Does anyone have statistics Re: the percentage of OT services that are delivered at a child's home versus at school? Of the children I know who have received OT services, including my son, about half received services at home. (My perception may be skewed by the fact that my son was in private school; public schools provide far more services.) This presents a very different challenge. Sometimes parents are the most motivated learners about, and adopters of, assistive technology tools. Sometimes they are so overburdened they don't think themselves capable of dealing with them. In any event, it demands even greater communication among the OT, the teacher, the parent, and the student. Too often I've seen that communication break down, because of time demands, inadequate communication skills, and mutual mistrust. Can anyone share techniques they've developed, used, or witnessed that facilitate cooperation among the parties involved?

- o **Re: home-based versus school-based OT by Grace Williams**

Are you asking for stats about how many school age children receive OT in public schools, how many private school children receive OT through dual-enrolled services, and how many school age children receive private OT at private clinics? Receiving OT services at home is unique to infants up to 3 in our region.

I have provided AT evaluations for students attending private schools and made recommendations to the private school for modifications and even devices.

I'm not quite sure of the situation you are describing...but would again recommend the SETT Framework mentioned in my response to Susan as a tool that not only helps with the AT match but also contributes to writing a solid IEP.

- **Re: home-based versus school-based OT by Jackie Hess**

I think the confusion has resulted from different funding assumptions. I was thinking of services paid for by parents and you are probably (and understandably) referring to services paid for by the school system or the state. Parents who pay for private OT may not be part of an IEP team. In fact, the child may not even have an IEP (especially if s/he attends private school, as many children with mild cognitive and/or other neurological disabilities do). In that case, there is often a real communication gap between parent and teacher on the subject of both OT and AT.

- **Re: home-based versus school-based OT by Judie Schoonover**
 Hi Jackie! I don't think there are statistics available to answer your question as someone would have to poll private and public school vendors, and it is such a broad topic subject to different interpretations. I have not seen those kinds of studies in OT literature. Children who attend private schools are still able to receive services through the public schools (learning resource, speech, OT) if they are found eligible, however those services would be provided at the public school. As for private therapy input to IEPs, that is always welcome. Private therapists can attend IEPs, or their report can be considered when making IEP decisions and accommodations. What is important to keep in mind is that a private setting and perspective may be different from the school environment and expectations. In reference to the communication gap you described, in the schools I work, we have something called a child study team. Anyone can bring a child up for child study. A team gathers including the parent, the teacher, and administrator, and one or two other staff members (a different grade level teacher, the guidance counselor, OT, SLP-depending on the concern) and "brainstorms" the issue. The PreReferral Intervention Manual is often used to seek out innovative no-tech, low-tech solutions to difficulties such as poor handwriting, inattention, disorganization, etc. A plan is adopted with who is responsible for supporting the plan clearly outlined. A follow-up date is determined to check the progress of the recommended interventions. Is it possible to meet as such a team in your private setting?
- **Re: home-based versus school-based OT by Grace Williams**
 Jackie, I now understand the situation you are speaking of. Private practice OTs & parents tread a delicate balance between trying to help a classroom teacher understand a child's subtle disabilities, how it impacts classroom performance and how a teacher might support the child without adding to an already overwhelming workload. School system OTs spend a lot of time & energy developing the trust & respect of classroom teachers. Private practice OTs may not have that opportunity. I suggest reducing the communication gap with very small but very successful interventions. For ex. "please let my son sit on this disk-sit for 2 weeks, we think it will reduce the number of times he jumps out of his chair and increase the amount of time he attends to you". Another ex. "the OT has been working on keyboarding with John, he can now keyboard faster than he can write with a pen & paper, we would like him to have a chance to complete his journal at the classroom computer each day to see if he produces more and his writing is legible" Keep requests outcome directed & simple. If your child will attend the school for years, involve the administrator in this school wide success story. Do private schools have to provide 504 accommodations?
- **Re: home-based versus school-based OT by Jackie Hess**
 Thank you, both Judy and Grace. I found both responses interesting and useful. When all is said and done, so much depends on the individual parent, teacher, and OT. (I wish I could include the child, but I've rarely see a child able to advocate for a specific AT intervention.) It seems to come down to: (1) awareness of one's rights (not necessarily a small task); (2) awareness of AT options (an even larger task); (3) consistent, direct, and tactful communication between

parent, teacher, school administrator and OT; and (4) regular assessment of the continued effectiveness of the AT device or service.

- **Re: home-based versus school-based OT by Grace Williams**
Awareness of AT options is a hurdle for parents, teachers, AT trainers, and OTs alike. Take a look at the Assistive Technology Consideration Quick Wheel recently published by CEC. I have started to include them in my intro to AT workshops.
<http://www.cec.sped.org/bk/catalog2/computer.html>

- **OT Career by Discussion Board Guest**

What advice do you have for College bound students interested in AT and a career as an OT to look for in a Graduate or Post-Graduate curriculum?

- **Re: OT Career by Grace Williams**

Answer Part I - If you are an OT with a Bachelors Degree and want to increase your knowledge in the area of AT with a Graduate Degree there are a couple of routes you could go. If you are interested in an educational focus there are programs such as a Masters in Education with a focus in Special Education Technology, this is the route I took. You graduate with a strong foundation in AT devices & services, assessment of needs, augmentative communication, and a better understanding of what special education is about. There are also Rehab oriented programs where you could seek advanced degrees in rehab engineering and health science areas with your research for either a thesis or dissertation focused in the AT area.

What is most important for you as a college bound student to realize is that Assistive technology is a tool. What you want to gain first is a strong foundation in the field of OT; it will provide you with training in problem solving, human psychology & development, disease, disability & wellness, and the art & science of human occupation. As an OT you will seek ways to solve problems with clients, a knowledge of all the possible tools that can assist that client will help you in this endeavor. But if you wish to live a life balanced between work and play, you will probably never learn all the possibilities. please go to Part II of my answer

- **Re: OT Career by Grace Williams**

Answer Part II - But what you can do is learn a few strong resources (websites), attend continuing ed, seek out the AT experts in your area for consults & mentoring, and work with a team of professionals as you problem solve. One last point, if you work in a clinic or center focused totally on the assessment & application of AT devices you will become an expert in that area, but the majority of OT jobs are multidimensional requiring more use of the therapeutic self and very simple no tech solutions. I hope this helps. Always thoroughly research each college program's curriculum before applying so you get what you pay and work so hard for.

- **What AT is helpful for a student who has speech and language disabilities and participates in band. . . by Discussion Board Guest**

I have a situation that my child who is 14 years old and play the drums in band at JR High school and he is having much difficulty in reading music. I would like to know if there is

software available for assisting him with reading drum music and how do I go about receiving the material. Also, are there music instructors who specialize in teaching children music that have disabilities? He lives for playing the DRUMS and I would like to continue enhancing his skills. He is going to play in H.S. in an inclusion environment. I'm afraid that he is going to get lost with the progress of band in H.S. I'm experiencing that now in JR. and the teacher really does not know how to deal with this situation.

- o **Re: what AT are helpful for a student who . . . by Grace Williams**

I have no expertise in the area of software for teaching the reading of music. What I would suggest is to see if a Music Therapist could help, look on their national website at www.musictherapy.org There are descriptions of what they do but also a listing of certified music therapists and how to get in touch with them.

Another resource is the website <http://www.disabled-musicians.org/> I found them on a web search and they look like they might be able to give you and your son some ideas. Good luck and let the FCTD website know if you have success.

- **End of discussion by Jackie Hess**

Thank you to Grace and all participants for this interesting and informative discussion. The active phase of the discussion is now over and it will be archived so that others can benefit. Please join the Family Center in our next national online discussion.

References

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Recommended Resources

Sample of an Electronic Tool for Note Taking

- AlphaSmart
AlphaSmart, Inc.
1-888-274-0680
www.alphasmart.com

Samples of Talking Word Processors

- Intellitalk II
Intellitools, Inc.
1-800-899-6687
www.intellitools.com
- Write: Out Loud 3.0
Don Johnston, Inc.
1-800-999-4660
www.donjohnston.com

Samples of Word Prediction Software

- Co:Writer
Don Johnston, Inc.
1-800-999-4660
www.donjohnston.com
- SoothSayer
Applied Human Factors, Inc.
1-888-243-0098
<http://www.ahf-net.com>

Samples of Writing Support Software

- PixWriter
Slater Software, Inc.
1-719-479-2255
www.slatersoftware.com
- Read & Write 5.0
textHELP Systems Ltd
1-800-582-5051
www.texthelp.com

Sample of Screen Reader Software Developed for Persons who are Blind or Visually Impaired

- JAWS for Windows
Henter-Joyce
1-800-336-5658
www.hj.com

Samples of Text Scan & Read Software

- CAST eReader
Center for Applied Special Technology
781-245-2212
www.cast.org
- Kurzweil 3000
Kurzweil Educational Systems, Inc.
1-800-894-5374
www.kurzweiledu.com

Samples of Companies for AT devices for Learning, Art, Music, Recreation

- AbleNet, Inc. 1-800-832-8697
www.enablingdevices.com
- Enabling Devices
Toys for Special Children
1-800-832-8697
www.enablingdevices.com
- Go-Bot & Go-Kart
Innovative Products, Inc.
1-800-950-5185
www.iphope.com

Resources for Communication, Socialization and Behavior Support

- Mayer-Johnson, Inc.
BoardMaker Software
Dynamically Speaking Software And more
1-800-588-4548
www.mayer-johnson.com
- Social Stories
By Carol Gray
www.thegraycenter.org
- The International Society for Augmentative & Alternative Communication (ISAAC)
www.isaac-online.org