

## Preservice Assistive Technology Training: The Changing of the Guard Is Underway

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Change comes slowly, then suddenly. The past decade has seen a growing recognition of the benefits of assistive technology among teachers, administrators and parents of children with disabilities. That recognition has been strengthened in recent years by the movement toward inclusion and universal design.

However, many general and special education preservice training programs have been slow to incorporate AT components, and, when they have done so, it has often been on an elective basis. On the horizon, however, some see a changing approach toward preservice AT training. Perhaps not coincidentally, the increased focus on AT comes about as there is a gradual generational changing of the guard in the teaching profession. Most of the current undergraduate and graduate students in education are digital natives and they expect and embrace more intense exposure to assistive technology.

Given that reality, it is likely that AT courses will increase in number as institutions compete for tech-savvy special education students. Many feel that the change can not come soon enough, citing the need to move from the paper and pencil heavy classroom paradigm that has held sway for hundreds of years to an inclusive classroom where technology is an equalizer for all children, especially those with disabilities. In this issue we examine the preservice assistive technology training now available and explore its transition and likely future.

### Sharon Judge Speaks

A leading authority on preservice AT training, Dr. Sharon Judge is Associate Dean, Graduate Studies and Assessment, Darden College of Education at Virginia's Old Dominion University. A prolific writer on AT issues and frequent presenter at AT conferences, Dr. Judge has conducted several studies of preservice AT training, including a re-



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cent survey that polled preservice teachers and colleges of education about their preservice AT needs and available training programs. Approximately one-third of undergraduate special teacher licensure programs, 28% of initial post-baccalaureate programs and less than 25% of Master's degree programs required AT coursework.

A special education classroom teacher for 11 years, her first year as an inservice teacher in a tough inner city school in Dallas spurred her enduring interest in AT. "The experience was a huge culture shock for me," she admits. "I taught children who were not on grade level and had much difficulty in learning." It was clear to her, she recalls, that her students felt very unprepared. "They had no materials. All I had was the textbook, so I had to do a lot of adaptation. I wanted to find out how I could better serve these kids and others like them so I returned to school and got a Master's degree in special education."

When she entered the field in 1993-94, "AT had been around for awhile but usually in low-tech form." She was inspired, she remembers, by the federal disabilities legislation emerging from Congress. "I saw the need for training." Because her specialty was early childhood education "I looked at how young children could gain access to modes of communication in order to interact with materials and to socialize. What a great tool AT was!"

Dr. Judge, who earned her undergraduate degree from the University of Arizona and her Masters from North Texas State, was awarded a Ph.D. in special ed from the University of California/Santa Barbara in 1993. Before arriving at Old Dominion in 2006 she was a professor at the University of Tennessee.

Supporting our interview with Dr. Judge are resources aimed at assessing the state of preservice AT training. The members spotlighted this month offer preservice AT training programs or provide information about them. We invite you to contact these members for further information. Please share this newsletter with other organizations, families and professionals who may benefit from it. We invite you to visit us at <http://www.fctd.info>. We welcome feedback, new members and all who contribute to our growing knowledge base.



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## Preservice AT Training: Infusion Is the Word

*An Interview with Sharon Judge, Ph.D.,  
Associate Dean and Special Ed Professor,  
Darden College of Education, Old Dominion University*

**Infusion.** It's the key concept in preservice AT training, says Dr. Sharon Judge of Old Dominion University. According to Dr. Judge, all preservice courses and field experiences in special education should be infused with an assistive technology component. So far, however, infusion remains largely an aspirational concept, but one that will likely become reality as competitive colleges of education begin to supply what increasingly tech-savvy incoming teachers demand from their preservice training.



Those were among the findings generated by the most recent study of preservice AT training programs conducted by Dr. Judge and Dr. Kathryn Simms. The 2007 study, Dr. Judge says, offers a wide view of teacher preparation programs nationwide and their AT components, if any.

Explains Dr. Judge, "I've conducted several studies that examine preservice AT training. The study I conducted last year was unique because it provided an up to date look at how teacher preparation programs are preparing teachers in the use of AT."

The study's foundation, she notes, was an accessible database maintained by the now unfunded National Clearinghouse for Professions in Special Education (NCPSE) that was created to help individuals who were hoping to enter the special education field find universities offering special ed licensure programming. The NCPSE site was a web-based database encompassing all colleges and universities offering degrees or certification programs in special ed.

### A Tailored Search

"I selected that particular database because I could tailor it to search and identify programs, websites and contact information," she explains. "I tailored the search to identify programs that prepared special ed teachers at the initial licensure, including undergraduates and post-baccalaureates wanting to get a licensure in special ed or a Master's degree." Dr. Judge focused on publicly funded institutions "because they offer those degree programs more often than private universities."

In their search, she and Dr. Simms located 375 publicly funded university or college preservice special ed programs. To narrow the search they performed a systematic sampling procedure that randomly selected 40% of the 375 publicly funded special education programs in rural, suburban and urban areas.

Says Dr. Judge, "We ended up with 162 teacher preparation programs. We went to each of those program's websites and examined their program of studies and the types of courses required for that initial licensure in special ed as it related to AT. We looked at the undergraduate degree programs and initial licensure programs for students who had already earned an undergrad degree and at the Master's program."

"We investigated the type of degree and also the type of licensure. i.e. for severely handicapped, mildly handicapped – each state varied its licensure requirements."

The researchers also looked for course descriptors. "We didn't just look at AT; we looked at augmentative communications, technology for special populations and adaptive technology. We wanted to include anything associated with technology and special education."

### Only 35% Require AT

Dr. Judge found that of the programs that offered undergrad degrees and initial licensure only 35% required an AT course. Most of the programs with a requisite AT component required only one AT course, Judge adds. Of those that required AT 86% required only one AT course and 14% required two courses.

"It was to be expected that courses for severely handicapped licensure required an AT component – one course – more often than did programs for teachers of mildly handicapped kids," Dr. Judge notes. "We encountered similar findings for post-baccalaureate licensure. Twenty-eight percent of initial post-baccalaureate programs and less than 25% of Master's degree programs required AT coursework."

She also saw differences in the types of certificate programs with an AT component. "If you were going to earn a certificate in severe handicapped you were more likely to be involved in a certification degree requiring an AT course than other types of certificate programs."

### Embedded AT

"Ideally – and some universities are doing this – preservice students would be able to participate in a program in which AT was embedded in all of their courses and fieldwork experiences instead of it being isolated in a stand-alone AT course. Those skills and competencies would be infused across instructors and across courses."

There are only a very few programs that have adopted this approach, Dr. Judge notes. “One of the major reasons why there are so few is that many special ed educators are untrained in AT and are therefore reluctant to include AT in their coursework.”

Another factor working against the infusion of AT, she asserts, “is a curriculum that is already packed because of the competencies required for state licensing or for national accreditation. To add another ingredient to an already packed curriculum is very difficult to do. The problem is that if pre-service teachers are getting some required exposure to AT it is not enough.”

Old Dominion University, where she teaches, offers an AT course, but it’s an elective, she notes. At the University of Tennessee, where she taught earlier, an AT course was required only if a student was a Master’s candidate in special education.

AT should not only be infused in coursework, she emphasizes, but also in field-based experiences. That kind of infusion is difficult to achieve, she concedes. “Many schools do not employ AT extensively, so when preservice students do their student teaching they often find themselves in AT-starved schools and school districts.”

Universities may also be AT-starved, she says. “I know of many instructors who attempt to infuse AT into their coursework but it is difficult to do. When I was at UT we sought funding from the state to purchase AT so we could show the equipment and demonstrate it when we taught AT in order for the students to have a hands-on experience with the equipment.”

### An Ironic Disconnect -- and the AT Toolkit

Today, in one of the ironies of the information age, adults who work in offices and children in non-classroom environments are surrounded by technology. Yet often when students at every level enter classrooms they take a step back in time to a non-digital, no-tech world. This literal disconnect is often compounded after college when students enter the business world in which technology has evolved fast while they were in school, resulting in yet another tech disconnect.

Dr. Judge appraises that anecdotal disconnect on a district-by-district basis. “It depends, of course, on the available funding in each individual school district. Having the necessary AT requires an aggressive and knowledgeable advo-



cate and a leader. I knew a classroom teacher in Tennessee who thoroughly understood the benefit of AT. She wrote lots of grants that netted much technology because she truly believed in it. She also liked using it.”

In the hope of providing a way to ease the disconnect, Dr. Judge wrote an article entitled Constructing an Assistive Technology Toolkit for Young Children: Views from the Field (Journal of Special Education Technology, 2006).

Her article focused on the effectiveness of an assistive technology toolkit that supports the learning, language and motor development of young children with disabilities. Surveys were completed by 38 early childhood special education professionals to assess what AT tools were most useful for working with young children. Results indicated that communication and low-technology devices were considered to be the most useful.

Many of these tools, she points out, were low-tech, low-cost tools, like a pencil grip. “Tools do not have to be high-tech to be beneficial. The higher grade levels, however, do require higher-tech tools, such as talking software and text readers.”

The tools favored by early childhood special educators surveyed included picture communication symbols produced by Boardmaker, computer touchscreens, adaptive seating, and picture symbol display books for communications visuals and calendars. They also cited software to produce those pictures, such as Picture This or Boardmaker, adaptive keyboards, talking switches to provide access to toys and computers, adaptive scissors, pencil grips, electronic toys and talking books.

“[AT guru] Dave Edyburn came up with the toolkit concept, which can be used by a regular ed teacher because the toolkit is comprised of technology tools that can be employed by all kids, not just those with disabilities. They have ready access to these tools and teachers can be trained in how to use them.” Ideally, Dr. Judge adds, these kits would be in every classroom.

The oft-predicted convergence between AT and educational technology, in Dr. Judge’s opinion, will occur but not soon. Her toolkit concept, she hopes, will bridge the technology divide that separates the present from the future.

“Having an AT toolkit in every teacher’s class would help increase acceptance, as would universal design for learning,” she comments.

“Software and other tools have been developed that can be used universally by special ed and regular students.” Inspi-

ration software, for example, is in that category, she notes. "It's a graphic organizer and talking software. General ed teachers use it, as do special ed teachers."

### The Emergence of Digital Natives

She acknowledges that members of the younger generation now coming into preservice programs are digital natives and that their emergence in significant numbers is likely to accelerate the transition to an AT-rich classroom – and AT-infused preservice AT training.

"The incoming teachers have grown up with technology," Dr. Judge remarks. "They have FaceBook, MySpace and YouTube. They blog. They create wikis. They are very comfortable using these tools and expect them to be as available to them in their professional lives as in their personal lives. That's why it's so important that they have those experiences with different types of technology, including AT, during preservice or even inservice training once they land a teaching job. Technology changes so fast that professional development has to be continuous as does support from the school district."



It is one thing to find a great tool or device to use with a student but the teacher then has to be supported by the school district in order to obtain it and to employ it, Dr. Judge points out. "The law states that when you are developing a student's IEP you need to consider whether AT will help that child. In the recent past, some teachers have told me that they would not even consider recommending AT because they feared that the cost of the equipment they recommended might cost them their jobs. I hope that's changing."

There should also be awareness among teachers and administrators of the range of AT devices currently available, she states. "That awareness is derived from a good knowledge base that has been built during preservice and continued inservice training. There should be some awareness that expensive high-tech is not always the way to go, that there are interim or alternative devices that may meet the needs of a child without the cost of high-tech. That's yet another level of awareness that can be created by continuous AT training beginning in the preservice phase."

### Reaching Critical Mass

She was asked when critical mass will be achieved, when the swelling demand for more comprehensive required preservice AT training by teachers, and perhaps parents of students as well, causes demand for AT training opportunities among preservice teachers to rise dramatically.

"That's a good question. There are many factors that impact this issue. Teachers have to have the knowledge and the time to study how to use a device. I've been in some classrooms where there might be plenty of AT equipment but it's on a shelf and not used at all because the teachers lack the time to learn how to use it or, in some cases, the desire to learn how use it."

Alternate route training programs are a way for time-starved preservice teachers to gain necessary AT training. "I and two colleagues from UT examined how alternate route programs delivered the necessary skills and knowledge of AT. Today with the shortage of special ed teachers many teachers are earning their certification through alternate route programs."

Alternate route programs are programs providing access to a teaching credential through a process that circumvents traditional preservice preparation. For example, she explains, some preservice teachers might be able to avoid student teaching.

Most alternate route programs, she adds, deliver their coursework in a different format that might involve less field-based experience. The programs are aimed at accommodating teacher candidates who already have a degree.

"Here in Virginia, if an individual has a baccalaureate degree and takes one course in special ed, s/he can earn a conditional license and be hired by a school district to teach special ed with a three-year grace period in which to obtain a license. We have alternate route programs for those individuals. Their coursework is very similar to coursework taken by students opting for a traditional approach but there is no student teaching requirement."

She continues, "At two universities we had students who participated in these programs complete a survey looking at their knowledge, skills, competencies and barriers to AT as well as the types and effectiveness of AT preparation."

One hundred fifty-nine students were surveyed in her study and completed the survey. Most were classroom teachers. Forty-seven percent, Dr. Judge says, had never participated in any time of AT training. The participants reported that the most effective and frequent AT training activities included workshops, presentations and inservice training.

Thirty-two percent indicated that their preservice educational experiences had adequately prepared them. Conversely, 68% felt that their preservice educational experiences had left them unprepared in the use of AT. The three most significant barriers they identified were lack of knowledge, lack of time and insufficient funding.

Of their knowledge and skills, the areas in which they rated highest were instructional strategies and learning environments. The area in which they rated lowest was foundations knowledge and AT assessment, Dr. Judge says.

“I wanted to look at the relationship between AT coursework, their experience and their confidence.” In the area of confidence, she notes, respondents felt somewhat confident overall in AT intervention, assessment and in accessing resources and support. They were most confident in their ability to conduct or participate in AT assessments. They were least confident in their ability to obtain and use AT resources and support services. Overall they were confident that their AT knowledge was adequate but not confident in the ability to obtain equipment and services.

“We also did a correlation between the AT confidence scale. If they had taken an AT college course there was a positive correlation to their overall confidence score. In other words, if they had taken an AT course their confidence in AT was higher.”

### **Not Yet Ready for AT – But a New Generation Looms**

She also examined the relationship between years of experience and AT confidence. “Years of experience in special education was positive when related to overall confidence but was not related to access to AT resources. So the more years of experience teaching special ed students the more confidence these teachers have in AT use and application but the less confidence they have in accessing AT resources.”

According to Dr. Judge, her findings mean “that a significant number of the respondents were not adequately prepared to use AT. They identified limited knowledge, time and money as barriers.” One respondent replied, “For me, the barriers are time to gain knowledge of equipment, how the student interacts with it and how it works in assignment.”

Dr. Judge’s ideal remedy, she declares, is infusion, the creation of a preservice special education program in which “AT is infused in and around all the coursework and preservice teachers are placed in student teaching situations where they have the opportunity to use AT and see it used appropriately.” Hopefully, she adds, “those preservice teachers would have the opportunity to sit in on meetings where IEPs are developed and AT is considered. There they can view AT assessments.”

She does not anticipate a quick transition from the current reality to the vision she seeks. “I see infusion slowly occurring. Whatever infusion that exists now at the university level is occurring via faculty turnover. A generation of teach-

ers is retiring. Younger teachers, digital natives, who have extensive experience with all sorts of technology, are beginning to enter the profession in large numbers. You see this in job announcements for university faculty. More and more of those announcements stress experience with technology as a desirable characteristic. This transition, then, is a natural evolution.”

Sometimes, she notes, public schools are outpacing universities in adapting to change. “Public schools, because of the type of students they work with, and the technology that’s emerging, are going to be demanding that preservice teachers receive technology training which measures up to the task they face.”

### **Online Does Not Mean Hands-Off**

While she concedes that many universities currently have little compelling incentive to accept and embrace the transition to a digital environment, she nonetheless sees change occurring. “There are so many colleges offering online education programs now. They’re attracting students who want that kind of format. To me, this is indicative of change on the part of universities. They are changing so that they can be competitive.”

According to Dr. Judge, online does not mean hands-off. She says that East Carolina University offers an online Masters program in special education that includes an AT course. As part of the course, students receive a box of AT devices in the mail. After completing the course the students return the devices to the school by mail.

“There are online software demos. Sometimes you can get a 30-day trial demo. I’ve used that when I’ve taught AT courses. What I try to do when I teach is to embed the AT in my courses. For example, I could get a free 30-day Inspiration or Kidspiration software demo. There are ways to get that hands-on experience that don’t cost anything.”

She has worked with Linda Robinson (FCTD Newsletter interviewee March 2007) Project Director of the Center for Best Practices in Early Childhood, Western Illinois University on several of Ms. Robinson’s projects. “Linda uses online modules with links to vendors so the AT can be viewed and read about. Sometimes a video clip is supplied. You don’t have that hands-on experience but her approach does develop awareness.”

Dr. Judge has also partnered with a state AT center. “States get funding from the federal government for AT training. Some of that funding goes for training under the auspices of regional AT. Those centers, operated by the Alliance for Assistive Technology, have an extensive inventory of many

tools and devices at their disposal and work closely with school districts and state agencies.” Many such centers, she says, “are receptive to the concept of bringing a training class to their centers so that trainees can gain exposure to a center’s AT equipment. I’ve done that several times with good success.”

### **A Vast Improvement**

Although preservice AT training programs generally remain in the nascent stage, Dr. Judge says, that is a vast improvement from 15 years ago when she began her research. “There’s a great difference in AT training between then and now. More teachers are open to it. In earlier years, when AT was addressed, many preservice teachers had no idea what was being talked about. Now they know. Today more and more preservice teachers are demanding it. Because AT consideration is embedded in law, most school districts have accepted AT as an obligation.”



AT exposure has even improved at the college level, she asserts. “Old Dominion University, for example, is a wireless environment. If a student has a laptop the environment here can accommodate that student. We have plenty of computer labs and online courses that are podcast. The access is there. Textbook digitalization is not universal yet, but it will be soon. The groundwork has been laid.”

Improvement, she says, is also evident in public schools, especially at the early childhood level where young digital native parents are beginning to demand accelerated modernization. “From my perspective, the digital divide appears to be closing,” she declares.

### **Linking Promotions and Tenure to AT in Instruction**

Gazing into her crystal ball, Dr. Judge sees technology continuing to be perceived as a great equalizer for children with disabilities who might otherwise not have full participation in school and in the community. There is general agreement that the success of students with disabilities with AT is related to the knowledge, skills and dispositions that special education teachers possess regarding assistive technology, she says.

“If we can develop those AT competencies that must begin in teacher preparation programs then we will see meaningful outcomes for all students. As the promise of AT becomes reality for these individuals I think we will see far more AT in preservice programs. We’ll also see more professional development in schools. Those two go hand in hand. I predict that within five years AT will be universally adopted and acknowledged as greatly beneficial for students who need it

and for preservice teachers who need to learn to use it.”

She predicts that as more teachers retire, as new blood takes command at the university level, “we will see more AT coursework and the infusion of AT in preservice coursework. These developments won’t occur on their own unaided. A push will be needed.”

There has to be incentives to encourage faculty to infuse AT into the curriculum, she notes. “There should be efforts made to link the awarding of promotions and tenure to the use of AT in instruction. The university administration must recognize that faculty members require time to learn to use AT as well as integrate it into their coursework.” All this in an environment in which so much time and effort is necessarily expended by faculty in accommodating the pressure to write and to publish, a reality that may result in the awarding of faculty members with course release time or a sabbatical so that they can redesign their new courses, Dr. Judge says.

Mentoring, she adds, will increasingly be regarded as a way to pair a student who is knowledgeable in AT as a mentor to a faculty member whose AT knowledge base is less robust.

Finally, she adds, colleges in the next half-decade need to find ways to increase preservice access to hands-on AT experiences. “To obtain those experiences the equipment has to be acquired for demonstration purposes, for student use during courses and for faculty training as well, all of which costs money.” She encourages colleges and state departments of education to be proactive in allocating available funds to purchase the needed software and hardware and to provide the training opportunities – and also to update AT resources. “Updating is a necessity these days when rapid improvements can quickly make technology obsolete.”

### **AT: Still Exciting After All these Years**

Even in the very beginning of her career, she recalls, “I saw the enormous benefit that AT held for all children. It was such a new area to research then and not much was known about it, which made it exciting. Today it remains just as exciting.”

Initially, Dr. Judge investigated ways in which children could access AT, how the equipment could be made to be family-centered so that the AT would not be abandoned and how and where teachers could access training. “I’m still investigating all those areas. I did a survey in the mid-1990s of early childhood special education teachers regarding their knowledge of AT. Their knowledge then was extremely limited. From that survey emerged a book I wrote with Phil Parette. There seemed to be an acute need for AT information in the special education community. There still is and I continue to try to meet that need.”

## RESOURCES

### ARTICLES

#### **Assistive Technology Training at the Preservice Level: Current Status and Training Needs**

By Sharon Judge

*Society for Information Technology and Teacher Education (SITE) Annual Conference (2008)*

In this SITE presentation, based on an article entitled AT Training at the Preservice Level: A National Snapshot of Teacher Preparation Programs co-authored with Dr. Kathryn Simms, Dr. Judge reported findings from a national study of special education teacher preparation programs on the current practice of AT course delivery for the preparation of special educators. Her findings indicate that AT training at the preservice level may not be adequately addressed. Approximately one-third of undergraduate special teacher licensure programs, 28% of initial post-baccalaureate programs and less than 25% of Master's degree programs required AT coursework.

[http://www.editlib.org/index.cfm?fuseaction=Reader.ViewAbstract&paper\\_id=28080](http://www.editlib.org/index.cfm?fuseaction=Reader.ViewAbstract&paper_id=28080)

#### **Assistive Technology Integration in Special Education Teacher Preparation: Program Coordinators' Perceptions of Current Attainment and Importance**

By Craig A. Michaels and Jennifer McDermott

*Journal of Special Education Technology (Summer 2003)*

Write the authors, "[The existing] body of literature is almost universally in agreement that the success of students with disabilities with AT is related directly to the AT knowledge, skills and dispositions of special education teachers. The development of these AT competencies must begin in teacher preparation programs at the pre-service level if special education is to truly achieve meaningful outcomes for all students, including those students with the most severe disabilities."

Michaels and McDermott conclude, "Making sure that pre-service teachers have opportunities to observe classroom teachers and related-service providers who model appropriate AT provision, and opportunities to use AT within inclusive general education settings will be critical components of building AT skills in special education teacher preparation program graduates. Future special education teachers at the pre-service level must have frequent and multiple opportunities to practice using AT as both a potential learning and teaching tool in order to develop critical AT dispositions. The more that graduate teacher preparation programs work to incorporate technology-rich coursework, practica, internships, and field

experiences, the greater the likelihood that graduates will be able to apply desired AT competencies within their own classrooms."

<http://jset.unlv.edu/18.3/michaels/first.html>

#### **Constructing an Assistive Technology Toolkit for Young Children: Views from the Field**

By Sharon Judge, Ph.D.

*Journal of Special Education Technology (Fall 2006)*

This article describes a strategy for meeting the needs of young children with disabilities through an assistive technology toolkit approach. The author focuses on the effectiveness of an assistive technology toolkit that supports the learning, language, and motor development of young children with disabilities. Surveys were completed by 38 early childhood special education professionals to assess what AT tools are most useful for working with young children with disabilities. Results indicated that communication and low-technology devices were considered to possess the most utility.

Writes Dr. Judge, "Of the 10 devices receiving the highest rating, six are used for communication. The remaining four are tools for positioning and accessing computers." In contrast, she adds, the assistive devices that professionals rated as having the lowest utility (rated never) were the Hip Talk (52.4%), Writing with Symbols 2000 software (50%), bead chains (45.8%), and large-button talking calculator (44.4%). It is possible that Writing with Symbols 2000 software, a word/picture processing program that allows users to type words with the option of having picture symbols appear with each word, and the largebutton talking calculator, a calculator with speech output, were not deemed appropriate for young children. Additionally, she concludes, the Hip Talk, an augmentative communication device that is worn around the waist and plays messages at the push of a button, and the bead chains, curtains of steel bead chains that provide somatosensory stimulation, are not widely known by early childhood special education professionals."

<http://jset.unlv.edu/20/JSETv21n4.pdf>

#### **Accessible Education through Assistive Technology**

By Elizabeth A. White, Shelly B. Wepner and Donna C. Wetzel

*T.H.E. Journal (February 2003)*

This article focuses on preservice and inservice AT training for teachers, and provides examples of teacher training programs that include AT courses. Descriptions of how some colleges and universities have been able to acquire devices for hands-on training are included, while descriptions of field projects are provided as models of

successful training programs. The authors contend that successful AT utilization is dependent upon the skills, knowledge, and experience of instructors who implement AT programs in primary, secondary, and college educational settings.

Write the authors, "Teachers are increasingly confronted with how assistive technology can be used and, in particular, how learning disabilities can be successfully addressed. However, teachers are generally not aware of most of the assistive technology devices and services available for students with learning difficulties. When a student's Individualized Education Program requires assistive technology equipment and software, a teacher must know its application and use. In addition, the training of a student's parents or guardians in the use of assistive technology is critical. Time is an important issue; any delay between acquisition of technology and its actual use by the student reduces their learning time and enthusiasm."

After citing numerous universities that offer preservice AT training, the article concludes, "Teacher education programs should examine their capabilities in this area and decide on appropriate courses of study. It may be desirable to incorporate an actual assistive technology program, offering classes toward a certificate or degree. Or, it may mean providing online assistive technology courses and supplementing these courses with hands-on experience when possible. Whatever route is chosen, it is the responsibility of the university's teacher education programs to provide future teachers with knowledge of assistive technology and its importance in helping students learn. "

[http://www.thejournal.com/articles/16270\\_2](http://www.thejournal.com/articles/16270_2)

### **Integrating Technology into Field-Based Experiences: A Model That Fosters Change**

*By Sharon Judge and Blanche O'Bannon  
Elsevier Ltd. (2004)*

This article describes Project ImPACT, an implementation grant supported by the U.S. Department of Education's Preparing Tomorrow's Teachers to Use Technology initiative. The project aims to develop new teachers capable of infusing technology into the curriculum. According to the authors, a model was developed to foster change in K-12 field sites that serve as training grounds for preservice teachers. The model was developed with emphasis on access, professional development, support, incentives and assessment. The authors describe the development, implementation and evaluation of a field-based technology integration model. The results suggest that

the model was effective in increasing preservice teachers' ability to integrate technologies into the curriculum in authentic teaching situations.

### **Brian Wojcik: Helping Teachers Apply Assistive Technology to Benefit All Learners**

*By Tommy Navickas*

*College of Education, Illinois State University (February 13, 2008)*

Brian Wojcik, interviewed by the Illinois State campus newspaper, is the coordinator of the university's SEAT Center, which provides preservice AT training to teacher candidates. Writes the reporter, "The SEAT Center is unparalleled in the United States, having a significant role in providing all teacher education candidates with competencies in assistive technology. The most prominent of these programs, the Instructional Technology Passport System, Competency H (ITPS-H), began in 2003 and is a two-stage module for pre-service teacher education students to develop foundational knowledge and skills with regard to AT. The first stage focuses on an introduction to assistive technology across domain areas and on the implementation of AT for learners with disabilities. Stage two engages teacher candidates in the use of these technologies through hands-on experience."

The article continues, "Wojcik is often asked to speak about how far AT has come and how it can be implemented in every classroom. He points out that schools are sometimes hesitant to get on-board with assistive technology because of misconceptions regarding the costs or other factors. 'It no longer takes an \$8,000 piece of equipment for each learner with AT needs. In fact, I could name at least 20 free programs that allow for text to speech access. Much more technology is now readily accessible to every teacher and student than ever before.' Wojcik promotes this awareness among administrators, faculty members, parents, and students alike."

The article concludes, "Wojcik is also interested in looking at what he calls 'a phenomenon of ambiguity happening in technology.' As he explains, 'Technologies that traditionally have been used with students with disabilities are now being used with students that are at risk or to support students with different learning styles. The lines are beginning to blur between what is AT, what is instructional technology, and what is good practice with technology.'"

<http://www.coe.ilstu.edu/news/facultyfeatures/brian-wojcik.shtml>

## **AT Attention: Integrating Accessibility Awareness and Computer-Related Assistive Technologies in Teacher Preparation Programs**

*By Nancy B. Sardone and Rosemary W. Skeel  
Seton Hall University (2004)*

Seton Hall used a three-year U.S. Department of Education Preparing Tomorrow's Teachers to Use Technology (PT3) grant to prepare its faculty and preservice teachers to better employ technology. This paper documents the change that occurred while college faculty redesigned three programs to bring accessibility awareness to teacher candidates, educational media students, and information technology students and integrated AT training with course content.

The change process began within Seton Hall's College of Education when IT faculty collaborated with special education faculty to integrate accessibility awareness and AT devices into the curriculum. Two special education faculty members certified in AT used this knowledge to redesign curriculum to meet diverse learning needs. Teacher educators used online courses to learn about accessibility and AT devices. Appropriate AT devices and software were reviewed, selected and purchased by the IT/special education team. This core group of faculty worked with the remaining faculty in three areas – special education, elementary education, and secondary education – to integrate accessibility awareness into the curricula of the three programs and to increase the comfort levels of general educators with AT devices so these practices would become everyday occurrences in the classroom.

<http://education.shu.edu/pt3grant/SITE2003Publication.doc>

## **Pediatric Therapists' Perceptions of Their Training in Assistive Technology**

*By Toby Long, Ph.D. and Deborah F. Perry, Ph.D.  
Physical Therapy (March 6, 2008)*

This study was aimed at determining the perceived adequacy of previous training in AT, specific training needs, preferred methods of training and the confidence level of pediatric physical therapists in providing AT. The authors surveyed 380 pediatric physical therapists who were members of the Section on Pediatrics of the American Physical Therapy Association. The therapists reported having less-than-adequate training in AT and a lack of confidence in delivering AT services. They also reported that they would like accessible and affordable training that focuses on funding technology and services, knowledge of specific devices, and assessment and evaluation methods.

<http://physther.org/cgi/content/abstract/ptj.20060356v1>

## **Twelve Tips for Classroom Teachers**

*By Barbara Cheadle*

*National Federation for the Blind (2005)*

Written by the mother of a son who is visually impaired, these tips for teachers are based on her experiences with her son's education. The tips feature advice on arranging and managing the classroom, including advice on how not to make the visually impaired student feel different from his classmates. Also included are tips on managing the IEP, sharing the curriculum verbally, using assistive technology in the classroom, maintaining equal expectations and encouraging a positive attitude for and in that student within the classroom.

<http://www.nfb.org/Images/nfb/Publications/fr/fr19/fr-05si10.htm>

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## KNOWLEDGE NETWORK MEMBERS

### Society for Information Technology and Teacher Education (SITE)



SITE is the only organization that has as its sole focus the integration of instructional technologies into teacher education programs. The organization is an international association of those who educate teachers in all disciplines and who are interested in the creation and dissemination of knowledge about the use of information technology in teacher education and faculty/staff development.

SITE produces two major publications: the Journal of Technology and Teacher Education (JTATE) and the Contemporary Issues in Teacher Education (CITE) Journal. JTATE is scholarly, peer-reviewed and serves as a forum for the exchange of knowledge about the use of information technology in teacher education. JTATE covers:

- Preservice and inservice teacher education
- Graduate programs in curriculum and instruction
- Educational administration
- Instructional technology
- Educational computing

A quarterly subscription to JTATE is included with SITE membership. The CITE Journal is SITE's online multimedia, interactive counterpart to STATE. CITE Journal is collaboration between five teacher educator professional associations in mathematics, science, English language arts, social studies and instructional technology. CITE focuses on current issues and practices, with accompanying editorials and seminal articles. For more information, contact:

Society for Information Technology and Teacher Education (SITE)  
P.O. Box 1545  
Chesapeake, VA 23327-1545  
Phone: (757) 366-5606  
Fax: (703) 997-8760  
Email: [info@site.aace.org](mailto:info@site.aace.org)  
<http://site.aace.org/about.html>

### Association for the Advancement of Computing in Education (AACE)

Affiliated with SITE and founded in 1981, AACE is an educational and professional organization dedicated to the advancement of knowledge, theory and quality of learning and teaching with information technology. The organization furthers scholarly inquiry related to information technology in education and the dissemination of research results and their applications via publications, conferences, societies/chapters and interorganizational projects. AACE membership includes researchers, developers and practitioners in schools, colleges and universities, administrators, policy decision-makers, trainers, adult educators and other specialists in education, industry and government. For additional information, contact:



Association for the Advancement of Computing in Education (AACE)  
P.O. Box 1545  
Chesapeake, VA 23327-1545  
Phone: (757) 366-5606  
Fax: (703) 997-8760  
Email: [info@aace.org](mailto:info@aace.org)  
<http://www.aace.org/about.htm>

### American Educational Research Association (AERA)

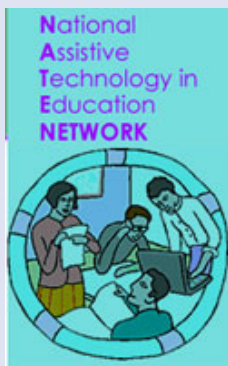


Founded in 1916, AERA is a national research society that encourages education-related scholarly research and its practical applications. AERA's 25,000 members are educators, administrators, research directors, educational testing experts, counselors, evaluators, graduate students and behavioral scientists. Membership disciplines include education, psychology, statistics, sociology, history, economics, philosophy, anthropology and political science. For additional information, contact:

American Educational Research Association (AERA)  
1430 K Street NW, Suite 1200  
Washington, DC 20005  
Phone: (202) 238-3200  
Fax: (202) 238-3250  
<http://www.aera.net/>

### National AT in Education Network (NATE)

NATE aggregates information from the many fields and disciplines associated with AT services in educational settings and organizes that information in a cohesive, integrated manner so that it is accessible to professionals from all related disciplines. NATE provides monographs and data collection forms on relevant topics related to AT in education, maintains a resources page on its website. NATE professional support is highlighted by a mentoring program designed to foster relationships between experienced AT service providers and individuals new to the field. An informal contract commits the mentee to ask questions and initiate discussions about specific areas of concern. The mentor agrees to engage in discussion and provide direction and feedback. For further information, contact:



National AT in Education Network  
P.O. Box 2302

Roseburg, OR 97470

<http://natenetwork.buffalo.edu/index.htm>

### Special Education Assistive Technology Center (SEAT)

Affiliated with Illinois State University, SEAT provides AT



services to preservice teachers, professionals in the field, individuals with disabilities and their families. SEAT AT training topics include specific software applications, AT planning and vendor demonstrations.

SEAT employs the Instructional Technology Passport System (ITPS), a compliance system using authentic performance-based assessments designed to promote ethical and effective use of instructional technology by ISU teacher candidates. ITPS requires all teacher candidates, including elementary education, middle school education and secondary education, to demonstrate specific competencies in their coursework at different institutional gateways before gaining admission to professional studies and student teaching and prior to exiting student teaching.

AT coursework is embedded throughout undergraduate and graduate experiences. ITPS courses specifically targeting AT include:

- Understanding and application of characteristics, identification and intervention strategies to the educational assessment, programming and teaching of individuals with physical disabilities or special healthcare needs
- Issues, intervention strategies and technologies that can impact the communication skills of individuals with disabilities
- Assessment of AT programs and the needs of individuals with disabilities for AT, including software, hardware and relationship to educational goals

General SEAT activities include:

- Conducting research related to outcomes-based best practices AT service delivery
- Presenting AT best practices at professional, student, family and consumer-oriented meetings
- Collaborating in publishing the only outcomes-focused journal in the U.S.
- Providing specific services for professionals in the field
- Coordinating and participating in undergraduate and graduate teacher education instruction at ISU
- Providing professional development opportunities

For more information, contact:

SEAT Center

Fairchild Hall 324

Campus Box 5910

Normal, IL 61790-5910

Phone: (309) 439-7811

Email: [seat@ilstu.edu](mailto:seat@ilstu.edu)

<http://www.seat.ilstu.org/>

### Assistive Technology Applications Certificate Training Program (ATACP)

Affiliated California State University/Northridge (CSUN), ATACP, sponsored



by CSUN's Center on Disabilities, consists of national and international AT certificate programs aimed at introducing newcomers to the field and expanding the knowledge base of professionals. With over 2,500 graduates to date, the ATACP certificate program and offers 100 hours of a range of practical AT applications and information. CSUN workshops:

- Emphasize practical tools and techniques of AT accommodations and applications
- Facilitate access to assistive technologies online and live
- Provide access to a comprehensive online curricu-

lum and a range of modules, case studies, application exercises, articles and web resources

- Attract nationally recognized AT consultants and trainers who present live modules

For further information, contact:

Assistive Technology Applications Certificate Training Program (ATACP)

California State University

Northridge Center on Disabilities

18111 Nordhoff Street

Northridge, CA 91330

Phone: (818) 677-2578

<http://www.csun.edu/codtraining/>

### ATTAIN Project



Conducted under the auspices of the University of Memphis College of Education, ATTAIN provides hands-on AT training to participating Local Education Agency (LEA) personnel and preservice teachers. The training focuses on assessing the need for AT, matching AT to students, equipment selection and usage and integrating AT into instruction. The project also maintains a lending library and aids LEA personnel in making AT purchasing decisions. For additional information, contact:

ATTAIN Project

College of Education

University of Memphis

Ball Hall 413

Memphis, TN 38152

Phone: (901) 678-1740

Fax: (901) 678-3881

<http://coe.memphis.edu/AttainProject/>

### Nathaniel H. Kornreich Technology Center

#### Nathaniel H. Kornreich Technology Center

The center sponsors presentation, conferences and meetings on various aspects of AT and teaching continuing education programs and academic courses for professionals, advocates, families and consumers. The center provides workshops for groups consisting of at least five teachers, therapists, parents and consumers in the New York City metro area. Online, distance and Distance learning is available as is training via podcast and webcast. The center's preservice AT training consists of a graduate level course for Columbia University's Teachers College. Conducted online, this

distance learning course provides special ed teachers with basic information on AT instructional technology. The course employs a variety of technologies that simulate face-to-face instruction. For additional information, contact:

Nathaniel H. Kornreich Technology Center

Phone: (516) 465-1626

Contact: Susan E. Friddie, MS, Director of Services

Email: [sfridie@abilitiesonline.org](mailto:sfridie@abilitiesonline.org)

<http://www.ncds.org/KTC/education.aspx>

### Iowa Center for Assistive Technology Education and Research (ICATER)

#### Iowa Center for Assistive Technology Education and Research

Housed in the University of Iowa's College of Education, ICATER provides hands-on training in AT to COE students and faculty. The center also engages in research projects to aid in examining AT effectiveness in education and the community at large. ICATER:

- Maintains a lab where students can view live demonstrations of AT equipment and software
- Provides AT modules for COE graduate and undergrad courses
- Offers COE practitioner preparation students, faculty and inservice professionals an AT graduate course on AT issues, accommodations and legal aspects of AT use
- Ensures that students with disabilities have needed accommodations

For more information, contact:

Iowa Center for Assistive Technology Education and Research

College of Education

University of Iowa

Lindquist Center

Iowa City, IA 52242-1529

Phone: (319) 335-5280

Fax: (319) 335-5291

Contact: Dennis Maki, Director

Email: [dennis-maki@uiowa.edu](mailto:dennis-maki@uiowa.edu)

<http://projects.education.uiowa.edu/icater/>

### Project TITE-N (Technology in Teacher Education – Nevada)

The project aims to increase the proficiency of preservice teachers in AT to K-12 instruction. Housed at the University of Nevada's (Reno) College of Education, Project TITE-N addresses disadvantaged learners via field-based experiences in high-needs schools, preservice teacher training in a variety of technology appli-

cations, including AT, and incentives for internships in rural/remote schools. Targeted schools include those in remote parts of the state, with Title I designation and/or a high incidence of students identified as having disabilities or limited English language skills. The project's objectives include:

- Collecting baseline data on preservice teacher and university faculty proficiency in AT
- Developing and validating new standards-based self-appraisal instruments for preservice educators
- Participating in the data sharing analysis component of next generation collaborative exchanges among technology innovation cluster universities
- Ensure that all preservice teachers will demonstrate increased knowledge and use of technology applications as reflected in performance in practicum courses
- Ensure that all preservice teachers will infuse technology into their teaching during the supervised internship
- Completion of the Nevada Advance Technology Endorsement by at least 60 new teachers, 20 per year.

For further information, contact:

Technology in Teacher Education -Nevada, CO/Bill Swager

Raggio Research Center

Mail Stop 432

University of Nevada, Reno

Reno, NV 89557-0218

Phone: (775) 784-7786

Fax: (775) 327-2016

Contact: Bill Swager, Project Coordinator

Email: [bswager@unr.edu](mailto:bswager@unr.edu)

<http://www.unr.edu/TITEN/about.html>

### Johns Hopkins University School of Education

Johns Hopkins offers a Master's in assistive technology



for communication and social interaction. This program prepares special educators, speech and language pathologists, as well as occupational therapists to integrate AT to improve communication and social interaction of students with disabilities. Participants learn best practices for the selection, acquisition and use of assistive technologies in teaching communication and social skills. The university offers courses such as "Assistive Technology for Educating Individuals with Low Incidence Disabilities," "Advanced Applications of

Assistive Technology for Individuals with Disabilities" and "Access to General Education Curriculum with Technology Accommodation." For further information, contact:

The Johns Hopkins University

School of Education

Technology for Educators

6740 Alexander Bell Drive

Columbia, MD 21046

Phone: (800) GO-TO-JHU

Email: [edspsbe@jhu.edu](mailto:edspsbe@jhu.edu)

<http://education.jhu.edu/specialeducation/certificates/>

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