

A New Approach to Early Intervention: Virtual Home Visits



Some bicoastal residents call it “flyover country.” Earlier generations called the huge expanses of America’s West “the Great American Desert.” But for the families of infants and toddlers with disabilities who reside there, often in remote and sometimes harsh circumstances far from the care their children require, it is home.

Reaching those families for regular required home visits is often a monumental or downright impossible task for administrators of early intervention programs and their service providers who must drive for hours each way in weather conditions that are often severe and dangerous in an era in which fuel prices promise to remain prohibitively high. Until now, hard choices had to be made. Home visits to families in remote areas had to be postponed or canceled due to weather or cost. For families, their children’s needs went unmet. For federally funded statewide programs charged with seeking out and serving all infants and toddlers needing early intervention services, charters went unfulfilled. Today, however, technology provides the hope that virtual home visits can effectively and efficiently supplement, but not replace, traditional in-person visits.

For programs like Utah State University’s Center for Persons with Disabilities (<http://www.>

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From the Utah State University Center for Persons with Disabilities - Sue Thain Olsen, M.Ed. & Amy Henningsen, OTR/L

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cpdusu.org/), which provides virtual home visits under a Steppingstones grant from the U.S. Department of Education (<http://www.federalgrants.com/Steppingstones-of-Technology-Innovation-for-Children-With-Disabilities-CF-DA-84327A-11473.html>), virtual home visits offer a way to remain in close touch with families in remote areas while ensuring that three-year-olds emerging from IDEA Part C status (<http://wrightslaw.com/info/ei.index.htm#partc>) receive the services they need. Part C is a federal grant program that assists states in providing a comprehensive statewide menu of early intervention services to all children from birth to age three who meet eligibility requirements. Though still in the experimental stage in which logistical and service delivery issues are being resolved, the virtual home visit approach offers real hope for families living in remote rural areas nationwide.

Sue Thain Olsen, M.Ed. & Amy Henningsen, B.S., OTR/L, Speak

One was an aspiring veterinarian. The other hoped to become an artist. Both, however, eventually made early intervention a career choice. Today, Sue Thain Olsen is director of the Division of Exemplary Services at USU's Center for Persons with Disabilities (CPD). Her division provides a range of statewide interdisciplinary disability services. In addition to overseeing implementation of the OSERS Steppingstone grant that funds the CPD virtual home visit (VHV) project, Ms. Olsen specializes in special education law, due process and mediation. Early on, though, she wanted to be a vet. "That dream ended when I flunked chemistry," she recalls. "My dad was medical director here at the center and suggested to me when I was floundering in college that I should con-

sider education as a profession, although I'd never thought about teaching, let alone special education." While her first experiences at CPD were with school-age children, Ms. Olsen has spent the past 25 years working exclusively with infants and toddlers. "We didn't consider using technology as actively as we do now," she says. Technology became a priority, she explains, as IDEA Part C evolved. "When we started working with infants and toddlers we were enmeshed in the family routine and in coaching families in ways to stimulate their children and the developmental learning opportunities in their daily routine."

At one point, however, she continues, "we stepped back and said, 'We're sending kids to pre-school at age three without solid communication strategies or a form of communication.' What we were missing was assistive technology and the ability to support our children with alternative and augmentative methods of communication."

In her early years at CPD, she explains, "we had no infants' or toddlers' toys equipped with battery operated switches. We had nothing like the effective switches we now take for granted to aid in communication and decision-making. Nor did we have anything like today's dual-choice screens. We had to make switch devices as we needed them. Commercially available devices of this type have become appropriate for very young children and available to them."

Amy Henningsen, an occupational therapist, is certified in neurodevelopmental treatment in pediatrics and as an AT practitioner. A graduate of Eastern Michigan University with more

than three decades working with developmental disabilities, she provides direct and consultative services for CPD's Up to 3 early intervention program, which is overseen by Ms. Olsen.

"I loved art," Ms. Henningsen says, "but I wasn't good enough to be an artist. My aunt told me that there was a field of therapy that employs art and media. As it turned out, neither has applied at all to my work experience!"

According to Ms. Henningsen, the term "assistive technology" can be a source of confusion. "We use a lot of AT in early intervention, if walkers and ways of positioning children and toys that can be adapted for kids with disabilities are considered to be AT. I hear often that there is not much AT used in early intervention. I think that is a wrong assumption. We are much more inclusive when it comes to AT than some realize."

One of her major technology-related challenges, she says, is the need to individualize AT. "No piece of equipment works for every child. Our task is to make a technology solution work one child at a time."

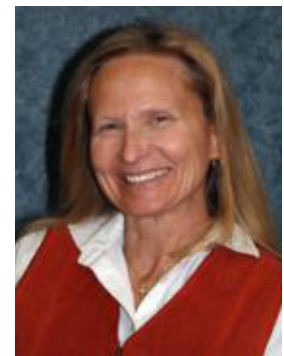
Supporting our interview with Sue Thain Olsen and Amy Henningsen are resources related to early intervention and technology. We also feature members of our Knowledge Network. We invite you to contact these members for further information and to visit us at <http://www.fctd.info>. Please share this newsletter with other organizations, families and professionals who may benefit from it. We welcome feedback, new members and all who contribute to our growing knowledge base.

Virtual Home Visits: They Help Surmount Early Intervention Barriers

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Sue Olsen



Amy Henningsen

Barriers related to geography, time and transportation have long bedeviled IDEA Part C early intervention programs serving remote rural areas. These federally-funded programs are obligated to serve all eligible infants and toddlers in their areas regardless of degree of difficulty. Now, however, technology-based virtual home visits offer a way around those barriers in a way consistent with the current burgeoning digital culture. Though non-traditional, the new approach meets the criteria for service provision in a child's most natural environment, according to Sue Thain Olsen, director of the Division of Exemplary Services at Utah State University's Center for Persons with Disabilities.

Ms. Olsen is also the co-principal investigator for the CPD's two-year-old technology based

Steppingstones grant, administered by the Department of Education's Office of Special Education Programs (OSEP). She coordinates this program with Barbara Fiechtl and Dr. Sarah Rule. The study, a formative evaluation process aimed at improving programs, measures the feasibility of using technology to provide virtual home visits to infants and toddlers in the most remote rural areas of northern Utah.

"Technology, won't replace face-to-face contact with our families, but technology will supplement that contact and increase the frequency of services and contacts," declares Ms. Olsen.

"We're responsible for covering a geographical area 200 miles east to west, and 80 miles north to south," she explains. "The territory is carved up by two mountain ranges. Travel therefore becomes very complicated. This is rough country made even rougher by severe winters. USU – and the CPD – is located in the geographic center of this expanse in the territory's biggest urban area, Logan, Utah, where most of our staffers are located."

A Full Day of Travel for Each Home Visit

When Ms. Olsen's staffers travel to visit early intervention families in counties east or west of Logan they allow for a full day of travel. "We typically travel an hour or two in both directions to reach our families," she notes. Ms. Olsen, who has administered the Up to 3 Early Intervention program since 2000, says she quickly saw "that we could not provide the same level of service to children and families in outlying areas that we provided to children who live within a 30-minute drive from us or who live in the same valley where Up To 3's

offices are located. We are tasked with ensuring equity and individualized services. If a child needs something we should be there to provide what's needed. Logistically, however, we were unable to achieve that part of our mission."

USU's special education department at the time was conducting distance learning, she recalls. "We wondered whether a distance learning concept would



be useful in providing services to our families in remote areas. It was really Barb's idea. In 2007 we explored distance learning-type alternatives."

Back then, however, she notes, social media was not as popular. "Facebook and MySpace existed for fun networking but we needed something more prescribed. USU was using Breeze, a former Acrobat web conferencing program now known as Acrobat Connect which would enable us to do two-way audio and two-way video. We were encouraged."

Her team then mounted an unsuccessful attempt to garner a Steppingstones grant. "Consequently, we tried a pilot study in Up to 3. The study involved four families who lived close together and had in-home computers. Early intervention staffers are accustomed to sitting on the floor with kids and talking face to face with parents. We needed to find out if we could coach families well enough so they could implement the developmental strategies without watching us model the process."

The first field testing produced good results, Ms. Olsen says. "We learned to move our computers out of offices and put them in families' kitchens and family rooms so that we could connect with children during mealtime or play. We also learned teaching strategies like using a rag doll so the physical therapist could use the doll to demonstrate sitting positions."

As a result of her staff feedback, she recalls, "we examined the ways to increase our verbal input to families in terms instruction. We learned that we had to coach and mentor to build the parent's skills, because virtual home visits preclude physical modeling. Our staffers are not physically present in a family's home and are thus unable to demonstrate in person. We need to provide positive support and positive feedback while offering instruction. We learned to talk parents through new procedures, for instance talking a family through the steps to get their child to pull to stand at their couch."

Securing a Grant: The Second Time's a Charm

Olsen, Fiechtl and Rule obtained a Steppingstones grant on the second try, in August 2008. "During the first year we tried our approach on families that lived close by so that if we had to perform technology fixes we were near enough to drive to families' homes and show them how to put the software on their computers and hook up their mics and cameras." In that initial phase, she explains, "our plan was to start simple with the least amount of technology support and increase as we identified needs. We mailed out the cameras and mics to families who had computers with written instruction for downloading software. Most

parents did well but we had a few families that we needed to provide instruction to over the phone while they completed the tasks. We also learned that some families had good computers in their homes while others, usually young parents with very young children, often had old, slow computers that were unable to support high-speed Internet." In short, she adds, "we learned not to assume that just because a family has a computer that the equipment would work and would support the bandwidth we needed to stream the video and audio simultaneously without freezing and echoing. Those visits, when there were computer glitches, were miserable and frustrating" she commented.

We've used four video/voice Internet communications during the grant's two years," she notes: Breeze, Skype (<http://www.skype.com>), ooVoo (<http://www.oovoo.com/>) and VZOChat (<http://www.vzochat.com>), with Skype "being the most popular among our families and staff. In the process, we've evolved technologically from stick mics to laptops equipped with camera and a mic. The technology is moving very rapidly and is becoming relatively inexpensive. In the first year of the grant we spent \$80-\$100 a piece for cameras, because we wanted good resolution. We can now buy a wide-angle camera, with a mic, for \$30-\$40."



In the grant's next phase, she says, "we want to replicate our programs on a real-world basis in Utah." However, those programs, she

emphasizes, will not operate under the supportive umbrella of Utah State University. "The programs will need to access easy to use and affordable systems. For example, early intervention programs and families can download Skype for free. Skype is user-friendly, is constantly up grading and has very good technical assistance. If a user encounters a problem like an echo he/she can email Skype and receive a remedy in a return email; ooVoo and VZOchat have similar supports."

Gaining Internet Access: Improvisation Is Sometimes Necessary

Already the Steppingstones VHV program has fanned out into the state's rural areas to serve families that live 25 miles or more from the CPD base in Logan. "There are families for which income – and, thus, Internet access -- is often a problem," Ms. Olsen notes. "We found families using 'novel' Internet access," she says. "One family was accessing wireless service from the large truck stop next to their home. We were able to get them hooked up with a satellite IP," she states. "The grant pays for monthly Internet services for families who do not have any. It's still cost effective; we recoup the cost of Internet service in travel time and mileage reimbursement."

"We've learned that our most rural areas lack good, reliable Internet providers, which presented us with more logistic problems. The family that resided next to the truck stop lived about 120 miles from our center. The Internet provider who installed the satellite dish on the house was exceptionally slow to send someone to fix an equipment problem, whereas local IP's are able to resolve signal problems within 24 hours of the request."

To solve some of those problems, she explains, "we've begun using wireless technology supplied by cell phone providers, such as Verizon and Sprint. The technology is handy but the speed is slow and the signals are not always very strong."

Recently, she adds, "we discovered that one of our wireless service providers now offers a faster speed wireless card. We'll experiment with some new wireless USB cards and see how it works. Although Internet service is not often available for families on the rural and frontier areas they do typically have cell phone coverage. We're hoping that the wireless cards will offer faster speeds so that we no longer have to contend with frozen screens when we attempt audio and video streaming."

Bridging the Technology Gap: Laptops on Loan

In addition to problems with high speed, broadband Internet access, the project has had to address the lack of adequate computer access by participating families, Ms. Olsen explains. The VHV program is attempting to employ state-of-the art technology on very old computers used by those families. Laptops may finally bridge this technology gap, she hopes.

The condition of family computers brought to CPD for repair was one of the major factors that convinced Ms. Olsen and her team to move to loaner laptops. "The state of some of the family computers that were brought in for repair defies description. Some were filled with kitchen grease or with dust that was an inch thick. Many families simply are unaware that this equipment must be kept in good re-

pair.”

“We’ve bought our own laptops that we loan out to families. We purchase the laptops and set them up with the cameras and mics if needed. Most any laptop purchased today will come with a camera and mic that offer good resolution. We still might use an external camera to allow the parent to place the camera at an angle that a built in camera won’t allow. At times there is still an audio echo but the desktop application improvements have almost resolved that problem. During this past year we’ve found that we have to lock out families’ access to the web because they occasionally surf too much, which opens our laptops to spyware and viruses.”

CPD IT personnel have installed anti-virus protection on all the loaned laptops, she says, “but some of our younger families choke the online storage capacity with music downloads, causing the computers to crash. Although we’ve limited their use of the laptops, they are still able to email and Skype so they Skype with whomever they wish to Skype with. Which is a nice perk for families.”

The loaned laptop approach and use of the VHV model, she notes, “has done wonders for us in terms of cost savings for mileage and transportation, which are no longer negative factors for us.”



The Decision Point: When to Implement Virtual Home Visits?

Ms. Olsen explains that decisions about home visits are based on Individualized Family Service Plans (IFSPs). “The team that assesses child and family needs works with the parents when deciding the frequency and intensity of the service visits. Nevertheless, she states, “often the team members realize that the intensity of visits needed will be impossible due to travel and time.” Such an admission instigates a conversation, Ms. Olsen says. “This is when we suggest using our virtual visit system, which empowers a weekly virtual visit.”

This year’s brutal winter weather, she says, created both problems and opportunities. “We had a family that was living in a very remote area. The staff had to drive down a long dirt road to get to the house that was never plowed. This was an obvious problem. The mother told our staff, ‘You’ll never be able to get here in January or February because they don’t clear our roads, so I guess we won’t see you during those months. I don’t want you to come out then because you’ll get stuck or get hurt.’ The staff saw this as a perfect opportunity and solved that problem – with virtual home visits.”



Screenshot of Virtual Home Visit

Also this winter, she relates, “we had had a couple of children who are so medically fragile that they required multiple services, including vision, physical, speech and occupational therapies. The parents said to us, ‘We can’t have all these germs coming into our house during RSV season.’” Respiratory syncytial virus (RSV) is a common virus that leads to mild, cold-like symptoms in adults and older healthy children. The virus, Ms. Olsen emphasizes, can be more serious in babies, especially to those in certain high-risk groups. Infants under age five are most severely affected and often experience the most difficulty breathing.

“We also presented the family of this child with the virtual visit option. It worked. We get surveys back from the family stating, ‘We are glad we don’t have you germ people coming through our door anymore.’”

The Tradeoff

Mileage wise, Ms. Olsen says, “for my budget VHV represents a tradeoff as well as savings on salary for those occasions on which staff would normally be on the road. I’ve invested those savings in technology, specifically laptops and Internet connection for families who don’t have any.”

Still, she cautions, “Internet services cost anywhere from \$35/month to \$110/month depending on the provider, plus installation. We’ve been able to establish some partnerships with the Internet providers and they waive installation and contract requirements. About one-third of our families lack Internet in their homes. Over time I anticipate that the percentage will decrease as the digital population grows up and IP services outreach.”

Moving forward, she adds, “I guesstimate that 50% or more of the families in rural parts of this state will have Internet. Unfortunately, Internet access here remains expensive because ISPs do not want to cover remote areas. We’re hoping our wireless USB cards will prove successful. What’s important in this process is the selection of a company that has coverage of remote areas. Fortunately, a few of them are coming up to speed.”

The tradeoff, she adds, “is that we only see the child once or twice a month without VHV. On the other hand, we ask ourselves, are the quality issues we experience in the delivery pattern, like echoes, for example, worth it? The answer is, yes, because it often comes down to a virtual visit or limited visits. It’s like having a car that doesn’t run so well but without it you’d be walking. We’ll be living with those issues until the providers are more available and their services economically feasible.”

“I Hope the Virtual Home Visit Concept Makes Everyone Happier”

Federal law, Ms. Olsen notes, states “that we must serve everyone. We can’t have a waiting list. It’s our job to find children to serve. Now we can serve them more appropriately with a higher level of service, thanks to VHV.”

For example, sometimes face-to-face home visits encounter unanticipated roadblocks. Occasionally, she says, families are not at home when service providers arrive after driving for 90 minutes. “When that happens it is very disconcerting for everyone involved. We had some attitude issues with service providers who became disgruntled and discouraged when a family was not present at the

appointed time. The trouble is, if the provider calls to remind a family of their visit and they don't answer, the provider can't cancel the visit, the best they can do is say, 'I'm on my way and will be there in an hour – and I hope you're there.' I think that occasionally families believed that they were putting us out and that providing service to them – which is free -- was a burden for us. The result was that many of those families dropped out of services because it was a struggle for us and became a struggle for them. I'm hoping that the VHV concept makes everyone happier."

In year two of the grant, she continues, "we began conducting three-way meetings with our school districts. When a child reaches age three we end our services to that child. The child, if eligible, enters district programs. We must hold a transition meeting at least three months prior to a child's third birthday. The meeting includes the child's parents and the early intervention program's service coordinator and a school district representative. With families that live a distance away we were rescheduling meetings two or three times before a meeting actually took place. In these cases we usually ended up meeting just days before the child turned three years old. Three-way virtual meetings could put an end to those rescheduling problems."

Recently, she notes, "we've conducted meetings via Acrobat Connect Now, a very efficient desktop conferencing meeting system that al-



lows us to share our desktop, show our forms up and speak with the parents and school district as we complete those forms. We do digital signatures so that all participants realize that this is a legal document. In short, we get our meetings held in a timely fashion, which we were unable to accomplish earlier."

"Virtual Home Visits Fit the Current Culture"

While families appear to favor the virtual home visit concept, service providers' views are mixed, Ms. Olsen says. "With our Steppingstone grant, our families complete a post-visit survey, as do our therapists and service providers. Our parents are generally more favorable toward VHV than our service providers."

Surprisingly, she notes, for many families there may be some comfort derived from not having someone visit the home time and again. They're maybe relieved not to have to prepare the home for a physical visit. A virtual visit is non-intrusive. If I was one of our parents I think I'd prefer a virtual visit for that reason. I want to emphasize that our parents are always accommodating and gracious when we come into their homes either physically or virtually. Our parents rate virtual home visits higher than our therapists rate them, probably because the nature of therapy is hands-on and face-to-face."



As effective as virtual visits are, she continues, there is an inevitable loss of closeness. "There needs to be a high level of connectivity. That

need is one reason why we regard virtual visits as supplemental and not as a replacement for home visits. Early intervention staff like working directly with children and families. Motor therapists need to hold infants and toddlers to understand their tone and movement patterns."

In Australia, she points out, there is a nationwide program serving children with hearing impairments. Because of the remoteness of so much of that country virtual visits are all that are possible. Face-to-face home visits have been completely abandoned. For families there, virtuality is all they know.

The age-range of the VHV program's parents is a factor in their home visit preference, Ms. Olsen explains. "In Utah, couples often marry young and have children quickly. The majority of parents we work with range in age from their early 20s to mid-30s. Parents in their 20s think virtual visits are fine and cool. They are very techno-friendly. They think nothing of Skyping, for example. They were Skyping before they encountered us. Families headed by thirty-somethings are similar. That age range has grown up with computers."

"Virtual visits fit the current digital culture," she declares. "That's another advantage for the program. And our service providers are now younger as well. I'm hiring twenty-somethings out of college who are very comfortable working with computers. The timing is right for this."

The ability of families to cope with the VHV technology varies widely, Ms. Olsen says. "Some have new computers in their homes and are facile with the equipment. Others aren't and don't yet know how to access the

Internet. When we call families to see if they wish to participate in the VHV program we ask questions about their familiarity with computer technology, connection to Internet and experience with use of social media. Even if there is a lack of familiarity we have learned that we can coach families through the entire process, from sign-on to sign-off, by phone." We have also developed some online tutorials that a parent can watch that takes them through the steps of installing their cameras and mics and downloading the desktop software. We schedule practice sessions with them prior to their first visit to test their system and answer any questions."

Overall, she says, virtual home visits make families feel more connected to their service providers. "We haven't yet finished pushing out the qualitative data. However, we have a few families who live in remote areas that were taken out of the study

at the end of year one. They wanted to continue because they liked the VHV approach and ease of access to their child's therapists. That's very telling. We didn't reinclude them in the study but they do get virtual home visits."

If Sue, Barb, or Sarah had any doubt about the timeliness of VHV, that doubt was dispelled when the team presented at the Division for Early Childhood (DEC) conference in October 2009. "The room was packed. The attendees were there because they were interested in the technology and because they were inter-



ested in the same issues we were interested in. As the economy becomes tighter we have to be more creative in how we deploy and implement VHV technology," she declares.

The lone fly in the ointment at this point, Sue points out, is not knowing whether the U.S. Department of Education's Office of Special Education Programs (OSEP), which also administers the Steppingstones technology grants, will view the VHV approach as meeting the natural environment criteria. "Putting virtual home visits on an equal footing with home-based visits is crucial," she declares. "I'm not sure the question has been posed to OSEP yet. To my knowledge Utah is the first state investigating the use of distance "home-based" service. We have support from Utah's Part C lead state agency – in our case, the Department of Health – we hope to give them sufficient evidence to support the efficacy of the service methodology. The Part C re-authorization will occur in the next year or so. Perhaps that's when the virtual home visit option question will be posed."

Ms. Amy Henningsen is an occupational therapist and AT practitioner in the CPD Up to 3 early intervention program and the Utah Assistive Technology Program. She has been a VHV therapist and views the opportunities that technology provides as an essential element for early intervention children.

AT training, she points out, would make VHV even more effective for early intervention families and service providers. Such training is missing in early intervention in Utah, Ms. Henningsen adds. The UATP conducts AT training webinars. "The technology produces live semi-

nars with an interactive feature that enhances audience participation. Use of this technology has increased the capacity of the day-to-day early intervention provider. That's very important in a state like Utah. To be able to bring people together for AT trainings is difficult, so the virtual connection is vital. "

Communications Technology for Verbal and Non-Verbal Children

Sue Olsen and Amy Henningsen each work with verbal and non-verbal infants and toddlers. For both women, communication strategies and technology are an integral part of their practice.



"Communication is part of everything I do with a child," Ms. Henningsen comments. "We start with children who have no functional communication skills and then work forward from there in encouraging a child to interact with his/her environment. Technology helps get their attention and hold it. So we can apply coaching techniques within the framework of the basic intentional communicative behaviors common to all children."

Ms. Henningsen comments that Ms. Stacey Sessions, CCC-SLP, is an augmentative communication specialist who works with the children through the Techno Tots class. "There we perform an extensive evaluation in the areas of communication, positioning and mobility, environmental access for play and learning, and early literacy. We begin with basic skills and then advances to higher, more sophisticated technologies as apparent for the individual child and family."

"We matched a little boy with a neuro-chemical disorder with one of the higher electronic communication devices - a dynamic screen. The boy could touch the screen and move from one communicative page to another. He was able to navigate his own communication system. In that situation we actually had a family whose members were very proficient at using the computer. We showed the family members how to program the device, the features they ought to include, how to make pages and perform related tasks. The parents took it and ran with it. Their child had physical limitations but normal cognitive ability." The technology she employs, she explains, ranges from one-step communicators to sophisticated high-tech speech generated communication devices such as the PRC SpringBoard (www.prentrrom.com), the Dynanox Dynomo (www.dynavotech.com), and others.

Technology Combats Helplessness, Promoting Independence

According to Ms. Henningsen, the use of assistive technology can be a significant motivator for very young children who lack the ability to access their environment without the assistance of a parent or caregiver. To address these needs and to fulfill the legislative requirement to evaluate and to provide assistive technology services and devices, the Up to 3 program offers the Techno Tots home-based and center classes.

For those children with severe physical, cognitive, or communicative limitations, technology offers access to the world of play and learning and a means to communicate their basic wants and needs. "During those first two years of life novel things that blink and make noises

are fascinating for young children," she says. "When kids are unable to access their world it is very sad, especially for those children who are bright and sharp but who are unable to act on the busy boxes or toys that have lights, sound and music." Without this stimulation, she insists, helplessness too often becomes a critical aspect.

"If children are unable to cause anything to happen in their environment they give up. Later on these children can be provided with multiple ways of accessing their environment, but unfortunately they have learned early to depend on others to meet their needs. Their lives become based around social interaction. At Techno Tots, children who are unable to walk can learn to operate a power wheelchair; children who are unable to speak or express their desires are introduced to communication boards and/or electronic communication devices; children who are unable to play independently have access to adapted toys and switches that activate battery operated toys or computer programs."

She adds, "assistive technology is so empowering because otherwise they have no means to control their environment. This past year, we were able to introduce a little boy to the use of an electronic communication device and a powered wheelchair. We began operating the wheelchair with a single switch so he could go forward and stop. When he graduated from our program we had acquired a powered wheelchair for him that he uses at home. He is three years old. Now when his mother summons him, he'll go the opposite way! It's the first time in his life he has the ability to say 'no and run the other way.' He's a teenager

at age three!"

Ms Henningsen's group also uses technology to promote early literacy skills using adapted books and computer access. "For infants and toddlers words don't mean much. We use digital photos of family members and familiar things within their own environment. We can put the photos into a PowerPoint format. We have an AT program here and AT classes through special education and the department of communicative disorders. The college students participating in those programs and classes assemble PowerPoint books. We teach the students how to adapt a mouse so a switch can be plugged into it. Then when the child hits the switch they can turn the pages actually 'read' their own story book. We also help families create a CD for home use. This helps integrate computer access into a family's daily life."

Transitioning to Part B: "There Are Things That Need to Happen"

Preparing infants and toddlers to move from IDEA Part C to Part B services for school age children, is an ongoing challenge for Sue Olsen and Amy Henningsen. Says Ms. Olsen: "When I returned to the early intervention field following a short absence I realized, from an administrative point of view, that we were sending kids out of our program who didn't walk, didn't have a form of mobility and we hadn't done anything about it."

"We had not been proactively supporting families and addressing children's mobility needs.



Sometimes it seems that we're stepping on a family's dreams but we have to continue telling parents, 'It's not that we don't expect the child to talk or walk but there are things that need to happen so that a child can participate in school and playground activities or go to the park with your family.' One of our goals for the program is to have these conversations with families – and sometimes the conversations are difficult. However, if we develop the right relationship with the families they will know that these difficult conversations are in a child's best interest."

Their goal, Ms. Olsen states, "is to ensure that every child leaving our program, if possible, has some kind of mobility device, whether a walker, a scooter or a chair or stroller and that the child possesses a communication device providing assistance ranging from signing to a picture exchange to augmentative communication. Meeting this goal challenges us every day. We know that when the child goes into Part B he/she will leave the family's home and enter a very different world." In that new world, she emphasizes, "a child should not be carried off the bus or down the school corridor. If a child has to be carried, how does that make him/her appear to peers? Even at age three, kids begin to wonder how other children can do things by themselves while he/she remains stuck."

Increasing Families' Knowledge of AT Options

Early in a child's life his/her family members are likely not very knowledgeable about their child's disabilities nor about assistive technology options. Amy and her colleagues teach

family members to advocate for their child in both areas.

“Parents of kids with significant disabilities are taught advocacy skills immediately upon completion of a child's diagnosis; parents of children with milder disabilities are taught these skills a little later. Our service coordinators advise families about how to advocate for their children. We let parents know that we expect them to ask the hard questions. We have to be brave enough to tell families that we expect them to advocate even when their advocacy might prove to be problematic for us.”

Amy has learned, she says, that the shock of having a child with disabilities forces parents to deal with difficult truths. “These parents soon learn that the strength and determination they need to deal with their child's issues was always there, waiting to be called upon. Our task is to nurture that. This tough love approach toward parental advocacy, Ms. Henningsen says, “ensures families that they should expect their child with a disability to have all the same advantages as their other children who don't have disabilities. That's sometimes a tall order.”

CPD, Ms. Olsen explains, maintains a post-high school program for youths ages 18-22. “They come here to learn job and life skills and to work at the university. Fortunately, Amy and I have been around so long that we can remember when those kids were in our early intervention programs. Their parents continue to advocate for them, encouraging them to go to work and have jobs. The parents are still plugging away. So are we.”

By the Numbers: Year One Quantitative Findings

Under the Steppingstones grant, Virtual Home Visit project staff developed a direct observation system to (a) record interactions between children and adults (family members, others present, and service providers) during both virtual and face to face home visits and (b) track technical problems that interfered with the session and/or observation of the session. During the project's first year, a total of 81 recordings were collected of virtual and home visits. Video recordings were made of one to three face-to-face and all virtual visits with 11 families. Recordings, with the exception of one 8 minute recording, were at least 10 minutes in duration and ranged up to 66 minutes in length.

Of the 81 recorded visits, reliability checks were conducted on 16, with two observers viewing the recording simultaneously but independently. The mean percentage of overall agreement was 82%, with a range of 75-100%.

The preliminary data from the first year indicated that families and service providers were highly engaged throughout the visits. Interactions centered on early intervention services and interactions with children in activities to support their development. Children were engaged with families and providers and instances of children's distress were rare (the mean percentage of intervals across visits for families in which distress was observed was 2%, with a range of 0 to 6%).

The nonparametric Wilcoxin signed rank and Spearman correlation tests were conducted to compare interactions (between the family, therapist, and child) between the two visit formats. Interactions were similar. Borderline statistically significant differences between the two visit formats emerged only in discussion of general programmatic issues. Service providers engaged in such discussions during a mean percentage across families of 16% of intervals during virtual visits compared to 10% during face to face visits.

The service providers' interactions with children demonstrated ways that parents might interact with children to promote their development. However, if providers were to support parents in carrying out these activities on their own, the parents needed to engage the children directly. Thus, "coaching" – when providers observed families as they engaged with their children and gave suggestions and feedback – was measured. The mean percentage of intervals across visits for families in which coaching occurred (63% for virtual and 55% for face-to face visits) was not statistically significantly different between the two formats. However, inspection of the data for individual families indicated that providers' engagement in coaching varied considerably across different families. (For six of the 11 families, coaching was higher during virtual visits. For three families, the mean percentages of intervals across visits in which coaching was observed was either the same or differed by less than 8 percentage points between the two visit formats).

RESOURCES

ARTICLES

Assistive Technology and Peer Socialization in Early Childhood Special Education: Part III

By Phyllis Dinse

AT Network (2008)

Aimed at parents of young children with disabilities and their service providers, this article focuses on readily available no-tech and low-tech assistive technology that can enhance a child's ability to engage in independent play with classmates. The author cites the following materials usually located in the art area of a child's classroom: slant boards, utensil grips, adapted paintbrushes, finger/bulb crayons, painting mittens, scented and textured paints, textured paper or templates, food activities, adapted scissors, textures for drawing (such as rice or sand). She also recommends manipulatives including play dough, textured puzzles, puzzles with magnets, adapted knobs and computerized puzzle games. For emergent literacy she suggests slant boards that hold books, books on tape, AAC pre-recorded chants, interactive books with corresponding picture buttons, books with textures, feel books and the use of the computer for storytelling via digital narration, books with raised pictures and interactive reading books.

<http://www.atnet.org/index.php?page=assistive-technology>

Developing Visual Skills for Children Who Face Cortical Visual Impairments

By Linda Burkhart

Simplified Technology (2008)

Linda Burkhart discusses the strategies that Dr.

Christine Roman has developed to help children with cortical visual impairment. Burkhart reminds readers to integrate communication and visual strategies and outlines several successful strategies aimed at refining the following skills:

- usable visual fields; skills to process visual novelty and visual complexity; coordinated looking with listening (letting the child see and recognize before introducing auditory information);
- visual focus (using movement to promote the difference between objects and the background); gaze (using limited motion to lessen visual latency);
- increased visual motor skills; skills to encourage language and auditory communication but not at the expense of visual skills.

<http://www.lburkhart.com/handcvi.htm>

Early Intervention: Assistive Technology for Motor Invention

By Lori Potts, PT

Rifton's e-Newsletter (2009)

Although AT has numerous benefits for infants and toddlers with disabilities, barriers remain to its acceptance and use, write Ms. Potts, a physical therapist. Those barriers include: a lack of confidence in AT among service providers, some of whom remain unfamiliar with its benefits, and unfamiliarity with AT among family members. She supports an outcomes-focused, activity-based approach to early intervention in which AT is employed from the beginning.

<http://www.rifton.com/resources/articles/fieldissues/assistivetechonology.html>

Assistive Technology for Early Intervention

By Amy Henningsen

Utah Assistive Technology Program (2009)

Ms. Henningsen, an occupational therapist and AT practitioner associated with the Center for Persons with Disabilities' Up to 3 early intervention program explains the role of AT in IDEA Part C early intervention programs.

<http://www.uatpat.org/resources/training/Transcription%20of%20Assistive%20Technology%20for%20Early%20Intervention%20Part%202.pdf>

Supporting Families in Transition between Early Intervention and School-Age Programs

By Cheryl Johnson

Hands & Voices (2008)

The author, a member of the Special Education Unit, Colorado Department of Education, focuses on the emotional and sometimes difficult transition experienced by children and their families when children move from IDEA Part C to Part B services. In order to make the process family-friendly, Ms. Johnson recommends that families and schools take the following measures:

- Prepare for Individualized Family Service Plan (IFSP)/IEP transition meetings
- Regard pre-school as a transition
- Maintain consistent and effective communication with a child's school
- Establish roles and expectations together
- Continue home visits
- Structure flexible programs and schedules
- Use the communication plan that has been established in advance
- Establish a parent support group
- Facilitate kindergarten visitations

<http://www.handsandvoices.org/articles/education/law/transition.html>

GUIDES

Early Intervention Assistive Technology Guidelines

Illinois Department of Human Services (2009)

In addition to defining and describing AT and appropriate AT devices within the framework of early intervention guidelines, this report lists the following available and appropriate AT under IDEA Part C: aids for daily living such as bath chairs and adaptive utensils; assistive listening devices such as hearing aids; assistive toys and switches that include single-use switches, switch battery adapters, switch-adapted toy items; augmentative communication devices such as symbol systems, picture or object communication boards, communication enhancement software; computer access aids; mobility devices such as braces, walkers, certain types of orthotics, self-propelled walkers and crawling assist devices; positioning devices that include standers, walkers, floor sitters, chair inserts, trays and side-lyers; visual aids such as optical or electronic magnifying devices, hand-held or spectacle mounted magnifiers, and light boxes

http://www.dhs.state.il.us/OneNetLibrary/27896/documents/By_Division/DCHP/EI/EIAssistiveTechGuideandAttach.pdf

Early Intervention Assistive Technology Resources Chart

Tots-n-Tech Research Institute (2008)

This AT resource chart identifies target outcomes for the child, family, and service providers, as well as systemic outcomes. It also identifies the goal in using AT to achieve the outcomes.

http://www.asu.edu/clas/tnt/presentations/OSEP_handout_FINAL.pdf

FACT SHEETS

Assistive Technology for Infants, Toddlers and Young Children

Technical Assistance Alliance for Parent Centers (2009)

This FAQ sheet answers the following questions concerning early intervention and AT:

- What types of assistive technology devices can infants and toddlers use?
- Why is AT important?
- How can a family obtain AT for an infant or toddler?
- If an infant is not eligible for early intervention services under IDEA, how will a parent know if the child could still benefit from using an AT device?
- What qualifies as AT for children who are eligible for intervention under IDEA?
- Under IDEA, where can AT devices and services be obtained?
- Under IDEA, who pays for AT devices and services?
- What types of training can be provided?
- How does a parent request an AT evaluation?
- What is the most effective way for an infant or toddler to be evaluated for an AT device or services?
- Where can parent obtain more information about AT or IDEA?

<http://www.taalliance.org/publications/pdfs/all7.pdf>

WEBSITES

Early Connections: Technology in Early Childhood Education

Created by the Northwest Educational Technology Consortium, this website disseminates information to parents, teachers and care-

givers on a variety of topics related to teaching and supporting the developing child. The website is divided into categories by age from birth through the primary grades. Topics addressed include after school care, technology and implementation, software/hardware and classroom management. <http://www.netc.org/earlyconnections/child-care/technology.html>

Mark Sheehan's Special Education/Exceptionality Page

Mr. Sheehan's web page is an online resource guide with hundreds of links to a wide range of disability organizations and resources. Included are reports from the government, technology vendors and parent/teacher supports. The site is updated frequently and new links are indicated.

<http://www.halcyon.com/marcs/sped.html>

AT for Infants, Toddlers and Young Children

Created by the National Early Childhood Technical Assistance Center, this webpage provides a spectrum of information on early intervention AT. Topics include: AT overview; federal laws; state AT contacts; AT funding sources; projects funded by the U.S. Department of Education's Office of Special Education Programs (OSEP); relevant national organizations; Universal Design for Learning (UDL); and other useful resources.

<http://www.nectac.org/topics/atech/atech.asp>

SOFTWARE

Look2Learn

MDR, Inc.

Look2Learn is augmentative communication software for very young children whose cognitive development exceeds their ability to use expressive language, for children with autism or those with long- and short-term medical challenges that impact speech and for those with speech/language disorders. The software works through the iPhone or iPod Touch. The software utilizes photographs to express wants and needs. Eighty preloaded photographs in 6 different categories are available or families can use personal photos. Options are customizable according to age or cognitive levels. Some photos can be hidden to reduce choices. Photos can be renamed resized and categories added. Natural voices are used for voice output. Cost: \$24.99.

<http://www.look2learn.com/look2learn/Home.html>

AT Success Stories

The FCTD has a feature on its website called "AT Success Stories." The success stories highlight a child or teenager who is using some form of assistive technology. Through this feature, we hope to share the achievements of many young people with disabilities and how their successes were aided by assistive technology.

We are currently looking for children to participate in this feature. If you have or know of a child/teen who has experienced success through the use of assistive technology and who would like to be featured, please contact us at fctd@aed.org

KNOWLEDGE NETWORK MEMBERS

Up to 3 Early Intervention

CENTER *for* PERSONS *with* DISABILITIES *at Utah State University*

Affiliated with Utah State University's Center for Persons with Disabilities (CPD), Up to 3 provides services to families with infants or toddlers, under the age of 3, with developmental delays, disabilities or diagnosed conditions with a high probability of resulting developmental delays. Program staff implements family-centered practices which feature an Individualized Family Service Plan (IFSP) that directs specific services and designates service providers. Up to 3 services include:

- A full assessment of a child's current health and development status
- Service coordination among providers, programs and agencies
- Strategies to build on family concerns, priorities and resources (CPR)
- Developmental services including occupational therapy, physical therapy and speech language therapy
- Services directed towards a specific disability/health condition, such as autism, sensory integration, feeding and swallowing
- Virtual home visits in conjunction with the CPD Steppingstones virtual home visit grant

For more information, contact:

Up to 3 Early Intervention

Center for Persons with Disabilities

Utah's University Center of Excellence

6800 Old Main Hill

Logan, UT 84322-6800

Phone: 435-797-1981

<http://www.cpd.usu.edu/projects/upto3/>

Center for Best Practices in Early Childhood Education

Affiliated with the Western Illinois University College of Education and Human Services, the center:

- Provides collaborative services related to the education of young children, including information, consultation, staff development and training events, and technical assistance
- Produces materials that support best practices which can be used by a wide audience to support and extend young children's learning
- Disseminates information and products generated by the Center to a wide audience
- Serves as a resource center for a variety of topics and needs related to improving educational opportunities for all young children

The center provides a wide array of online workshops, including the following, provided by its Early Childhood Technology Integrated Educational System: Adaptations; Computer Environment; Curriculum Integration; Emergent Literacy; Expressive Arts; Family Participation; Math, Science, and Social Studies; Software; and Technology Assessment.

For additional information, contact:

Center for Best Practices in Early Childhood Education

Western Illinois University

Horrabin Hall 32 - 1 University Circle

Macomb, IL 61455

Phone: (309) 298-1634 x 248

Email: l-robinson1@wiu.edu

<http://www.wiu.edu/thecenter/>

Early Childhood Intervention (ECI)

A statewide program affiliated with the Texas Department of Assistive and Rehabilitative Services, ECI provides evaluations, at no cost to families, to determine eligibility and the need for early intervention services. Services are provided in home and community settings such as child care facilities, play groups and Mothers' Day Out programs. They may include:



- Assistive technology: services & devices
- Audiology and vision services
- Early Identification, screening & assessment
- Family counseling and education
- Medical services (diagnostic or evaluation services used to determine eligibility)
- Nutrition services
- Occupational, physical and speech-language therapy
- Service Coordination

The following services are provided at no cost regardless of family income:

- Evaluation/assessment
- Development of the Individual Family Service Plan (IFSP)
- Service coordination
- Translation and interpretation services, if needed
- Services for children with auditory and visual impairments who are eligible for services from ECI and local school districts
- Services for children in foster care or in conservatorship of the state

Families with children enrolled in Medicaid or CHIP, or whose income is below 250% of the Federal Poverty Level, do not pay for any ECI

services.

For further information, contact:

Early Childhood Intervention
Department of Assistive and Rehabilitative Services

4800 N. Lamar Blvd. Austin, Texas 78756

Phone: (800)-628-5115 (toll free); (866) 581-9328 (TTY)

Email: DARS.Inquiries@dars.state.tx.us

<http://www.dars.state.tx.us/ecis/eligibility.shtml>

Tots-n-Tech Research Institute (TnT)

A collaboration between Philadelphia's Thomas Jefferson University (TJU)



and Arizona State University (ASU), the institute provides timely information, resources and early intervention-related technical assistance to states, early intervention providers and families nationwide. TnT also conducts a national AT research program focused on the following areas: AT use; adaptations and development of meaningful outcomes; policy and resources; decision-making and practices; training and support; dissemination and products. For more information, visit their website at: <http://tnt.asu.edu/>

Tech for Tykes

This collaboration between Early Intervention



Colorado, the Colorado Department of Human Services and Assistive Technology Partners of the University of Colorado/Denver

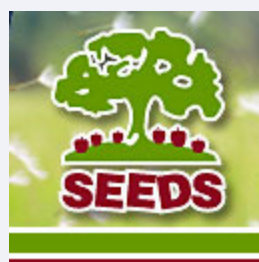
expands delivery of AT services in Colorado to infants and toddlers and administers AT training for early intervention professionals statewide. Those trained then act as a clinical resource for other early intervention providers and programs in their local communities by supplying AT assessment, consultation, and intervention. They also have access to an AT loan bank from which they can check out equipment for trial use by children and families. For more information, contact:

Tots for Tykes
 601 E. 18th, Suite 130
 Denver, Colorado 80203
 Phone: (800).255.3477 (inside Colorado); (303) 837-8964 (TTY)
 Fax: (303) 837-1208
 Contact: Brian Burne, Assistive Technology Specialist
 Email" brian.burne@ucdenver.edu
<http://at-partners.org/techfortykes/index.html>

SEEDS (Supporting Early Education Delivery Systems) Workgroup on Early Education Technology (SWEET)

The SEEDS Workgroup on Early Education Technology (SWEET) was created in August 2005 to address one of the seventeen topical areas identified by early intervention staff throughout the State of California. SWEET's purpose is to connect California's early intervention programs and families to assistive technology resources for young children with disabilities.

Members of SWEET have collected Internet-based information, materials and training



designed to streamline access to up-to-date and useful information for EI programs and families. SWEET offers a series of Internet links to more information on AT for young children by providing a categorized listing of websites that have been peer reviewed by the workgroup for appropriateness and utility in an early intervention setting. The links for infants/toddlers are organized into five areas: training, advocacy/information, best practice, assessment, and resources. Also included are SEEDS Visitation Sites that specialize in AT for infants and toddlers with disabilities and their families.

For additional information, contact:
 SEEDS Project
 Sacramento County Office of Education
 P.O. Box 269003
 Sacramento, CA 95626
 Phone: (916) 228-2379
 Fax: (916) 228-2311
 Contact: Kathleen Sadao, Program Specialist
 Email: ksadao@scoe.net
<http://www.scoe.net/seeds/resources/at/at.html>

Early Intervention Research Institute (EIRI)

EIRI is an interdisciplinary organization that investigates and improves policies and practices that support the well-being of at-risk children as well as those with special needs and their families. The institute conducts research and provides training and technical assistance at the community, state, national and international levels. For more information, contact:



Early Intervention Research Institute
Center for Persons with Disabilities'
Utah State University
6580 Old Main Hill
Logan, UT 84322-6580
Phone: (435) 797-1172 (800) 887-1699 (toll free)
Fax: (435) 797-2019
Contact: Richard Roberts, Director
<http://eiri.usu.edu/>

Rainbows United, Inc.

Rainbows United is a Kansas state wide organization specializing in early childhood development and early intervention. Services include: assessments and evaluations; environments for young children; center-based preschool sessions; therapeutic and typical child care; therapies; nursery services; autism; services, hearing impaired services, health services, transportation services, home-based services; community-based education/training services; community training; mental health services; respite care; home and community-based services; specialized foster care; and parenting programs. For additional information, contact:



Rainbows United, Inc.
Family Enrichment Center
340 S. Broadway
Wichita, KS 67202
Phone: (316) 267-5437 (888) 332-5437
Fax: (316) 267-5444
Contact: Lorraine A. Dold, President/CEO
Email: info@rui.org
<http://www.rainbowsunited.org/>

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