

# THE WONDERS & RELEVANCE OF ACCESSING ASSISTIVE TECHNOLOGY

PACER Center • Building Program Capacity to Serve Youth with Disabilities • **Session 4**

## 1) Workshop Preparation Suggestions

When conducting a training workshop, there are several basic planning considerations that need to be made. Most of the trainers who use this curriculum will already have their procedures for workshop planning in place. Information is included in **Session # 1** for those who may need additional suggestions.

## 2) Introduction of Presenters and Attendees: *12 minutes*

To foster an atmosphere where participants are both comfortable talking and have the opportunity to do so, we recommend no more than 35 participants attend the session. Depending on the size of the audience, you will want to limit the amount of time for introductions. We suggest having each attendee state their name, the name of the organization they represent, and if time allows, briefly state their relevant professional or personal experience with people with disabilities. Speakers should role model presenting this information in roughly thirty seconds. (If the size of the group is too large, there will not be enough time to allow for this type of introduction.)

## 3) Agenda: *2 minutes*

*\*(Refer to the Agenda overhead transparency – slide 1)*

- Welcome & Introductions
- Overview of Assistive Technology (AT)
- AT for Work & School
- Hands On Time with AT (if available)
- Large Group Exercise
- Funding and Resources

Give a brief overview of the agenda and a few sentences about each topic that will be covered.

**-Ask group: *Q: Any questions?***

**PACER Center, Inc.**

#### **4) Goal of this Session:** *1 minute*

The **objective** of this session is to give a broad overview of assistive technology, what's available and where to find the various options presented. Participants should not expect to leave as experts on this topic, but feel more comfortable making referrals and working with assistive technology in their work with youth.

**-Ask group:** *Q: Any questions about what we are to cover today?*

#### **5) What is Assistive Technology & Why Use It? :** *10 minutes*

**-Ask group:** *Q: Does anyone want to offer a definition of assistive technology or give some examples?*

One example is the walking cane. This is an “assistive technology” because it helps someone to walk. It is very simple and probably has been around since prehistoric days. It demonstrates that assistive technology (AT) is not necessarily ‘high tech’.

*\*(Refer to the What is Assistive Technology overhead transparency – slide 2)*

Our current view of assistive technology has been influenced by the advent of computers and computer technology. An example of this newer technology is “voice recognition”, where a person talks into a microphone and a computer types out on the monitor what has just been verbalized. This technology is very useful to people with certain types of disabilities such as a physical impairment that makes it difficult for them to use a computer keyboard or mouse. People with learning disabilities who have difficulty with writing but have good verbal skills can also benefit greatly from voice recognition technology.

*The Assistive Technology Act of 1988's definition of assistive technology is inclusive of both assistive technology (AT) devices and services. AT devices are defined as: “...any item, piece of equipment, or product system used to increase, maintain or improve the functional capabilities of a person with a disability.” This definition states: ANY device. ‘Services’ in this definition means: “...any service that directly assists an individual with a disability in the selection, acquisition or use of assistive technology”.*

Assistive technology may be important for youth you are working with who are still in the school system, and are covered under the Individuals with Disabilities Education Act (IDEA). School systems are legally required to consider assistive technology for any student who has an Individualized Education Program (IEP). If you are working with youth who are in the school system and they have an IEP, the need for AT should be considered as part of their plan. Remember, schools can be a potential resource for assistive technology, if you're working with a student with a disability.

\*(Refer to *Why Use Technology?* overhead transparency – *slide 3*)

- Greater Independence and Participation
- Enhanced Learning and Success
- Increased Self-Esteem

Why use technology? How can it be useful? Here is an example: A seventeen year-old boy with a reading disability uses a computer to read an electronic version of a *Harry Potter* novel. A computer program reads the words out loud as he reads along. It highlights each word as it is spoken out loud. This technology can be very useful to someone who is not able to read *all* the words, but can make the connection by hearing them spoken aloud. This boy had listened to audio-taped versions of books but was ecstatic to learn he could acquire them in this electronic form and read them himself. The next book he planned to read was *Fellowship of the Ring!* This technology can influence self-esteem, literacy, and ultimately broaden career opportunities.

\*(Refer to “*Working Together: People with Disabilities and Computer Technology*” and “*Working Together: Computers and People with Learning Disabilities*” handouts from DO-IT for additional reading on this subject)

-Ask group: *Q: Any questions?*

## **6) Overview of Assistive Technology:** *20 minutes*

We are now going to review various categories of assistive technology. Categories covered include:

- Daily Living Aids
- Hearing and Vision Technology
- Environmental Aids for Daily Living
- Ergonomic and Architectural Adaptations
- Mobility and Positioning
- Transportation
- Computer Access
- Communication Tools
- Technology for School and Work
- Recreation and Sports

Using the following chart as a guide, explain in detail some benefits to each assistive technology that is available. The appropriate overhead transparency is listed under the “Assistive Technology” column. If possible, have actual examples of some of the types of assistive technology available to pass around for participants to look at. Once again, we suggest partnering with other agencies if you do not have the capacity to do this yourself.

*(Note to Facilitator: Provide cost information for each category of assistive technology. If necessary have your local AT specialist provide that information. Past participants of this session found the cost information very helpful.)*

<b>ASSISTIVE TECHNOLOGY</b>	<b>POSSIBLE BENEFICIARIES</b>	<b>EXAMPLES/ FUNCTION</b>	<b>COST</b>
<p><b><u>Daily Living Aids</u></b> <b><i>overhead transparency</i></b></p> <p><i>*(Refer to overhead slide photo- slide 4)</i></p>	<p>People who have difficulty with daily activities: dressing, grooming, bathing etc.</p>	<p>-Utensil cuff assists people in holding a spoon, comb etc. Aids those with minimal or no grip strength</p> <p>-Button hook assists in buttoning clothing one handed</p> <p>-Talking watches</p> <p>-Talking calculators</p> <p>-Tub benches</p> <p>-Grab bars</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>
<p><b><u>Hearing and Vision Technology</u></b> <b><i>overhead transparency</i></b></p> <p><i>*(Refer to overhead slide photo- slide 5)</i></p>	<p>People with sensory impairments; Deaf, hearing impaired, blind or low vision</p>	<p>-Clock with visual alert and/or vibratory component</p> <p>-Video magnifiers and computer screen magnifiers for people who are blind or have low vision</p> <p>-Text telephones (very portable and affordable)</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>

<p><b><u>Environmental Aids</u></b>  <b><u>for Daily Living:</u></b>  <b><i>Voice-activated Control System &amp; Switch Accessible Control System</i></b>  <b><i>overhead transparency</i></b></p> <p><i>*(Refer to overhead slide photo- slide 6)</i></p>	<p>People unable to use light switches, buttons on TV or VCR, or other appliances in their environment</p>	<p>-Voice activated “controls” - For example, turning on the radio by saying “radio on”.</p> <p>-Switch accessible controls – allows person to control their environment with a switch. A device scans through favorable options, then the individual chooses the one he/she wants by activating the switch.</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>
<p><b><u>Ergonomic &amp; Architectural Adaptations:</u></b>  <b><i>Computer Station with Keytray Extension &amp;</i></b></p>	<p>People who use wheelchairs and cannot roll up under the desk or table</p>	<p>Extended keyboard tray attached to desk</p>	
<p><b><i>“Visitable” Home</i></b>  <b><i>overhead transparency</i></b></p> <p><i>*(Refer to overhead slide photo- slide7)</i></p>	<p>People who wish to improve the functionality of their homes or living spaces or make their spaces accessible to individuals with disabilities.</p>	<p>The “visitable” home – reflects universal design. There are fewer barriers: a wheelchair accessible entrance and bathroom, wider doorways, levers on doors, etc.</p>	<p>It is more cost effective to include in original house design than to go back and add on accessible features after the home is built.</p>

<p><b><u>Transportation:</u></b>  <b><i>Adapted Van &amp; Customized Vehicle Controls overhead transparency</i></b></p> <p><i>*(Refer to overhead slide photo- slide 9)</i></p>	<p>People who need assistance to drive a vehicle: wheelchairs/scooter users.</p> <p>Those with foot reflex or pressure issues, chronic pain.</p>	<p>-Adaptive vans and cars with lift/ramp</p> <p>-Customized vehicle controls</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>
<p><b><u>Computer Access:</u></b>  <b><i>Mouse Alternatives, Switches &amp; Alternative Keyboards</i></b></p> <p><i>*(Refer to overhead slide photo- slide 10)</i></p>	<p>People with hand/eye dexterity &amp; control issues, paralysis, tremors, etc.</p>	<p>Alternative Mouse Control: <u>Examples:</u></p> <p>-Trackball (upside down mouse with ball on top) in various sizes</p> <p>-Electronic pointing devices attached to the head</p> <p>-Switches</p> <p>-Alternative keyboards, various sizes and varieties</p> <p>-Keyboard guards – protects computer user from pressing undesired keys</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>
<p><b><u>Communication Tools:</u></b>  <b><i>Message Device (Medium – Tech) &amp; Computerized Device (High Tech)- overhead transparency</i></b></p>	<p>People who are non-verbal or unable to speak due to a stroke, brain injury, paralysis, etc.</p>	<p>-Digitalized or synthesized speech communication devices such as “Cheap Talk” help a person communicate using a number of pre-recorded</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>

<p><i>*(Refer to overhead slide photo- slide 11)</i></p>		<p>messages. These can be mounted to the person's wheelchair for easy access</p>	
<p><b><i>Technology for School &amp; Work: Electronic Books &amp; Talking Computer, Portable Spell Checkers with Speech &amp; Portable Notetakers overhead transparency</i></b></p> <p><i>*(Refer to overhead slide photo- slide 12)</i></p>	<p>People who have learning disabilities, who are blind or have visual impairments, difficulties with spelling and/or issues with handwriting or organizing. Deaf or hard of hearing individuals</p>	<p>- Electronic Books &amp; Talking Computer</p> <p>-Portable Spell Checker with Speech Capabilities</p> <p>-Portable Notetaker</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>
<p><b><i>Recreation Sports: Sports-Adapted Wheelchair, Uni-ski &amp; Card Holders overhead transparency</i></b></p> <p><i>*(Refer to overhead slide photo- slide 13)</i></p>	<p>People with various types of disabilities: limited mobility, amputation, hand strength/dexterity issues</p>	<p>-Sports-Adapted Wheelchair –used for numerous kinds of sports including: wheelchair basketball, tennis, track &amp; relay, etc.</p> <p>-Uni-ski – used for downhill skiing with one ski or two skis used in a sitting position</p> <p>-Card Holder – device that holds cards that usually are held in the hand</p> <p>-Adaptable Fishing, Hunting and Archery equipment for one-handed use</p>	<p><b><i>Please consult with your local assistive technology specialist for current cost of this technology.</i></b></p>

## 7) Assistive Technology and Workplace Issues: 15 minutes

**-Ask group: Q:** *Based on this brief overview of assistive technology, what devices and systems have you used already? Have they been easy to use? What about availability and cost?*

Process answers with the group. At least a few individuals will likely have used or know someone who has used some of the examples that have been covered. Explain how accessible and integrated some of these devices are in our way of life. Perhaps they have seen:

- disabled athletes on TV competing in the Para-Olympics;
- people who drive adapted vans who park in disability parking at the local shopping mall, etc.;
- someone using a scooter while grocery shopping;
- captions on the monitor of televisions in restaurants, airports, and health clubs.

Emphasize that assistive technology has been around and used in our society for some time. It just may be that we haven't really noticed it before.

Now let's take a closer look at how AT might benefit the youth you are working with in the arena of employment and youth development.

When working with youth who are still in the school system and who have an IEP, school is the place to investigate assistive technology. By partnering with the school, youth can "try out" technology in the classroom that may be transferred with them into the workplace. For example, a *portable note taker* used for classes, may also be an option at a job where an employee would be required to take instructions and then perform a particular task.

*\*(Refer to overhead slide photo- slide 14).*

It is important for youth to understand that needing and asking for an accommodation (in this case, assistive technology) to do a job, is NOT special treatment. Rather, it is a means for them to work at their highest ability. Since finding a job is in one sense a marketing or promotional effort, the youth needs to learn, with your assistance, how to market not only themselves but also to educate potential employers about assistive technology and the benefits of using it.

It is beneficial for you to work with youth as they learn to understand what technology they can use (and perhaps need) to function in a job, and help them prepare to present this information to the employer. They can practice selling themselves and their abilities and answering any questions regarding its purpose (i.e. "...this is what I CAN do and this is what I use to do it.")

**-Ask group: Q:** *I know you may have some concerns about working in this area. What are some reasons you would NOT be comfortable using or recommending some of this assistive technology to the youth you work with?*

Process with the group their answers. Possible responses could include:

- An employer or potential employers will assume the technology is too expensive and they can't afford it
- The youth/family will assume they must pay for the technology and they do not have financial capability to do so
- Too difficult and time consuming to research or find this type of technology
- The youth doesn't want to appear "different" than any other job candidate or employee

*(Note to Facilitator: Facilitator and participants should then address these concerns and brainstorm strategies to tackle each issue raised.)*

**BREAK:** 10 minutes

## **8) Writing and Reading Tools:** 10 minutes

There is significant research suggesting that literacy skills are vital to higher earning potential and successful job outcomes. These AT devices can help youth with disabilities improve their reading and writing skills. They can also act as job accommodations in the work setting. Consult your local AT specialist for the most current products available. The following are a few examples:

*\*(Refer to Writing and Reading Tools: Talking Computer Books & e-Books overhead transparency- slide 15)*

-The **Talking Word Processor** can be used for both reading and writing. The software program is called Write Out Loud and is made by Don Johnston Incorporated ([www.DonJohnston.com](http://www.DonJohnston.com)). It is designed specifically for youth not adults. It is similar to a regular word processing program except that it highlights and speaks out loud what is typed. You can also access the talking spell-checker and choose the appropriate spelling.

This technology benefits those who are auditory learners. It has a phonetic spell checker for those who make phonetic misspellings. It also has a dictionary option and is able to speak in full paragraphs. Another way to utilize this technology is to 'cut & paste' scanned text from a book or manual.

-**e Books**. Electronic books are available on the internet for a fee. You can purchase and download a book onto a computer or portable device with a headset that will read the book out loud while you read along.

-**Speaking Homework Wiz** is a talking spell checker by Franklin and is designed to be used with a headset. Instead of scanning a word, you just type the word and it reads it for you. It

provides suggested words and the user chooses the appropriate one. It also can provide the definition of a word. There is an advanced one for adults and a basic design for youth.

-**The reading pen** has an optical character recognition system that allows the user to scan words from a page and have them read out loud. It also has a dictionary function and can be set to scan either right or left-handed. It can be used with earphones. It is not as effective when reading large amounts of type or a whole book. It is limited in its capability of not being able to read cursive handwriting or colored text on a colored background.

## **9) Voice Recognition:** *5 minutes*

Voice recognition technology has become much more advanced and affordable in the past decade. It used to cost thousands of dollars but has now become fairly main stream. Software products that are commonly used are *Dragon Naturally Speaking 6.0* and *QPointer Voice*. For Macintosh systems, there is *ViaVoice for Mac*.

The major limitation using this particular technology with youth is the need for diligence in the setup and training process. It takes patience because the software does not always recognize everything being said and can make mistakes. The individual will need to take the time to go back, edit and make corrections. If youth are impatient with the process of problem solving they may not stick to this process and another technology may be better suited for them. The next 4 slides show examples of youth with disabilities using assistive technology in the workplace.

-**Ask the participants:** *Q: Any questions?*

*\*(Refer them to the Assistive Technology section of the “Project SWIFT Staff Training Resource List” handout for specific organizations, companies and websites that deal with this technology.)*

## **10) Optional: “Hands-On” Time with Assistive Technology:** *45 minutes*

### **WORKSHOP CONTENT OPTION**

If you have access to an organization, like PACER Center’s Simon Technology Center (in Minnesota), your state assistive technology project, or a business that has assistive technology available, we suggest that you provide a “hands-on” segment at this point in the workshop.

Allow for 30-45 minutes for participants to actually sit down and use some of the devices and software that you have just introduced to them.

Offer them a diversity of devices to try, so they can get a better idea of what is available and how easy or complicated they can be to use.

Allowing participants to see and use the technology can be a powerful learning experience. Individuals are more comfortable recommending items they have seen and used themselves rather than something they are not familiar with.

**11) Group Exercise with Case Studies:** *30 minutes; 15 minutes for small group brainstorming, 15 minutes for large group processing*

The purpose of this section is to engage participants in brainstorming and creative thinking about how the youth they work with might access and use assistive technology. **We strongly suggest having an assistive technology specialist on hand to help guide participants through this exercise.**

Break participants up into small groups of 3-5 people. Have participants count off between 1 through 4 to mix up groups. Assign each group one of the four case studies designed to elicit problem-solving skills and quiz their knowledge level.

Facilitate large group discussion of each group's answers.

*\*(Refer to "Assistive Technology Case Studies Worksheet" for this exercise)*

***Case Study #1***

A youth with a reading disability and poor spelling skills is employed at a photo-processing center. He has difficulty reading certain words in the directions explaining how to use the photo processing equipment. His coworkers have complained that they can't read his notes for customer orders due to misspellings and illegible handwriting.

***Q: What assistive technology could you suggest the youth and his employer use to address these issues?***

Possible Answers *(suggested in pilot discussion groups):*

- Type instructions into the photo shop's business computer and then print it out and give to co-workers.
- Use portable spelling and/or note taking technology. (It can be connected directly to a printer to provide multiple copies)
- Use a laptop computer if one is available at the photo shop.
- Use email as a regular way to communicate with co-workers and manager.
- Other?

***Case Study #2***

A youth with cerebral palsy has limited use of her upper extremities. She cannot hold a pencil to write but can use a trackball and computer keyboard. She is starting to apply for entry-level jobs, but is unable to read and complete the applications independently.

***Q: How would you coach this youth to market her skills and what assistive technology could you investigate to accommodate her?***

Possible Answers (suggested in pilot discussion groups):

- Research funding options so she can purchase her own software, headset, monitor and track ball devices. She then can apply and go on interviews for jobs she feels qualified for. If the issue of accommodations is raised, she can show them how she uses her computer tools. She is not only selling herself but also educating the potential employer by ‘showing them’ how easy it is to adapt their workplace to her needs.
- When she needs to fill out an application, she could ask for assistance from someone at the business she is applying at.
- When she needs to fill out an application, she could bring her headset and trackball and ask to use their computer to fill out the application.
- She could find out if the application is online and fill it out at home with her assistive technology and then submit it via the internet.
- She could take a class on and practice doing ‘cold calls’ to potential businesses and practice her verbal skills. This is a great way to enhance her networking and sales abilities.
- Other?

### ***Case Study #3***

A youth who is deaf is taking distance-learning training classes on the Internet for the new job she just landed. She has been doing well in the class thus far, communicating with the instructor and her classmates via email, but now the students are required to participate in a telephone discussion as part of a group project assignment.

***Q: Is there a way she can participate in the phone conference or should the instructor adapt the assignment differently for her?***

Possible Answers (suggested in pilot discussion groups):

- Use a transcription service that transcribes the teleconference ‘live time’ for the Deaf student; everything that is spoken is transcribed.
- Hire two sign language interpreters (they take turns interpreting after about 45 minutes to ensure they have enough stamina and accuracy capabilities) to be on the phone in the presence of the Deaf person and then whoever is speaking on the teleclass would identify themselves and the interpreter would interpret what each participant is saying, including the Deaf student. (Make sure that the Deaf person actually uses sign language as an accommodation and have her recommend a certified interpreter who she likes to work with.) Costs for interpreters can be anywhere from \$100-\$300 an hour.
- Request using an online chat system instead of a teleconference format.
- Other?

### ***Case Study #4***

A youth who has an expressive writing disorder just graduated from high school and has come to you to find a job. He has difficulty transferring his thoughts into written form, such as his writing class assignments, journal entries, papers, and taking notes. However, he excelled on oral presentations to the class and demonstrated excellent comprehension when tested verbally.

***Q: What assistive technology could he access for any writing tasks that he may encounter in jobs that he applies for?***

Possible Answers (suggested in pilot discussion groups):

- He could learn to write by voice using voice recognition software that would help him dictate letters, reports, and other business documents.
- Other?

***-Ask the group: Q: Any further questions or comments about any of the scenarios or issues that we covered so far?***

## **12) Funding Process & Availability: 10 minutes**

A common misperception about assistive technology is that there is one agency all people can access to get their needs met. In reality, assistive technology is usually consumer driven, meaning people who want it have to find it.

People throughout the nation have used an enormous range of funding resources to meet their assistive technology needs. Many children and adults receive at least partial funding of assistive technology through government-funded programs, while other use strictly local, non-government sources. Others use a combination or pay for some equipment out-of-pocket.

The goals for technology will determine the selection of equipment and prioritizing of potential funding sources. For example, Vocational Rehabilitation, special education, and Medicaid are the three largest government programs that fund assistive technology for adults and children who qualify for their services. The services and funding provided by these programs are available to those who meet the program's specific eligibility requirements. But, saying someone is *entitled* to services is not saying what those services will be. Services vary according to decisions states make about implementing the program, the availability of funds, and individualized assessments of need and potential. For example, an individual might be receiving Medicaid but not be entitled to a particular piece of assistive technology unless the state purchased it from an approved vendor and it was deemed "medically necessary" for the individual.

Federally funded employment and training programs such as Ticket to Work or WIA-funded adult and youth programs do not have specific monies earmarked for providing assistive technology to their participants. But it is possible to secure AT for the workplace through these programs by incorporating it into the plan of service. Most "services" that people can access include a plan for how the goal of the service will be achieved. For example, a consumer accessing VR services will develop an Individual Plan for Employment (IPE) that outlines activities to meet the goal of sustained appropriate employment. A person with a disability who needs AT to be successful in the workplace should advocate having money for AT included in their plan for service.

In WIA employment programs assistive technology can be considered a “supportive service”, one of the 10 required youth program elements.

If you think you may have a client who would benefit from some type of assistive technology, you will find it useful to begin collecting information on all potential sources of access and funding as early as possible.

### **13) Resources:**

**Handouts:** 1) “Working Together: People with Disabilities and Computer Technology”  
2) “Working Together: Computers and People with Learning Disabilities”  
3) “Assistive Technology Case Studies Worksheet”

**Resources:** 1) Refer to the “Building Program Capacity to Serve Youth with Disabilities: *Resource List*”

Highlight various organizations and websites explaining what they offer.

### **14) Evaluation: 5 minutes**

Ask the participants to take the last few minutes to fill out the evaluation form.

### **15) Close:**

Thank them for their presence, involvement and interest in this project