

Young Children and Assistive Technology for Communication

When a child's natural ability to speak out loud breaks down or is non-existent, his/her communication skills need to be augmented. Augmentative/Alternative Communication devices (AAC) assist a child who has speech and language impairments to use his/her skills and abilities to facilitate language development and enhance child/caregiver interaction.

CATEGORIES OF AAC DEVICES

Augmentative communication devices are typically divided into several categories, "no tech," "low tech," and "high tech". It is critical to understand that each category is not exclusive, and a child who uses augmentative communication relies on, and should use, a variety of strategies to communicate.

No Tech is the use of natural communication. These strategies include gesturing, eye gaze, and sign language. This communication is usually specific to the child and may require a familiar person such as a caregiver to "interpret" what is being communicated. Working closely with a speech-language pathologist can help caregivers identify what methods the child is currently using and/or can be enhanced.

Low Tech is the use of external materials such as pointing to pictures or the use of digitized speech output systems.

High Tech is the use of sophisticated computer-based devices that have a variety of capabilities. They typically use synthesized speech (computer generated) and have an extensive amount of memory. They can also be used to draw and can be programmed to control things in the environment such as turning on the TV, the lights, or access the computer.

Low Tech AAC Devices

One type of low-tech AAC is a communication board. Communication boards can have familiar photographs of people and objects, line drawings, picture symbols, letters, numbers, and/or words pasted or printed on them. These "boards" may look like books, folders, cards, wallets, or lap trays. A child can access these communication boards by touching the pictures with a finger, looking at them with their eyes, or using a pointer stick.

Low tech AAC also encompasses simple speech output systems or VOCAs (Voice Output Communication Aids). With a VOCA, the child makes a choice, usually by pushing a button or a picture on a special keyboard and the device speaks the choice. The child's language ability can be matched easily by recording simple word combinations. For example, a child can push the button with the picture of an apple on it to have the device say, "Food, please," or a more complex phrase such as, "Want more food, please." Low Tech AAC devices typically use digitized speech which is recorded human speech (like a tape recorder). Digitized speech is very understandable to those who are not familiar with the child.

Low-tech systems are easily programmable (usually set by holding a record button). They allow anywhere from 10 seconds to 60 minutes or more of recorded speech depending on the memory of the device and are typically used only for communication.

They use pictures, symbols, letters or words (that can be added or removed) on their "keyboards" to represent spoken messages. "Symbols" or "icons" can represent often-used phrases like, "I want more." or "Help please!" Or they can represent single words like yes, no, he, she, want, get, etc. which the child can combine to make a variety of sentences.

Some common low tech digitized speech systems include single message devices like the BigMac and One Step from AbleNet, and multi message devices such as the Tech/Four, Tech/Talk, and Tech/Scan (AMDi), Easy Talk (Sym Systems), and the Chatbox (Saltillo). These devices can range from \$100 to \$1,500.

High Tech AAC Devices

Like low-tech devices, high tech AAC devices can be activated by using a pointer stick, a body part, eye gaze or by more advanced methods like using a light-pointing device (infrared). These devices can also be accessed by scanning (moving through choices automatically and sequentially). With scanning, the child hits a switch (a button) to start moving through choices and hits the switch again to select what he/she wants to say. There are a variety of scanning options available. A team evaluation will help determine the most appropriate method.

High tech devices can generate speech by using word-by-word production, or phrases and sentences. These devices typically use synthesized speech which is computer speech that says what the child selects. Synthesized speech can be

more difficult to understand than digitized speech to an unfamiliar listener, but current advances are being made to make this speech clearer.

Some common high tech AAC devices include: the DynaMyte, and DynaVox (Sentient Systems); the AlphaTalker (Digital), DeltaTalker, Pathfinder, Vanguard and Vantage (Prentke-Romich); the Parrot and the McCaw (Zygo); System 2000 and Message Mate (Words+); and Speak Easy (AbleNet).

With specific software, personal computers (Windows or Macintosh) can also be used as voice output AAC devices. Examples include: Intellikeys/Intellitalk (IntelliTools), Key Largo and Talk:About (Don Johnston, Inc.); Speaking Dynamically (Mayer-Johnson); KeyREP (Prentke-Romich), Talking Screen and EZ Keys (Words+), and GUS (GUS Communications, Inc.)

Most often these products can be set up for pointing directly to choices or scanning. If scanning is needed, some means for plugging in a switch (an interface) is required.

High tech AAC systems can range from \$1,500 to \$9,000 or more.

AAC EVALUATIONS

For any caregiver who is considering the use of augmentative communication for their child, the first step is to get a complete team evaluation. The team members include, first and foremost, the child and family including siblings, a favorite cousin, aunts and uncles, grandparents, or anyone else important in the child's life. In addition, the team can consist of some or all of the following specialists: speech-language pathologist, occupational therapist, physical therapist, audiologist, physician, rehabilitation engineer, social worker, teacher, and psychologist. It's important to note that in some settings, product vendors are present to set up or demonstrate the device. However, take into consideration that some vendors may not make the most appropriate recommendations given their interest in selling their product.

During the evaluation, the team examines the strengths and abilities of the child including physical, language, social, and pre academic skills. Once all information is gathered, the team discusses feasible options, and based on the preferences and characteristics of the child, selects the method(s) and/or device that is most appropriate.

Service Providers

Assistive Technology Partners
601 E. 18th Ave., Suite 130
Denver, CO 80203
303/315-1280 Main
800/255-3477 within Colorado
303/837-8964 TTY

Assistive Technology Partners
Western Slope Technical Assistance
Center (WesTAC)
2897 North Ave., Module 3A
Grand Junction, CO 81501
970/248-0876 Main
970/248-0877 FAX/TTY
www.uchsc.edu/atp

Child Find
303/866-6694

Community Center Boards
303/832-1618
www.caccb.org

Early Childhood Connections (ECC)
Part C Network
888/777-4041

Early Periodic Screening, Diagnosis
and Treatment (EPSDT) Program
303/692-2324

Public Health Department
303/692-2370

The Children's Hospital
Audiology/Speech-Language
Department
The Pavilion
1919 Ogden St.
Denver, CO 80218

303/861-6800
www.tchden.org

Equipment Manufacturers

AMDi
31 Watermill Lane,
Great Neck, NY 11021, USA
1-888-353-AMDi
Fax: (516) 466-2435
www.amdi.net/

AbleNet, Inc.
1081 Tenth Ave. S.E.
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1-800-322-0956 U.S. & Canada
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www.ablenetinc.com

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Verona, WI 53593-0160
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www.attainmentcompany.com

Daedalus Technologies Inc.
800/561-5570
604/244-8443 FAX
www.daessy.com

Don Johnston, Inc.
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800/999-4660
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www.donjohnston.com

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2100 Wharton Street Suite 400
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800/344-1778
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www.dynavoxsys.com/

Enabling Devices
385 Warburton Ave.
Hastings-on-Hudson, NY 10706
800/TEC-TOYS (800/832-8697)
914/478-7030 FAX
www.enablingdevices.com

Enkidu
247 Pine Hill Road
Spencerport, NY 14559
800/297-9570
www.enkidu.net

The Great Talking Box Company
2245 Fortune Drive, Suite A
San Jose, CA 95131
408/456-0133
408/456-0134 FAX
www.greattalkingbox.com

GUS Communications, Inc.
1006 Lonetree Court
Bellingham, WA 98226
360/715-8580
360/715-9633 FAX
www.gusinc.com

Intellitools Inc.
1720 Corporate Circle
Petaluma, CA 94954-6924
800/899-6687
707/773-2001 FAX
www.intellitools.com

Mayer-Johnson, Inc.
P.O. Box 1579
Solana Beach, CA 92075
800/588-4548
858/550-0449 FAX
www.mayerjohnson.com

Prentke-Romich, Inc.
1022 Heyl Road
Wooster, OH 44691
800/262-1984
330/263-4829 FAX
www.prentkeromich.com

Saltillo
2143 TR112
Millersburg, OH 44654 U.S.A.
800/382-8622
330/674-6726 FAX
www.saltillo.com

TASH
Richmond, VA 23233
800/463-5685
804/747-5224 FAX
www.tashinc.com

Words +, Inc.
1220 W. Avenue J
Lancaster, CA 93534-2902
800/869-8521
661/723-2114 FAX
www.words-plus.com

ZYGO Industries, Inc.
P.O. Box 1008
Portland, OR 97207-1008
800/234-6006
503/684-6011 FAX
www.zygo-usa.com

Other Resources

AbleData

www.abledata.com

Search for adapted toys, augmentative communication and play items in this database for assistive technology and disability related resources.

The Center for Best Practices in Early Childhood Education

<http://www.wiu.edu/users/mimacp/wiu/ACTTiveTech.html>

Lists articles regarding using technology with children in the classroom.

Closing the Gap

www.closingthegap.com

Provides information on products, augmentative communication, and has interactive forums regarding augmentative communication.

Handspeak Online Sign Language Dictionary

www.handspeak.com

Search for signs and see them in motion on this online sign language dictionary.

Let's Play Project

cosmos.buffalo.edu/letsplay/AT/at.html

Offers ideas about enhancing play opportunities to children and assistive technology including positioning, mobility, communication and toys.

Simplified Technology

www.lburkhart.com

This site provides useful information about assistive technology from hands on information to web and vendor resources.

For more information contact:

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