Augmentative & Alternative Communication Devices
AT Device To Enhance Speech Communication

- **Augmentative and Alternative Communication (AAC):** “includes all forms of communication (other than oral speech) that are used to express thoughts, needs, wants, and ideas”

- An **AAC System** refers to an individual’s complete functional communication system that includes a communicative technique, a symbol set or system, and communication/interaction behavior. (Each AAC components discussed later.)

- There are no specific guidelines for the use of AAC systems. Rather, they are generally considered when speech is inadequate for a person to communicate effectively.
Communication Boards

- Picture Symbols
  - Board Maker
  - Digital Pictures
- Tactile Symbols
  - Visually Impaired
  - Physical representation or symbol
Low Tech

- Voice Output Buttons
  - Big Mac
  - Little Mac
  - Step by Step
- Switches
- Latch Timers
  - PowerLink
Static Display & Multi-Window Examples
Tash from Ablenet

- Series of joints, terminal switch mounts, and tubing
  - Pieced together to create as custom a mount as is needed
  - [http://www.ablenetinc.com](http://www.ablenetinc.com)
    - Search for Mounting Products under “Products”

- Tash Mounting Arm
Slim Armstrong
Selection technique is chosen according to user's motor strengths & needs

- **Direct Selection Systems:**
  - Require some form of directional movement as a means of pointing.
  - The user directly selects the desired item (e.g., object, picture, word) by one of three typical selection techniques:
    1. Finger-pointing
    2. Head-pointing
    3. Eye gaze-pointing.

- **Electronic Direct Selection devices:**
  - Usually use a keyboard or membrane board that allows the individual to make selections by pressing the pictured item on the display
SELECTION TECHNIQUES FOR AIDED COMMUNICATION SYSTEMS

- **Scanning System:**
  - User selects choice when the scanner gets to the desired icon in a row or column.
  - Auditory scanning is used if the user's visual skills are insufficient to use visual displays.

- **3 Scanning Types:**
  1. **Row-column:** Items arranged in grid are highlighted row by row, and the user responds when the desired row is highlighted.
  2. **Linear:** Indicate items one by one.
  3. **Rotary:** A rotary device looks somewhat like a clock, with items appearing on the outer edge of the device, and a pointer (similar to a second hand) moves around the circle. When the pointer reaches the desired item, the user makes his or her selection.
Membrane keyboards allow devices to be customized for each child’s needs with respect to the number, size, and spacing of pictures or other items.

An overlay may have a single item or dozens of items.

Some membranes require more activation pressure.

- young children may sometimes find it difficult to apply enough pressure to activate the board.

Some devices offer optical pointing: small pointing device is positioned on the user’s head, and the communicator points to items on the device by moving the head from side to side or up and down.

Some systems are operated by nonscanning switches.

- A switch can activate a portable tape player with a continuous-loop tape. With this approach, the message is recorded and played repeatedly.
Direct selection: the user selects the switch used for each message.
- Some speech output devices allow the user to speak a single message each time a switch is depressed.
  - These devices use numerous switches,
  - Each one responsible for playing a particular message.
  - Type of
- Scanning
  - Several systems are operated by a single switch, using step, inverse, or automatic scanning techniques.
  - Users begin with simple scanning techniques and progress to more complex techniques as their abilities allow.
Types of Voices in AAC System:

2 major categories of voices used in electronic systems:

1. **Synthesized speech** is produced electronically and is programmed by some form of text-to-speech procedure.

2. **Digitized speech** is essentially recorded human speech and is recorded using a microphone, usually one built into the device.
AAC
Rules of Commitment

Rule 1:

- Be committed to the most effective communication system for the individual being served.

- The AAC assessment may be the single most important event in the life of a person who relies on AAC.

- Where that person goes in life will be influenced by communication effectiveness.
Rules of Commitment

Rule 2:

- Be committed to following your professional code of ethics.

- All members of the team must not only agree, but also be motivated to provide the system and services that result in the highest level of personal achievement.

- In addition, the team must be working toward helping the child develop communicative competence that results in a spontaneous, interactive exchange of information, feelings, and thoughts.

- Parents should be asking team members how their educational plan and recommendations are going to help their child communicate effectively.
AAC
Rules of Commitment

Rule 3:

- Be committed to involve consumer & family in service delivery process.
- Children & parents have rights to assistive technology under the Individuals with Disabilities Education Act (IDEA).
- Family involvement in the Individualized Education Plan (IEP) process should be motivated by what is best for the child.
- Parents may need to remind team members that the reason for all these procedures is because of their child.
- A Consumer-C entered Service Delivery model places the team members and processes in proper perspective.
- The consumer and family are the focal point, and parents may even decide to request outside supports.
- Each person on the team has a contributing role in achieving the identified outcomes.
- Outcomes are influenced by the environment.
- Defining the roles and responsibilities of the individual team members in this model can have a positive influence on Rule 4.
Rule 4:

- Be committed to achieving the maximum outcomes for the individual.
- Stakeholders are those with an interest in the outcomes of the process.
- Stakeholders in the AAC service delivery process include the service delivery team and others, including administrators, funding agencies, and so on.
- Parents need to realize that because of different roles and responsibilities, some stakeholders are vested in achieving different outcomes.
- Clinicians and therapists tend to be more concerned with outcomes related to clinical results and functional status, whereas administrators and funding agencies will be more concerned with best use of staff time and cost effectiveness for service delivery.
- Consumers and family members have concerns connected to quality of life and satisfaction issues. Acknowledging differing interests can help teams reach a better understanding of contrasting positions and swifter resolutions to any disagreements.
AAC
Rules of Commitment

Rule 5:

- Be committed to advocating for language. If the team agrees on the central goal of AAC as being the highest possible personal achievement, then language becomes the focus of assessment and intervention.
- Unfortunately, many AAC strategies and programs focus on modifying behaviors, such as providing for classroom vocabulary, rather than real communication.
- The technology is used to promote responses to environmental cues and the child is limited to activating scripted messages.
- Little language learning is possible when no provisions are made to explore and create self-generated utterances.
- Parents need to ask questions about the ability of the language representation method & technology to facilitate language acquisition & growth and not just foster routine behaviors and compliance to tasks.
- A sure sign of a behavior focus to therapy is the prevalence of nouns, colors, and other words that would be considered extended vocabulary.
- Mastery of basic core vocabulary words should precede the introduction of vocabulary specific to daily activities and academic subjects.
AAC
Rules of Commitment

Rule 6:

- Understand the merits of ALL language representation methods.
- The three commonly used language representation methods are single-meaning pictures, spelling, and semantic compaction.
- The outcome an individual who relies on AAC is able to achieve depends heavily on the language representation method(s) being used.
- Ease of use at first encounter may not be most effective in the long run.
- Single-meaning pictures involve the use of graphic or line drawn symbols to represent single word vocabulary or messages (phrases, sentences, and paragraphs). Reading skills are generally not required for using this method. However, recognition of symbols (especially abstract concepts) is facilitated by the presence of words associated with the symbols.
- These words, however, are useless and possibly distracting for anyone who cannot read. By the very nature of the system, a large vocabulary also requires a large symbol set.
- Consequently, having quick access to any symbol can become an issue for augmented communicators needing more than just a very limited number of words or messages.
Rules of Commitment

Rule 6 continued:

- Spelling, sometimes referred to as traditional orthography, involves the use of the alphabet. Generally, spelling and reading skills are required.
- Although the symbol set is small, spelling letter by letter is a slow and inefficient AAC strategy. Acceleration techniques such as abbreviation systems and word prediction are commonly used with spelling to reduce the number of keystrokes.
- However, disadvantages in increasing the memory and reading demands for these acceleration techniques can outweigh any advantages.
- Research has shown that word prediction is no faster than spelling.
- Semantic compaction or “Minspeak” involves the use of a relatively small set of multi-meaning icons that do not require spelling and reading skills.
- The specific meaning of each icon is a function of the context in which it is used.
- Minspeak is perhaps the most commonly used AAC language representation method, because of its ability to handle both vocabulary and rules of grammar and support the notion of a core and extended vocabulary.
Rule 7:

- Support the language representation method(s) for core and extended vocabulary access that best serve the interest of the individual.
- Vocabulary selection and organization has been one of the most widely researched topics in AAC.
- Access to a vocabulary based on the notion of core and extended categories is more important than vocabulary frequency lists to support vocabulary selection.
- The vast majority (approximately 85 percent) of what we say in daily situations consists of a few hundred core words. Most of these core words are determiners, verbs, adjectives, prepositions, indefinite pronouns, and the like.
- They are not familiar nouns typically associated with given activities or situations. Rather, situation-specific nouns would be considered extended, or fringe, vocabulary.
Rule 8:

- Advocate for the AAC system that supports the chosen language representation method(s).
- Most individuals reaching the goal of AAC are using multiple language representation methods with the AAC system.
- Observation of their achievement indicates the use of semantic compaction for core vocabulary access and spelling for extended vocabulary words.
- Single-meaning pictures appear to have limited use for when the individual only requires access to a small core vocabulary set or for access to extended vocabulary when the individual cannot spell.
Rule 9:

- Be committed to using language activity monitoring to support clinical intervention.
- The most useful and beneficial information on which to base decisions regarding educational and clinical AAC services are analyzed performance data (language samples taken from natural settings).
- This is done by using automated language activity monitoring, a procedure that is relatively new to the field of AAC. Tools to facilitate the collection and analysis of language samples for individuals who use AAC devices are just now being developed.
- Use of language activity monitoring will provide team members with detailed information from spontaneous language samples to measure changes in communicative performance.
- An objective, realistic record of how the child is using technology in different settings will soon be possible. Easy comparisons between vocabulary use, amount of communication, and methods used can be made over time and across activities.
AAC
Rules of Commitment

Rule 10:

- If unable to adhere to any of these guidelines, be truthful about it to the individual, family, and advocates.
- If parents are in doubt regarding the commitment of a team member, they must feel empowered to question the continued participation of that member on the team.
- Not every professional will have the same level of commitment, motivation, and willingness to learn new technologies and strategies.
- Rule 10 provides an opportunity for any team member to express discomfort with what is being expected of him or her.
- It also provides for disclosure of being “between a rock and a hard place” relative to making recommendations that may be contrary to administrative directives, such as “Don’t write that into the IEP, or the school will have to buy it.”
Accent™ 1200 is our new, high-performance AAC solution with advanced functionality and user-friendly features.

The first in a new line of powerful AAC solutions from PRC, Accent 1200 makes communicating and connecting faster and easier for pediatric, teen, and adult users.

Accent 1200 is preloaded with PRC’s proven language development software and features an array of built-in support resources for users and clinicians, including a Context-Sensitive Help function and language development resources from PRC’s AAC Language Lab. Plus, Accent 1200 lets users enjoy social interaction with friends and family via two cameras for picture-taking*.  

*Internet access $7595.
Accent™ 700 offers advanced functionality and user-friendly features, making communicating fast and easy for users of all ages. Accent 700 is PRC’s smallest, most portable device that features Unity™, the proven language system from PRC.

Accent 700 is preloaded with Unity® and NuVoice™ software. NuVoice, the powerhouse behind Unity, offers built-in support resources for users and clinicians, including a Context-

Sensitive Help function, and resources from PRC’s AAC Language Lab. Enhanced audio ensures that the user can be heard in a variety of settings. Wi-Fi

$4995
Accent 700-SB – PRC

- Accent™ 700-SB, with NuVoice™ software, is PRC’s smallest and most portable AAC solution and offers advanced functionality and user-friendly features that making communicating fast and easy.

- Accent 700-SB is preloaded with the updated SB Vocabulary based on the popular Springboard Lite. NuVoice software offers built-in support resources for users and clinicians, including a Context-Sensitive Help function and language development resources from PRC’s AAC Language Lab.

- Front and rear cameras
- Integrated Bluetooth® connectivity
- Language Activity Monitoring (LAM)
- Windows® 7 operating system

$2495
ECO2 is PRC’s most advanced AAC device and Windows® 7-based computer in one – fast processing speed and plenty of computing power for greater communication results. “One touch” transition from computing to speech output.

A dedicated version of ECO2 without the computer capabilities is also available to meet Medicare/Medicaid funding requirements. With its large 14.1" XGA TFT display, larger keys make access easier for those with visual or motor challenges.

ECO comes pre-programmed with a full range of Unity®, the innovative language software featured in PRC devices.

- Infrared environmental control functions control common IR devices (lights and TV/DVD players)
- Integrated Bluetooth® connectivity
- Notebook capability creating or storing txt
- USB for switches, head pointing, mouse-Scanning

$7895.00
ECO2 with ECOpoint – PRC

- PRC's newest technology! Setting a new standard for eye-gaze systems. Now you can access your ECO's full communication & computing power with just your eyes!
- Powerful two-part system: ECO2 and all its product features, functionality and language options bundled with our new eye-gaze technology.
- We've listened to your feedback and incorporated new technology to improve ECO performance. The new ECO2 is PRC's most advanced AAC device and Windows® 7-based computer in one, now with faster processing speed and more computing power for greater communication results.
- A dedicated version of ECO2 without the computer capabilities is also available to meet Medicare/Medicaid funding requirements.

*Internet access $15145.00
Essence Pro – PRC

- A communication device for adults that is SIMPLE TO USE and EASY TO ACCESS, even as motor abilities change.
- Essence™|PRO is PRC’s most advanced AAC device and Windows® 7-based computer in one — fast processing speed and plenty of computing power for greater communication results. “One touch” transition from computing to speech output. With its large 14.1” XGA TFT display, larger keys make access easier for those with visual or motor challenges.
- Three USB 2.0 ports and one USB Mini-B
- USB keyboard and mouse
- IR capabilities and environmental controls
- Mounting plate (use with QRM-2)
- Two-position table-top stand
- Access Methods: Touch-screen, on-screen keyboard, keyboard and mouse, visual and auditory scanning, 1-, 2-, or multi-switch pointer
- Environmental controls

*Internet access $7895.
DynaVox Maestro

- DynaVox Maestro includes a camera, Wi-Fi and Bluetooth and a camera.

- It is perfect for people who are learning or have mastered language, literacy and communication skills.

- It can be hooked up with a headmouse or other alternate supplements.

- DynaVox Maestro allows the user to communicate with more ease.
DynaVox EyeMax

- DynaVox EyeMax allows users to make selections on their communication device using their eyes.

- This can increase the speed and effectiveness of communication for those who have trouble using their hands.

- Users need to have the ability to focus on an object for a brief period of time.
DynaVox Express

- DynaVox Express is portable & good for users who are on the go
- Users who can easily select communication items on a small screen would benefit from this device
- It includes a calendar that reminds them to take medication or make appointments
Dynavox V

- Send text and e-mail messages, and make phone calls from within the InterAACt communication software using the access method of your choice.

- Control household appliances equipped with infrared receivers or X-10 controllers with the built-in infrared (IR).

- Integrated USB and switch ports make it easy to connect switches and other accessories.

- Run Microsoft Windows 7-compatible applications directly on a standard V+ or operate an external computer with the AccessIT
Dynavox EyeMax
DynaVox Express

- The built-in camera allows for easily personalization. Take photos of favorite play items, snack foods, etc.
- Create photo albums that allow individuals to share stories with others.
- The built-in camera port allows the user to take pictures with their switch!

- Tango's innovative Phrase First Language organization allows individuals to discover the power of communication. Over 2,500 pre-recorded, digitally enhanced phrases.
- Over 6,000 words for sentence building.
- Easy to use digitized and synthesized speech.
DynaVox DynaWrite

DynaWrite is a device for people who can communicate independently.

This would be a good device for people who have language skills already.

DynaWrite is a simple type and talk device.
HeadMouse Extreme

- The HeadMouse Extreme can connect to your computer or augmentative communication device.

- The HeadMouse Extreme is priced around $1,195.

- Provides easy access to the computer for people with limited or no use of their hands.

- Tracking system that uses a sensor and infrared light to track a small reflective dot that is placed on the user's forehead or glasses.

- When the users moves their head, the mouse will move on the screen as well.
Great for early speech development and remedial work with older individuals.

The Cheap Talk 8 allows you to record and re-record eight messages with 37.5 seconds per message.

- Size: 12½" x 8" x 3"
- Requires 4 AA Batteries
- Weight: 1½ lbs.

$219.95
BigMack Communicator

- 5" activation surface with angled base
- Toy/appliance cable included
- Message can activate toy/appliance
- Plays entire message regardless of repetitive hits

114.54
Chat Box

- Beginning-level device that introduces a non-speaking person to electronic voice aids.
- ChatBox can be programmed for the appropriate vocabulary, voice and native tongue of the user.
- By organizing vocabulary around activities and situations, the communicator is provided with sufficient vocabulary for use at home, school, work or play.
- This newest model includes more than three times the memory of earlier models, plus additional battery life, higher quality speech and row/column scanning as an additional input technique.

$495
Features meet ones growing communication needs, from very basic stages to the point of combining words and creating simple sentences.

- Allows digitized (recorded) messages to be spoken by pressing buttons on the keyboard.

- Supports numerous switch-scanning options.

- Comes with both 10 and 40-location keyboards.

- Messages can be stored on 10 separate overlays.

Chat Box 40

$895
AMDI Smart /Scan 32 Pro

$1795.00
DynaWrite is a device for people who can communicate independently.

This would be a good device for people who have language skills already.

DynaWrite is a simple type and talk device.
NOVA Chat 7

- Offers the well-known Chat software on an Android platform

- Variety of vocabulary configurations provides options for each individual that uses our "Chat" systems

- Voice options
  - Child
  - Teen
  - Numerous American & British English adult options
NOVA Chat 10

- Offers the well-known Chat software on an Android platform

- Variety of vocabulary configurations provides options for each individual that uses our "Chat" systems

- Voice options:
  - Child
  - Teen
  - Numerous American & British English adult options
Chat PC Silk

- Full-featured, dynamic screen device that allows hundreds of communication pages to be linked together for home, school, work and other situations in his/her life.

- Portable without sacrificing capability

- PalmChat, a word-based vocabulary program

- ChatPC-Silk provides both digitized (recorded) and synthesized (computer generated) speech

- A choice between voice synthesizers allows the speech output to meet the needs and lifestyle of the individual.
Chat PC 4

- Designed to withstand active lifestyle
- Integrated within is an industrial PocketPC computer
- The unit is further ruggedized by a protective rubber housing, available in blue or black
- Many mounting & transport options
- Loops at the bottom of the unit accommodate a carrying strap
- Includes thousands of symbols
- Provides both digitized and synthesized speech.
SpeakOut

- Provides a large QWERTY style keyboard with dual displays at an affordable price

- Simple option for those that prefer typing on a keyboard to generate their spoken messages

- Uses Acapela synthesized speech

- A 10,000 word ‘learning’ word predictor can be used to assist with typing speed and spelling accuracy.
WordPower

- Combines features of core vocabulary, spelling and word prediction.
- Takes advantage of core vocabulary being 100 words accounts for approximately 50 percent of words spoken.
- This powerful system facilitates fast and efficient communication for nonspeaking individuals in a short period of time.
- Developed for those wanting more than just a system based on spelling and word prediction and don't want to learn a complex language coding system.
Partner Plus 4 with LED/Vibration

- Message communication device with Vibration and LED lights for tactile and visual feedback.

- There are two levels of communication with an LED that will light above the cell when activated.

- The device will vibrate when the cell is activated.

- It includes real-voice high quality audio reproduction, and is light-weight and portable.
Tech/Talk with ECU

- Combines augmentative communication with environmental control, providing an added level of empowerment to the user
- Possessing all the functions, features, and benefits of the standard Tech Series, the Tech Series with Environmental Controls can control several electrical devices and/or light fixtures.
- Within each of the four on-off combinations, up to eight devices can be programmed into each on-off combination to activate simultaneously
- The device functions through radio frequency
3 surrounding LED’s that illuminates each cell from three sides

Single or double switch scanner or as a direct select device, and has multiple scanning options, scanning speeds, auditory prompts and an option for customized scanning patterns.

The amount of cells that you want to scan can be programmed to allow the device to grow with the user’s abilities.
Switch-Click USB

- This button w/built-in switch interface, is 2.5” diameter, and requires only a very light touch, anywhere on its blue surface.

- All you have to do is plug it in, and when you press it, your computer thinks you clicked your mouse, and this is exactly what many software programs want!

- This new version also has the ability to 'be' different keystrokes that your switch program might be looking for.
Mini Switch Port

- Provides a place to plug switches into a computer.
- There are 2 switch inputs in Mini-Switch Port.
- When you plug a switch or switches into the Mini-Switch Port jacks, the switches ‘become’ standard mouse-clicks.
Flat Pad Mount

- Used for mounting small communication devices such as Dynavox or switches to a table top or desk.

- The rotating top plate gives a 180 degree adjustability for ease of access.
Rear Folding Mount

- Rear folding mount can be folded away from the user. The two tubes of the mount are connected by a flexible joint.

- Flexible joint allows horizontal tube, with the device attached or removed, to be lifted up to the side until the two tubes are parallel in a straight-up orientation and then rotated down until parallel to the vertical tube alongside the wheelchair.

- When folded and removed from the wheelchair the Folding Mount forms a more compact structure. This device is great for wheelchairs users to mount their devices directly onto their chair.