

Understanding the Technology: AAC Basics

The use of augmentative and alternative communication (AAC) devices is one aspect of intervention for individuals with severe expressive communication disabilities. Like most assistive technology, the identification of the technology that is a match for the individual needs to involve a multidisciplinary team (e.g. occupational therapist, physical therapist, rehabilitation engineer, special educator) that INCLUDES the “end-user.” It is particularly important to include a qualified speech-language pathologist who has experience in the area of AAC to address the issues around language acquisition, assessment of present linguistic and communicative abilities, the communication “environment”, and appropriate intervention goals and strategies.

More and more technologies are being developed and/or adapted for both written and speech communication augmentation. How can you make sense of these? One approach is what is commonly referred to as a “feature match.” Become familiar with the capabilities and operation of the devices. Through the assessment process, identify the individual’s needs. Then proceed to “match” those needs to the characteristics of one or more commercially available devices. Where more than one device may be a “fit”, a trial period may uncover user preferences. Where assessment leaves unanswered questions, a trial period may provide additional data about individual needs and capabilities.

SOME OF THE FEATURES TO CONSIDER INCLUDE:

- Vocabulary storage and access approaches [e.g. “pages” or “levels” (and how many) or encoding approach]
- Availability of “text to speech” input
- Rate enhancement approaches (e.g. symbol prediction; word prediction)
- Physical attributes of the device (e.g. size, weight, casing material) that may impact portability and durability
- “Memory” – capacity for minutes of speech (e.g. with digitized devices) or potential size of files (e.g. vocabulary storage)
- Software applications (e.g. ability to back-up and/or modify on a personal computer; out of the box vocabulary and/or activities for instruction)
- Speech output type (synthesized? digitized? both?) as well as the ability to control volume and other characteristics of the output
- Other forms of output (print); interface (e.g. computer, environmental control); or feedback (e.g. “lights up” or “beeps” when key is selected)
- Selection techniques: direct selection (consider key size, activation force required, spacing of items, customizability of key arrangement, size or activation)
- Selection techniques: scanning (consider target size, spacing, customizability of timing including “dwell”, and the number of techniques possible with single device)

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Become familiar with the terminology commonly used in describing and/or prescribing these devices!

This issue of the *AT Focus* highlights AAC devices that produce spoken output. These “speech generating devices” (SGD) range in complexity and price. As you read through the descriptions of AAC devices in the newsletter, note the “features.”

DIGITIZED SPEECH: Digitized speech is characterized by ‘whole message’ speech output, utilizing words or phrases that have been recorded by an individual other than the device user for playback.

DIRECT SELECTION: With direct selection, “what you push is what you get.” Like a typical computer keyboard, pressing the “L” key, displays an “L” on the screen. One action produces an effect. Other direct selection access options involve the use of electronic accessories that enable individuals to point to a display using a head mouse, optical head pointer, light pointer, infrared pointer or joystick.

DYNAMIC DISPLAY: A dynamic display works as if you had a series of “pages;” you move from one page to another by pressing keys or the “touchscreen.” The device can be programmed to change screens when certain buttons are activated. For example, one can program a “mealtime” board to change to a “lunch options only” board automatically by the child pressing the “I want to eat lunch” button. This requires the user to have good memory and problem solving ability, and can be extremely valuable to the user who has a need and capability to independently access a wide range of vocabulary throughout the day

INDIRECT SELECTION: This method requires the user to activate a sequence in order to elicit a desired response. AAC devices that support indirect selection have special software and hardware that allow them to interpret input from a source other than the physical keyboard. The most common indirect selection technique is scanning. For example, a user uses a switch to activate a scanning cursor. When the cursor reaches the desired target, the switch is activated again to “select” the target.

KEYGUARD: A keyguard is used to help guide the user to the correct location on a direct selection device like a keyboard. It allows the user to drag his/her hand(s) across the device without accidentally activating undesired keys or selections. Holes are made over the activation areas for more accurate selections.

OVERLAY: An overlay is a graphic display that provides the visual representation of vocabulary. Overlays are typically physical “pages” that correspond to “levels” on the device, and are changed to provide different sets of messages.

SPEECH GENERATING SOFTWARE PROGRAMS: Speech Generating Software Programs enable a laptop computer, desktop computer, or personal digital assistant (PDA) to function as a Speech Generating Device (SGD).

SYNTHESIZED SPEECH: Synthesized speech relies on software to create spoken words. Users of synthesized speech SGDs are not limited to pre-recorded messages but rather can independently create messages.

VISUAL SCENE DISPLAY: A visual scene display is usually a picture or photograph that depicts a situation, place or experience. Rather than presenting the individual elements in a de-contextualized grid array, the use of a visual scene relates items and concepts visually. Messages are stored under “hot spots” in the scene. (Source: J. Light, www.aac-lerc.com).

WORD PREDICTION SOFTWARE: Word prediction works well for those that type “more slowly” and also for those who have difficulty with spelling, but want to be able to write proficiently. The software “predicts” what you are typing as you go. With each keystroke, the choices continue to narrow down to your desired word, until the user simply hits one key or switch to select the desired word without having to type the entire message.

For more definitions, visit: <http://aac.unl.edu/academic/AACGBM1.html>
