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Augmentative And Alternative Communication (AAC): An Introduction

What Is ACC?

For students with complex communication needs (i.e., those unable to meet their daily communication needs through "natural" modes such as speech) speech-language services can be helpful, as well as some form of assistive technology accommodation: **"Augmentative and Alternative Communication" (AAC) can be defined as any device, system, or method that improves the ability of a child with a communication impairment to communicate effectively.** It can include sophisticated devices and systems (sign language, communication boards, or speech-generating devices) as well as less sophisticated means (pictures or objects used as symbols, etc.) AAC is introduced when the student does not develop communication in the typical fashion, or experiences significant delays, and is used to AUGMENT or add to **(not replace!)** whatever communication the student possesses, as part of a **"multimodal"** system. A few indicators for introducing some form of AAC might include: a moderate to severe expressive speech/language disorder, an expressive/receptive language gap (the student understands more than s/he can say), limited speech or expressive language improvement with therapy, and/or the student's frustration at his/her inability to communicate messages effectively.

Some types of AAC

- **No Tech:** These are **"unaided"** systems an individual uses with no additional tools or technology such as motor behaviors, gestures, vocalizations, verbalizations (or verbal approximations), proxemics (approach or avoidance of a communication partner), eye gaze, and facial expressions.
- **Low Tech:** These are **"aided"** communication strategies (i.e., requiring some type of external assistance for the symbols) which do not run from a power source. Examples: picture or object communication, the Picture Exchange Communication System (PECS), partner assisted scanning, etc.
- **Light Tech:** voice output communication systems which are typically battery operated and have a **static** (non-changing) display such as the Big Mac, Rocker Plate Talker, Step by Step, Cheaptalk, Tech Talk, Go Talk, Supertalker, or 7-Level Communication Builder.
- **High Tech:** Systems typically requiring an electronic power source and having a **dynamic** (changing—i.e., computerized LCD screen) display such as a DynaVox Maestro, a Prentke Romich Accent, a Saltillo Nova-Chat or an iPad (with an appropriate AAC app).

AAC (speech generating) devices may have **digitized speech output**: a time-sampled replication of actual human speech. You speak, and it records what you say so that the student can use that utterance in the context of a communicative interaction. AAC devices with **synthesized speech output** translate the user's input (choosing letters, words, or symbols) into computer-generated speech. Generally speaking,

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digitized speech is more natural sounding than synthesized speech in terms of pitch, resonance, and prosody.

Will Using AAC Prevent a Student From Using or Developing Natural Speech?
The research says: NO! It may actually improve speech.

Two recent articles (Millar, Light, & Schlosser, 2006, and Schlosser & Wendt, 2008) reviewed all of the previously-published research that had investigated speech production before, during, and after AAC intervention. NONE of the individuals involved in any of the studies demonstrated decreases in speech production as a result of AAC intervention. The majority demonstrated at least modest gains in speech (a small percentage showed no change).

AAC is sometimes viewed as a "last resort," to be considered only after years of speech language therapy have proven unsuccessful. In reality, AAC can be used very effectively in conjunction with therapy, and may enable the student to immediately participate in communicative interactions with peers and others in school, at home, and in the community. While speech is always the most natural way to communicate, there are definitely other excellent possibilities, and it is essential that a student has SOME means of consistent control over his/her environment. AAC can be a useful TOOL, to be used when it is most appropriate: AAC strategies can be customized and upgraded over the lifetime of an individual (e.g., introducing different or more sophisticated devices, if warranted), or else faded completely if other natural modes (such as speech) improve.

***There have been NO published studies that show decreased speech production as a result of AAC.

Why Might AAC Intervention (E.G., Speech Generating Devices) Improve Speech?
Consider the following
- AAC can encourage the student to be less of a passive observer during communicative interactions and more of an active participant.
- AAC may increase the number of messages that are possible and increase the length of the student'sutterance.
- AAC produces immediate acoustic output (the message), is effective across many environments, and offers a consistently-produced "speech model" for the student to listen to and imitate.
- The acoustic output can be paired with the visual symbol (word, picture, or icon), thereby strengthening the connection between the spoken word, graphic symbol, and the referent (what the symbol refers to).

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- Hearing oneself produce speech via a speech-generating device may help stimulate and develop the brain mechanisms utilized for speech production ("internal phonology")

Are There Any "Prerequisites" (E.G., Age Or Cognition) For Using AAC?
The current research says: NO! If needed, AAC interventions can be introduced at ANY time.

Chronological age is sometimes mentioned as an argument against the provision of AAC services: "The student is too young to benefit." However, there is absolutely no evidence to verify this position! Current research clearly documents the efficacy of AAC for infants, toddlers, and preschoolers.

In addition, in years past, clinicians had hesitated to recommend AAC interventions until the student had attained a certain cognitive level ("cognition" is the ability to think, solve problems, remember, etc.)— This position has been shown in many studies to be totally unfounded: while cognition and communication skills are related, they can (and in many cases do) operate independently.

Experts agree: there is no reason to delay the start of AAC programs for individuals with severe disabilities and, in fact, there are many compelling reasons for beginning communication intervention at a young age even if certain cognitive skills have not been attained.

Multimodal Communication: An Explanation
What is it? Multimodal communication is the use of more than one type of communication method or mode during an interaction. It can include speech (verbalizations), verbal approximations, vocalizations (and voice inflection), gestures (e.g., pointing), manual sign or sign approximations, facial expressions, eye gaze, body orientation or movement, proxemics (approach/avoidance to a communication partner), as well as the use of aided AAC strategies (pictures, objects, speech generating devices, etc.). Basically, it includes anything that an individual can do in order to communicate a message.

Multimodal communication is natural. Multimodal communication is our natural means of expression—all of us use different modes of expression constantly and are able to "read body language" when we are interacting with others. Much more additional information is conveyed in this manner than would be possible through single modes.

Multimodal communication is flexible. People need to be able to use different communication modes in different social circumstances—what might seem appropriate with friends in an informal interaction might be totally out of place interacting with your teacher, or with your new relatives at a wedding, for example. Similarly, a student who communicates with his/her paraprofessional with manual sign

language would need to have the flexibility to communicate via a different mode in the community with individuals who do not understand sign.

Multimodal communication is easy. Students will always rely on the easiest and simplest means of expression, as long as it is effective. If they can point, they will point; if they can smile, they will smile to let you know they are happy; if they can guide you by the hand to get a snack, that is the way they will naturally let you know they are hungry.

High tech is not always "best tech." Using a complex, high-tech, speech-generating device is a powerful and versatile means of communication for students with complex communication needs, but it might actually be cumbersome in certain circumstances. It is unnatural to expect anyone to choose a more complicated method of communication over an easier and more efficient one! For example, if the student can wave a hand to greet you, why make him/her scramble to find the "hello" button on the DynaVox or PRC Accent? High tech definitely has its place, but it is most important to be flexible, especially for times when the high tech device may not available for some reason.

Conclusions?

1. AAC strategies encompass a range of possibilities, from "no tech" and "low tech" to "high tech" and can be used effectively as part of a student's "multimodal" system of communication.
2. AAC strategies are meant to **augment** (add to) and not **replace**, a student's natural means of communication.
3. The introduction of AAC intervention will NOT impede natural speech. In some cases AAC may in fact improve speech production, but this will vary from person to person.
4. There are specific advantages (and NO disadvantages) to using AAC strategies.
5. There are no prerequisites for introducing AAC.

Additional information on these topics can be found on the YAACK website (http://aac.unl.edu/yaack/b2.html) the DynaVox "Implementation Toolkit" website (http://www.dynavoxtech.com/implementation-toolkit/), and the following articles:

- Blischak, D. M., Lombardino, L. J., & Dyson, A. T. (2003). Use of speech-generating devices: In support of natural speech. Augmentative and Alternative Communication, 19, 29–35.
- Kangas, K. & Lloyd, L. (1988). Early Cognitive Skills as Prerequisites to Augmentative and Alternative Communication Use: What are we Waiting For? Augmentative and Alternative Communication, 4, 211-221.
- Loncke, F.T., Campbell, J., England, A.M., & Haley, T. (2006). Multimodality: A basis for augmentative and alternative communication—psycholinguistic, cognitive, and clinical/educational aspects. Disability and Rehabilitation, 28, 169-174.

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- Millar, D. C., Light, J. C., & Schlosser, R. W. (2006). The impact of augmentative and alternative communication intervention on the speech production of individuals with developmental disabilities: A research review. Journal of Speech, Language, and Hearing Research, 49, 248-264.
- Schlosser, R., & Wendt, O. (2008). Effects of augmentative and alternative communication intervention on speech production in children with autism: A systematic review. American Journal of Speech-Language Pathology, 17(3), 212–230.

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