
Augmentative and Alternative Communication (AAC) Connecting Young Kids (YAACK) Home Page



What is YAACK?

Augmentative and Alternative Communication (AAC) Connecting Young Kids (YAACK) is a website that covers issues related to AAC and young children. Its purpose is to provide information and guidance to families, teachers, speech/language pathologists and anyone else who is involved with a child with special communication needs. It is intended to be easy to understand and practical, and to cover a wide range of topics dealing with AAC and AAC-related issues of children at various ages and stages of communication ability, and with different strengths, disabilities and learning characteristics.

YAACK is based on the premise that the purpose of AAC is to assist the child in attaining the quality of life that approaches the level of satisfaction and meaningfulness that would have been possible if the child did not have a communication disability. Therefore, the child's ability to communicate when, where and what is desired is the goal; AAC is just the means. YAACK emphasizes the individuality of each child, and stresses the fact that there is no single solution or set of procedures that will work for every child. Success depends on really getting to know and understand the child, and then developing and implementing a communication program that takes into account his or her unique characteristics.

QUICK START

Go to [Table of Contents](#) now!

How is YAACK organized?

YAACK is composed of three main sections. (See [Table of Contents](#).) The first, [How to get started](#) gives background on AAC, lists specific organizations that provide support and assistance to children with AAC needs and their families, and offers suggestions on how to create and maintain an effective AAC team.

The second section, [Choosing an AAC system](#) covers the AAC assessment, describes characteristics of and issues relating to the different AAC systems and devices that are in use today, and includes information on how to obtain a device.

The third section, [Teaching](#) offers both general tips as well as specific methods and techniques that have proven successful in teaching AAC and AAC-related skills to infants, toddlers and young children with different communication needs.

At the top of each section are links to the table of contents and to the other topics under the same subject heading. These links are arranged in hierarchical (also presentational) order, and designated by file folder icons. They appear like this. (The following are

What's new!

[See what else is new!](#)

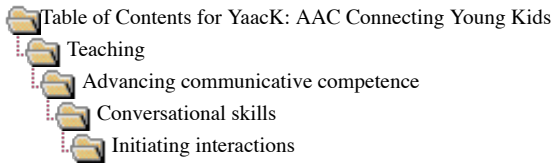
I'd like to be notified by email when "What's new!" is updated.

• Powered by NetMind •



[Click Here](#)

examples and not actual links.)



It is, therefore, possible to navigate to earlier sections within the same subject heading. At the bottom of each page are links back to the top of the page, to Home, and to the next topic or subject.

Who am I?

My name is Ruth Ballinger, and this website constitutes my final project in fulfillment of the requirements of a Master's degree in Special Education. I am interested in communication as it pertains to children with severe disabilities for two reasons. The first is that communication is fundamental to virtually every aspect of life, from academics to independent living to personal friendships and family. Learning to communicate effectively has a dramatic impact on the life of any child with a severe disability.

Secondly, there are so many unknowns regarding the teaching of infants, toddlers and young children how to understand others and to express themselves. Unlike adults who suddenly find themselves unable to communicate due to accident or illness, young children often have never had the experience of communicating in an effective manner. How they experience communication, what it means to them, and the manner in which they begin to understand how it works and what it can do for them is fascinating and mysterious.

My hope is that YAACK will impart at least some understanding, assistance and support to individuals who are close to a child with special communication needs. I intend to update YAACK on an ongoing basis with information and resources gathered from a wide variety of sources, including the expertise and experience of readers of this site. I fully anticipate that YAACK will continue to grow and improve, and that, over time, many children with communication challenges, and their families, friends and teachers, will be able to benefit from its contents.

As a final note, I would like to state that I am in no way affiliated with any company or commercial product, nor do I receive any outside support. I have also avoided directly mentioning or linking to specific companies or products on this website unless there were compelling reasons to do otherwise. Instead, I have provided connections to several sites that do offer information about and links to commercial sites. (See [Specific Devices and Products](#).)

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)





What's new?

Here are some of California State University, Northridge (CSUN) Center On Disabilities' 2000 conference presentations. (To view all available conference presentations as far back as 1991 go to www.csun.edu/cod).

Communication Strategies for the Beginning Communicator at
<http://www.csun.edu/cod/conf/2000/proceedings/1012Cirlot-New.htm>

The Child Hates Augmentative Communication and I've Tried Everything."The Quick and Easy Team to the Rescue!" by Carolyn Rouse and Katera Murphy, Clark County School District, Las Vegas, NV at
<http://www.csun.edu/cod/conf/2000/proceedings/1014Rouse.htm>

Core Vocabulary is the Same Across Environments by Bruce R. Baker, University of Pittsburgh, Katya Hill, Edinboro State University, and Richard Devylder, Long Beach, California at
<http://www.csun.edu/cod/conf/2000/proceedings/0259Baker.htm>

Tech for Tots: A Rationale for Assistive Technology for Infants and Young Children by Toni Solano, M.B.A. and Sonia K. Aller, Ph.D. University of Southern California University Affiliated Program at
<http://www.csun.edu/cod/conf/2000/proceedings/0251Aller.htm>

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)



Augmentative and Alternative Communication (AAC) Connecting Young Kids (YAACK)



Table of Contents

[What's new?](#)

[How to get started](#)

[What is augmentative and alternative communication \(AAC\)?](#)

[When does a child need AAC?](#)

[Risk factors for a communication impairment](#)

[Learned helplessness](#)

[Normal speech and language development](#)

[Does AAC impede natural speech?—and other fears](#)

[Multimodal communication](#)

[A historical perspective on AAC](#)

[Where to get help](#)

[Contacting an organization for services and support](#)

[Organizations supporting children under three](#)

[Organizations supporting children three and older](#)

[Organizations supporting children and adults](#)

[Finding an AAC specialist](#)

[The AAC team—the most important component](#)

[A competent team leader is essential](#)

[Stress and dissension within the team](#)

[Forging an effective AAC team](#)

[Consensus-building](#)

[If there are no AAC experts on the team](#)

[If the team is just not working...](#)

[Legal assistance](#)

[Finding answers to specific AAC questions](#)

[On-line discussion groups](#)

[Books](#)

[Other Internet resources](#)

Choosing an AAC system

The comprehensive AAC assessment

The child's communication needs/goals

Two approaches: Developmental and ecological

The ecological approach: Focusing on participation

The ecological inventory

The McGill Action Planning System (MAPS)

COACH

Personal futures planning

The child's strengths and abilities

General tips in assessing strengths and abilities

External obstacles

Access barriers and opportunity barriers

Specific assessment questions

Communication

Cognitive abilities

Intentionality, means-end, causality, and symbols

Motor abilities

Sensory functioning

Behavioral issues

Current and potential obstacles

Aids and adaptations

The assessment and the AAC team

The assessment as an opportunity for team consolidation

Arena assessments

When family and professionals disagree

Issues of importance to families

Solutions to family-professional differences

Selecting the right AAC system

Guidelines in selecting an AAC system

High tech versus no or low tech

AAC devices and systems

The main categories of AAC

Aided vs. unaided systems

Issues with different devices and systems

Issues with symbol systems

Minspeak vs. Dynamic Display

Facilitated Communication

Specific products

Hardware and software

Switches and other types of input

Types of symbol systems

Obtaining an AAC device

Funding information

Borrowing or purchasing a used device

Teaching

General tips on teaching

Who teaches: parents or teachers

Find those "teachable moments"

Teach in natural settings

Learning should be fun

Fun activities

What to teach first

Infants and toddlers

The preschool- or school-aged child

Advancing communicative competence

The first goal: Intentional communication

The scripted routine

The Van Dijk method: Nurturance and movement

The Early Communication Process

Visually cued instruction

Milieu teaching

Applied Behavior Analysis

Basic communicative functions

When a child chooses "incorrectly"

Making choices

Requesting

Getting attention

Rejecting

Conversational skills

Conversational control vs. conversational efficiency

Initiating interactions

Topic-setting strategies

Maintaining a conversation

Teaching sentence structure

Teaching AAC-related skills

Teaching a child to enjoy social encounters

Teaching symbols

Start with objects as symbols

Communicating with pictures

Communicating with sign language

Direct selection and scanning techniques

Scanning

Row-column scanning

Scholastic endeavors

Literacy

Academics

Specific teaching techniques

Naturalistic teaching methods

General naturalistic techniques

Simultaneous communication

Milieu teaching

Activities and routines as teaching tools

Teaching intentionality with routines

Interrupted behavior chains

[Using simple AAC devices in routines](#)

[Prompting and prompt-free strategies](#)

[Prompts given by another person](#)

[Prompts designed into the AAC](#)

[Fading prompts](#)

[Prompt-free and verbal prompt-free strategies](#)

[Direct instruction](#)

[Using peers in interventions](#)

[Children with specific disabilities](#)

[Children with motor impairments](#)

[Eye gaze techniques](#)

[Children with cognitive disabilities](#)

[Children with autism or autistic-like behaviors](#)

[Children with sensory disabilities](#)

[Children with severe behavioral issues](#)

[Children with apraxia](#)

[Teaching different modes of AAC](#)

[Speech and vocalization](#)

[Communication boards and VOCAs](#)

[Vocabulary selection strategies](#)

[Organizing vocabulary for speed](#)

[Programming VOCAs](#)

YAACK: AAC Connecting Young Kids

[Back to Top](#) ■ [YAACK Home Page](#)

© YAACK 1999





How to get started

What is augmentative and alternative communication (AAC)?

AAC is any device, system or method that improves the ability of a child with a communication impairment to communicate effectively. Although AAC is often used to refer to formal communication devices and systems such as sign language, communication boards or voice output communication aids (VOCAs), it can include less sophisticated means of communication such as facial expressions, non-speech vocalizations, idiosyncratic gestures, etc. AAC is used when a child does not develop communication in the normal fashion, or experiences a significant delay in its development. AAC is not merely a substitute for how the child is currently communicating. It is used to augment that communication, replacing only elements that are unintelligible, socially unacceptable, or harmful to the child or others. Ideally, an AAC system includes more than one mode of communication, with the child using whichever is the most efficient given the persons, setting and activity at hand. Very often one of the modes of communication in an AAC program is natural speech. (See [Multimodal communication](#).)

Broadly speaking, communication occurs with at least one other person and in the context of the environment, and serves the following functions:

- To indirectly control the environment, for example to obtain or reject something.
- To regulate social interactions, for example to express an emotion or to interact with a friend.
- To receive and convey information and ideas.

The purpose of AAC is to increase a child's ability to achieve these functions in the environments and activities in which the child participates or is expected to participate ([Light, 1989](#); [Reichle, 1997](#)). (See [The ecological approach: Focusing on participation](#).)

What is often thought of as communication is formal, symbolic language, usually speech. Actually, communication can be thought of as occurring on a continuum. On one end is nonsymbolic, unintentional communication, such as a baby's instinctive crying whose meaning can be interpreted by a parent. On the other end is abstract, symbolic communication, such as speech or sign language. (See [Normal speech and language development](#).) Communication can even be a behavior. For example, when we see a child acting up and say "Oh, she is only doing that to get attention," we are indicating that the child is "communicating" a need for attention, albeit in an indirect and socially unacceptable manner. (See [Children with severe behavioral issues](#).)

In the past, some children with moderate to severe disabilities were considered too cognitively impaired to learn how to communicate effectively. These individuals were not even considered candidates for AAC. However, studies have since shown that children with multiple and diverse disabilities do benefit from AAC ([Ronski, Sevcik, Robinson, & Bakeman, 1994](#); [Silverman, 1980](#)). (See [A historical perspective on AAC](#).) Currently, it is widely believed that any child, from those with severe and multiple disabilities to those with

temporary impairments, can benefit from an AAC program that is appropriate and individualized. AAC, therefore, can include anything from a sophisticated electronic voice output communication aid (VOCA) to teaching a child to extend a hand during snack to indicate the desire for another cookie.

OTHER RESOURCES:

- "Twenty Frequently-Asked Questions about AAC Service Delivery with Children" by Cynthia J. Cress, Ph.D., CCC-SLP, University of Nebraska-Lincoln at <http://www.unl.edu/barkley/present/cress/questions.shtml>.
- "What We Are Learning About Augmentative Communication and Early Learners" by Linda J. Burkhart at www.lburkhart.com/gphb.htm.
- "Introduction to Augmentative and Alternative Communication (AAC)" at http://callcentre.education.ed.ac.uk/SCN/Intro_SCA/intro_sca.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)
© YAACK 1999





When does a child need AAC?

A child whose speech is not developing within the realm of what is considered normal, or is not likely to develop normal speech due to a pre-existing condition, is a potential candidate for AAC. (See [Risk factors for a communication impairment](#).) Even when it is unclear whether or not a child will eventually develop normal speech, and this is frequently the case, the child may still benefit from an AAC program. (See [Does AAC impede natural speech?—and other fears](#).) The following are some of the reasons why AAC should be considered for a child with a communication impairment or delay.

- Much of a child's cognitive, social and academic progress depend on communication. AAC has been shown to enhance a child's ability in all of these areas ([Abrahamsen, Ronski, & Sevcik, 1989](#); [Blackstone, 1989](#); [Silverman, 1980](#)).
- A child with severe disabilities is often unable to learn the early cognitive and social skills on which conventional communication is based. An AAC program can tackle these related areas while teaching functional communication at the same time ([Van Tatenhove, 1987](#)).
- Caregivers are often unable to interpret a child with disabilities' early attempts at communication. This results in a distorted relationship between caregivers and child, and the extinguishing of further attempts at communication by the child. An AAC program helps caregivers become more sensitive to the communicative behaviors of their child, in addition to giving the child a more decipherable means of communication ([Van Tatenhove, 1987](#)). (See [Normal speech and language development](#).)
- A child with a communication impairment is at risk for [learned helplessness](#). Because adults do not expect the child to inform them of his or her needs and wants, they anticipate, and often misinterpret, the child's needs. As a result, the child may relinquish any attempt to make his or her desires known and become extremely passive. AAC provides the means for the child to make choices and indicate desires and dislikes. In fact, giving the child more control over the environment is often one of the first goals of a communication program ([Schweigert & Rowland, 1992](#); [Van Tatenhove, 1987](#)). (See [Basic communicative functions](#).)
- Besides learned helplessness, a child who becomes frustrated due to the inability to communicate may resort to problem behaviors in order to get his or her way. AAC provides the child with socially acceptable ways of communicating needs and desires. (See [Children with severe behavioral issues](#).)
- Finally, since the ability to communicate represents a quality-of-life issue, it is important to observe the overall level of satisfaction and sense of fulfillment that the child derives from his or her life. There may be a need for AAC when a child's communication disability is preventing him or her from engaging in the quality and quantity of participation in activities and routines that would be

OTHER RESOURCES:

"AAC Demographic Information" by David Beukelman at
aac.unl.edu/AACdemog.html.

characteristic and expected if he or she did not have a communication impairment. In other words, if a child is unable to participate meaningfully in day-to-day activities and events just because of difficulties communicating, he or she would probably benefit from AAC. The implications of this definition of need are:

- Every child must be assessed individually and in the context of his or her environment, lifestyle and culture. (See [The ecological approach: Focusing on participation](#).)
- No standardized tests can in and of themselves determine whether a child will benefit from AAC. (See [The comprehensive AAC assessment](#).)
- Children with severe and multiple disabilities, including profound cognitive impairments, can still increase their level of participation with AAC. (See [A historical perspective on AAC](#).)
- AAC goals and objectives should be functional, that is they must have purpose and meaning to the child and/or to significant others in the child's life. They should be primarily aimed at increasing the quality and quantity of the child's participation in activities and routines. (See [The ecological approach: Focusing on participation](#).)

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

Even when it is expected that a child will eventually be able to speak, AAC may be recommended in addition to speech therapy. A child who cannot communicate effectively now due to inadequate speech is still at risk for cognitive and social delays, excessive frustration, behavior problems, and learned helplessness. (See [Does AAC impede natural speech?—and other fears](#).) Ideally, a communication intervention should be implemented when a child is simply suspected of having a serious communication delay in order to prevent the onset of related problems that can negatively impact many different areas of a child's development ([Miranda & Mathy-Laikko, 1989](#)). (See [Contacting an organization for services and support](#).)

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [How to get started](#)
 - [When does a child need AAC?](#)

Risk factors for a communication impairment

Although it becomes obvious that a child needs AAC when he or she already exhibits learned helplessness, behavior problems, or cognitive or social delays as described above, the trick is to intervene prior to their appearance. (See [b4.html#b4aContacting an organization for services and support](#).) [Van Tatenhove \(1987\)](#) outlines the following risk factors as precursory evidence of a communication disability.


- Prior to age one: "...feeding difficulties, irregular breathing...lack of oral play...overall abnormal gross motor development..."
- Twelve to twenty-four months: "...presence and persistence of primitive oral reflexes, development of compensatory abnormal oral movements, overflow of muscle tension or movements to the mouth when the child moves his body, lack of disassociated movements between the child's mouth and body, vocal or laryngeal blocking, poor coordination of respiration with feeding or vocalizations, and emerging speech abnormally unintelligible...continued reliance on nonlanguage systems to communicate when speech should be assuming more dominance..."



- Twenty-four to thirty-six months: "...continued poor oral-motor coordination; limited intelligibility; and difficulties with the processes of respiration, phonation, resonance, and articulation...evidence of communication frustration, learned helplessness, and a widening receptive-expressive language gap..."

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)

 [How to get started](#)

 [When does a child need AAC?](#)



Learned helplessness

Learned helplessness occurs when a child does not attempt to ask for or do things for him- or herself due to repeated experiences in which the child has not been able to have an effect on other people or the environment. This is a likely result for a child who is unable to act or behave in expected or conventional ways due to a disability. Because family members are not able to interpret or respond to the child's communicative attempts, the child does not discern a relationship between his or her own actions and a response from people or the environment. Learned helplessness is associated with excessive dependence and lowered self-esteem. Children with severe disabilities are at risk for learned helplessness due to:

- Motor, sensory or cognitive impairments that impede their ability to effectively act on the environment, or to understand the results of their actions.
- Lack of opportunity to make choices or otherwise be able to determine one's own life.
- Communication impairments that prevent them from being understood by others.

To prevent learned helplessness, the child needs to be able to exert some control over other people and the environment. This can be done by providing the child with instruction and adaptations that increase his or her ability to reliably and effectively influence others and the environment, such as AAC. In addition, the child can also be given the ability to exercise this control through increased sensitivity and responsiveness from partners, and ample opportunity to make choices ([Reichle, York, & Sigafos, 1991](#)).

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)

 [How to get started](#)

 [When does a child need AAC?](#)



Normal speech and language development

In intervening with young children who have communication difficulties, it helps to understand the normal sequence of development of children's speech and language. In simplest terms, children go through three main stages. Initially, an infant's behaviors are reflexive and random; the child is not actually trying to communicate to another person. Nevertheless, adults typically interpret the infant's behaviors as communication. For example, in response to an infant's crying, a mother may say, "She's letting me know she is hungry." (Researchers call this the "perlocutionary" stage. It is also referred to as unintentional communication.) (See [Assessing intentionality, and the understanding of means-end, causality](#)

[and symbols](#) and [The first goal: Intentional communication.](#))

The next stage occurs when the child realizes that his or her actions do have an affect on others. This usually occurs at around eight to ten months of age. The child begins to attempt to control what is happening or to interact socially by communicating through nonsymbolic means, such as gestures and vocalizations. For example, the child may reach toward a cookie as a way of getting the adult to hand it over. (This is called the "illocutionary" stage.) (See [Basic communicative functions.](#))

Finally, the child develops formal, symbolic communication—usually speech—and is able to communicate increasingly complex and abstract information. (This is the "locutionary" stage.) Each of the three stages are made up of many cognitive, social, motor and oral-motor developments, all of which proceed, more or less, in a set order ([Bates, Renzaglia, & Wehmna, 1981](#); [Goetz, Guess, & Stremel-Campbell, 1987](#)).

Frequently, a child with severe disabilities is at a serious early disadvantage in the developmental process. Although this infant may be exhibiting a repertoire of early communicative behaviors, due to the child's motor, sensory, cognitive or other disabilities adults may not be able to, or know how to respond. Furthermore, when adults do attempt to respond, the child may not be able to take advantage of the input. As a result, the child does not gain the understanding necessary to make the cognitive leap from unintentional to intentional communication. In these situations, caregivers and others may benefit from professional assistance in learning how to become sensitive and responsive to the child's attempts at communication. (See [Contacting an organization for services and support.](#))

There is a controversy over whether a child with disabilities develops communication in the same fashion as a child without disabilities, albeit at a slower pace, or progresses in a different order or skips steps altogether. The implications of this debate extend to the content of and the manner in which the child with disabilities should be taught communication. The specific question is: Should the child be taught steps in order, and not allowed to proceed to the next one until previous ones have been mastered, or should a highly individualized communication plan be developed, one that focuses on the child's unique strengths, abilities and needs? It is probably safe to say that the extent to which a child with disabilities follows or deviates from the normal sequence of communication development is unique to a specific child. Whether a child is assisted in mastering the sequence of developmental skills in order, or is provided with an individualized intervention plan that deviates from normal development, should depend on the personal characteristics and individual circumstances of the child. In general, however, infants and very young children are more likely to benefit from a developmental approach than older children who frequently require a more individually adapted program ([Goetz, Guess, & Stremel-Campbell, 1987](#)). (See [The ecological approach: Focusing on participation.](#))

OTHER RESOURCES:

- "Communication—It's all in the way you move" by Desleigh de Jonge looks at the impact of cerebral palsy. It is at curriculum.qed.qld.gov.au/lisc/articles/therapy/thart2.htm.
- "Speech and language characteristics of children with down syndrome" in "Total communication options for children with down syndrome in the context of Hanen programs for parents" by Claire Watson, Senior SLP at www.hanen.org/downsynd.htm.
- "Starting Early with AAC....WHY?" edited by Caroline Musselwhite and Pati King-Debaun "is a summary of research on brain development, language, communication and it's relationship to early symbolic

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

development" at www.creative-comm.com/topicset.html.

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)
© YAACK 1999





Does AAC impede natural speech?—and other fears

Even when a child's communication impairments are interfering with his or her cognitive, social and emotional development, some parents and practitioners are reluctant to introduce AAC. This is very understandable since AAC-based communication is frequently viewed as the solution of last resort, condemning a child to a lifetime of abnormal and limited communication. It is considered the end of all hope of natural speech, to be used only after years of failed speech therapy. ([Berry, 1987](#); [Miranda & Schuler, 1988](#)).

The fact is that AAC does not represent this gloomy future. Many adult users become extremely proficient with their AAC, and are able to communicate anything they want to, in any circumstance they find themselves. Nor does it mean the end of any hope of speech development.

OTHER RESOURCES:

Contact and interact with persons who use augmentative communication on The Augmentative Communication On-Line Users Group (ACOLUG) at

<http://www.temple.edu/instituteondisabilities/programs/assistive/acolug/>

Children are frequently provided with communication programs in which speech is a major component. (See [Multimodal communication](#).) In fact, since natural speech is the ideal mode of communication in many circumstances, it behooves a young child to continue with speech therapy along with AAC in order to develop his or her speaking ability to its fullest potential. In fact, numerous studies have found that the introduction of AAC frequently has a positive affect on speech; children who are given AAC often develop speech faster than they would have otherwise ([Bodine & Beukelman, 1991](#); [Van Tatenhove, 1987](#)).

On the other hand, while it may be appropriate to continue to focus on speech, it is unfair to leave a child with little or no means of communicating effectively while undergoing years of speech therapy. A child who is unable to communicate effectively is unable to participate meaningfully in many activities, and is at great risk for delays in cognitive, social and emotional development. (See [When does a child need AAC?](#)) Thus, it is crucial that he or she be provided with at least some ability to communicate that offers some immediate control over people and the environment, and can be expanded or modified as necessary to meet the needs of the future.

The following table shows the most common fears and myths regarding the use of AAC, as well as research that refutes such concerns, and practical solutions that directly address these issues.

Common fears and myths	What the facts are	Practical solutions
------------------------	--------------------	---------------------




<ul style="list-style-type: none"> • AAC should be introduced only after giving up all hope of natural speech (Berry, 1987; Silverman, 1980). 	<ul style="list-style-type: none"> • It is virtually impossible to predict the future development of speech in a young child (Beukelman & Mirenda, 1992). • Children with severe communication deficits who receive only speech therapy often endure years of being without an effective means of communication. • A child who is not able to communicate effectively is at great risk for cognitive, social, emotional and behavioral problems (Berry, 1987; Silverman, 1980). 	<ul style="list-style-type: none"> • Speech therapy can be offered in conjunction with AAC interventions. The degree to which emphasis is placed on the development of speech versus AAC should be based on periodic reevaluations which assess the child's communicative ability in various activities and routines that are typical for a child that age (Beukelman & Mirenda, 1992).
Common fears and myths	What the facts are	Practical solutions
<ul style="list-style-type: none"> • The introduction of AAC reduces motivation to work on speech (Beukelman & Mirenda, 1992; Silverman, 1980; Van Tatenhove, 1987). 	<ul style="list-style-type: none"> • The introduction of AAC correlates with the improvement of natural speech—even in situations in which no speech therapy has been given (Berry, 1987; Daniels, 1994; Ronski & Sevcik, 1993; Konstantareas, 1984; Silverman, 1980). Studies have shown that even normally developing children who are communicated with in both sign language and speech during infancy appear to begin to communicate (initially with signs) and develop spoken language at a much younger age than would otherwise have been expected (Holmes & Holmes, 1980). (See Simultaneous communication.) 	<ul style="list-style-type: none"> • Little research has been conducted to determine if certain types of AAC are more likely to facilitate the development of speech. However, a simultaneous communication approach, in which speech is utilized by the adult alongside AAC, seems likely to assist in speech comprehension and production (Beukelman & Mirenda, 1992).
Common fears and myths	What the facts are	Practical solutions
<ul style="list-style-type: none"> • Whenever present, even though very limited, speech should always be the primary 	<ul style="list-style-type: none"> • Children who are unable to communicate adequately are at risk for behavior problems, learned helplessness, academic difficulties, and social failure. (See When does a child need AAC?) 	<ul style="list-style-type: none"> • An assessment should be conducted to determine the environments, activities and people with which speech can serve as the principle means of communication. Usually it is family and close friends who are able to understand speech that has limited intelligibility. Focusing on the use

means of communication (Silverman, 1980).	<ul style="list-style-type: none"> Children who use AAC have shown improvements in behavior, attention, independence, self-confidence, class participation, academic progress and social interaction (Abrahamsen, Ronski, & Sevcik, 1989; Silverman, 1980; Van Tatenhove, 1987). 	of speech in these situations can occur while AAC continues to be emphasized in other settings. Periodic reevaluations can determine whether the child is continuing to participate as effectively, efficiently and meaningfully as possible in all activities and environments.
Common fears and myths	What the facts are	Practical solutions
<ul style="list-style-type: none"> A young child is not ready for AAC. (Beukelman & Mirenda, 1992; Silverman, 1980; Van Tatenhove, 1987). 	<ul style="list-style-type: none"> There are no known cognitive or other prerequisites that are necessary for a child to use AAC. (Kangas & Lloyd, 1988). (See A historical perspective on AAC.) Even infants are known to engage in purposeful, communicative behavior well before the development of language. These early exchanges are very important in that they form the basis for later formal, symbolic communication (Reichle, York, & Sigafoos, 1991). (See Normal speech and language development.) 	<ul style="list-style-type: none"> AAC programs must be individualized, age-appropriate, and developmentally appropriate. For young children this often means play-based interventions that focus on the development of communication-related skills, intentional communication, or basic functional communication, such as requesting and rejecting (Beukelman & Mirenda, 1992).
Common fears and myths	What the facts are	Practical solutions
<ul style="list-style-type: none"> A child does not require AAC until school-age (Beukelman & Mirenda, 1992). 	<ul style="list-style-type: none"> AAC helps a child make the transition into academic and community settings (Van Tatenhove, 1987). 	<ul style="list-style-type: none"> Ideally, children should have already attained a measure of communicative proficiency prior to entering kindergarten. It is difficult enough for a child with disabilities to adjust to a new environment, curriculum and social scene without simultaneously having to learn AAC for the first time. Furthermore, by the first grade, many children will require a writing system as well, such as a computer (Beukelman & Mirenda, 1992).
Common fears and myths	What the facts are	Practical solutions

<ul style="list-style-type: none"> • A child with severe cognitive deficits cannot learn to use an AAC system (Kangas & Lloyd, 1988). • A child must exhibit certain specific cognitive prerequisites before being able to learn to use AAC (Kangas & Lloyd, 1988). 	<ul style="list-style-type: none"> • Children with severe cognitive deficits are capable of learning and benefiting from AAC (Beukelman & Mirenda, 1992; Ronski & Sevcik, 1993; Kangas & Lloyd, 1988; Silverman, 1980). • It is impossible to accurately predict a child's ability to learn AAC (Beukelman & Mirenda, 1992; Bodine & Beukelman, 1991). 	<ul style="list-style-type: none"> • AAC interventions must be individualized to take into account the strengths and abilities, and to meet the needs of the child for whom it is being designed. This may mean starting out teaching intentional communication skills and basic communicative functions, and using nonsymbolic and/or self-developed, idiosyncratic means of communicating (Beukelman & Mirenda, 1992; Reichle, 1997). (See The first goal: Intentional communication.) • All individuals, including children with severe cognitive impairments, have the right to be given opportunities to communicate by learning communication skills that are effective almost immediately, offer some control over the environment, and are age-appropriate (Beukelman & Mirenda, 1992; Reichle, York, & Sigafos, 1991; Silverman, 1980).
---	--	--

Common fears and myths	What the facts are	Practical solutions
<ul style="list-style-type: none"> • AAC makes a child look abnormal and retarded (Silverman, 1980). 	<ul style="list-style-type: none"> • Acceptance of an AAC-user by peers increases significantly with full inclusion and active participation in regular school-related activities. Among young children, acceptance appears not to be related to the type of AAC (e.g. voice output communication device versus sign language versus communication board) (Beck & Dennis, 1996; Blockberger, Armstrong, O'Connor, & Freeman, 1993). • In the long run, a child is at greater risk of being judged retarded when he or she does not have the ability to adequately express him- or herself. Teachers and parents often judge a child with communication impairments as socially and cognitively less capable than their peers. This results in lowered academic expectations and, frequently, decreased academic achievement 	<ul style="list-style-type: none"> • AAC users should be educated in regular classrooms alongside their peers to minimize attitudinal barriers. In addition, teachers, students and other significant persons who are to be involved with the child must be informed of the nature of the communication disability, and any discrepancies between the child's language and cognitive abilities. (It is important, however, to keep such information-dispensing sessions separate from typical school activities in which students participate since the latter are opportunities to de-emphasize differences between the AAC user and his or her peers.) In addition, keeping the child's AAC vocabulary up to date, age-appropriate and relevant to the child's own interests go a long way towards facilitating acceptance by peers and others. (See Vocabulary selection strategies.)

([Rice, 1993](#)). AAC may help in reducing the discrepancy, both real and imagined, between the child's actual and perceived cognitive and social capabilities.

 [Table of Contents for YaaK: AAC Connecting Young Kids](#)
 [How to get started](#)
 [Does AAC impede natural speech?—and other fears](#)



Multimodal communication

Multimodal communication is the use of more than one type of communication methods by one person. Multimodal communication is natural; everyone uses a variety of communication methods all the time. People typically simultaneously use gestures, facial expressions and body postures in addition to speech. This makes communication more efficient and effective as more information is being conveyed than could occur through words alone. Speaking with someone on the telephone or in writing, for example, is not as rich or communicative an experience because we no longer have access to the other non-speech modes of communication being used ([Murphy, Markova, Collins, & Moodie, 1996](#); [Van Tatenhove, 1987](#))

A related issue is the use of different mixes of communication modes and styles depending on the people and circumstances involved in an interaction. Generally speaking, everyone uses the method of communication that is easiest and most efficient, but it has to be socially appropriate to the situation. For example, we naturally communicate a certain way when we are with family members or close friends, as opposed to more formal situations. When offered a cup of coffee at home we might get away with a mere nod of the head, a simple grunt or a slight push forward of the cup—all nonspeech methods of communicating. Yet, nothing less than a formal "Yes, thank you" may feel comfortable at someone else's house. A child who uses AAC needs this same flexibility all the more because, for this child, communication requires more time and effort. For example, communicating through eye gaze techniques may be sufficient to indicate which type of cereal he or she wants for breakfast at home. However, the child must also be able to switch the mode of communication to meet the needs of partners who do not understand eye gaze communication. For example, sign language may be required in the classroom, and an electronic voice output communication aid (VOCA) in the community.

Multimodal communication can ease the vocabulary requirements on any single communication method. If a child is able to get someone's attention by vocalizing, for example, then there is no need to program an attention-getter onto the child's VOCA. In addition, children for whom it is not clear which is the best type of communication mode may benefit from being simultaneously taught more than one until a preferred method emerges. Likewise, children whose abilities are degenerating due to a progressive disease may also be taught to use more than one mode of communication in preparation for the future. For example, a child whose motor skills are deteriorating may rely on sign language now, but also be taught communication board techniques ([Beukelman & Mirenda, 1992](#)).

Ideally, at least some aspects of a child's AAC program should include simple, unaided methods of communication, as long as they get the job done. (Unaided AAC are communication methods that do not utilize an external device. See [Aided vs. unaided systems](#).) For certain functions simple gestures, eye gaze,

vocalizing or body movements are easier, faster and just as reliable. For example, to get someone's attention, respond yes or no, or refer to something that is in close proximity, these techniques are often preferable because they require less effort. Unfortunately, children are sometimes forced to use their more complicated formal AAC systems even when a simple approach is sufficiently intelligible and substantially faster and easier. Although the intent behind the demand that a child use the more sophisticated system is for teaching purposes, it is unfair and unnatural to expect anyone to choose a more complicated method of communication over an easier and more efficient one. Moreover, it can diminish the value and desirability of using the sophisticated AAC.

To summarize, children require AAC systems that accommodate a variety of modes because multimodal communication accomplishes the following.

- It increases efficiency, effectiveness and speed.
- It allows children to work on different methods of communication at the same time.
- It allows children to continue to work on speech, while still providing them with alternative methods of communicating.
- It decreases reliance on any single type of communication method, which is important because devices can be lost, broken or unavailable.
- It allows a child to adjust his or her communication method to fit the requirements of different partners and situations, such as home versus school versus community.
- It is a more natural way of communicating. Persons who communicate in the typical manner utilize more than just speech.
- It decreases the vocabulary requirements on any single communication method.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)

© YAACK 1999





A historical perspective on AAC

It is probably accurate to state both that every child can and does communicate in some way, and that, no matter what disabilities are evidenced, every child can benefit from AAC. This is a departure from earlier beliefs. Before the 1960's, communication interventions centered primarily around speech therapy ([Zangari, Lloyd, & Vicker, 1994](#)). Children with moderate to severe disabilities were often considered too cognitively impaired to benefit from any communication instruction at all ([Kangas & Lloyd, 1988](#)).

Over time, the emphasis of communication interventions has changed dramatically. First, it has widened from focusing only on the development of natural speech to working with alternative methods of communication, such as AAC. Secondly, there has been a trend away from an emphasis on the production of a particular response on demand outside of any natural situation, to teaching meaningful and functional communication in real-life settings. This has resulted in changes in teaching methods from drill-and-practice to natural techniques embedded in daily activities and routines. (See [The ecological approach: Focusing on participation](#) and [Naturalistic teaching methods](#).) These transitions have allowed a much wider population base of individuals with disabilities to have access to and benefit from communication interventions, specifically children with severe cognitive impairments ([Zangari, Kangas, & Lloyd, 1988](#); [Zangari, Lloyd, & Vicker, 1994](#)).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)



Where to get help

The process of designing and implementing an AAC system consists of many different steps. It typically starts with a [comprehensive assessment](#) to identify the strengths, abilities, and communication needs of the child. Based on the information gathered, a communication program can be developed, and the most appropriate AAC system selected. Implementation of the program occurs through instruction as well as adaptation of the activities and environments in which the child communicates or is expected to communicate. These steps—assessments, program development, instruction and adaptations—are carried out on an ongoing basis to keep up with the child's own progress and maturation.



Contacting an organization for services and support

The first step in the AAC process is to link up with an organization that provides services to young children with severe communication disabilities and their families. In the United States, there are resources available in every state, many of which offer information and assistance at very little or no cost. For the most part, these organizations work with children and/or adults with any type of disability, and offer a wide variety of supports with AAC being just one of many different services provided.



Organizations supporting children under three

For children under the age of three there are "zero-to-three programs" (also called "early intervention centers," "infant-toddler programs" or "infant-child development programs") located in every state. These are state-run organizations which provide comprehensive assessment, therapy, transition-assistance, information and support services to infants and toddlers who have disabilities and their families. These centers are mandated by the federal government and usually under the jurisdiction of the state department of health or education. Their services are free or on a sliding fee scale, and they maintain a "family-centered" (as opposed to a purely "child-centered") approach in which the needs and lifestyle of the

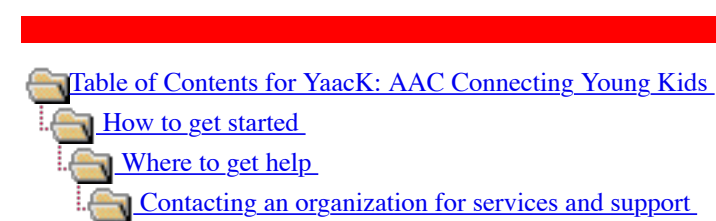


entire family are taken into account when establishing a child with disability's therapy and support program.

These centers can be located by asking pediatricians and public health nurses, or by contacting the administering state department. To identify the state department that has jurisdiction over a zero-to-three program in a particular state, the National Early Childhood Technical Assistance System (NECTAS) provides a listing of all zero-to-three programs by state on their web site at www.nectas.unc.edu/makecx/ptccoord.html.

OTHER RESOURCES:

- "Frequently Asked Questions: The Infants and Toddlers Program" by Susan Goodman, Esq. at at-advocacy.phillynews.com/data/faq7.html.
- "A Parent's Guide to Accessing Programs for Infants, Toddlers, and Preschoolers with Disabilities" at www.kidsource.com/NICHCY/infantpub.html.



Organizations supporting children three and older





For preschoolers (three years and up) and school-age children who have disabilities, the public school system is required by the federal government to develop and provide, at no cost to the family, an AAC program that is designed to assist the child in receiving an appropriate education. Although the program is only required to cover the child's educational goals, the term "special education" has been very broadly defined and individually applied. A resulting AAC program can, therefore, be very comprehensive, covering home and community needs in addition to those of school. Besides developing individualized programs of instruction, schools are also mandated to provide related services and equipment, such as an AAC device, or training in its usage.



OTHER RESOURCES:

- "A Parent's Guide to Accessing Programs for Infants, Toddlers, and Preschoolers with Disabilities" which covers ages birth through five years at www.kidsource.com/NICHCY/infantpub.html.
- "Questions Often Asked About Special Education Services" at www.kidsource.com/NICHCY/special_ed.html.
- "Educational TECH points for parents" by Gayl Bowser and Penny Reed, a guide on getting and using the right technology from your school (not necessarily AAC), at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1113&b=5.
- "What Makes a Good Individual Education Plan for Your Child?" based on Minnesota's special education laws but useful for an IEP in any state at

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [How to get started](#)
 -  [Where to get help](#)
 -  [Contacting an organization for services and support](#)







Organizations supporting children and adults

Additional support is available through the State Assistive Technology Projects, located in each state and established under the Tech Act of the federal government. These organizations provide information and assistance on all types of assistive technology, including technology-based AAC systems and devices. In addition, there are many private, non-profit and/or university-affiliated AAC resource centers located around the country. These centers specialize in AAC support and services for persons of all ages.

To locate your state's Assistive Technology Projects go to:

- The Assistive and Adaptive Computing Technology In Education website at at-advocacy.phillynews.com/data/ata.html
- The Dreamms for Kids website at www.dreamms.org/techact.htm.

To find the nearest specialized AAC center, contact your state's Assistive Technology Project (as mentioned above), or one of the listservs dealing with AAC and communication-related issues. (See [On-line discussion groups](#).)

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [How to get started](#)
 -  [Where to get help](#)
 -  [Contacting an organization for services and support](#)



Finding an AAC specialist

Currently, it is not easy to directly locate an AAC specialist or a speech-language pathologist (SLP) with AAC experience. The American Speech-Hearing-Language Association (ASHA) offers a voluntary accreditation program for speech-language and audiology programs and individual speech-language pathologists. While this certification does not require AAC experience, these programs and SLPs are obligated to divulge information upon request regarding the extent to which they are familiar with AAC. A listing of ASHA-certified speech-language and audiology programs and speech-language pathologists can be obtained on ASHA's web site at www.asha.org/consumers/find_professionals.htm or by contacting ASHA at 1-800-638-8255.

OTHER RESOURCES:

- "Finding Professionals and Services" at www.mankato.msus.edu/dept/comdis/kuster2/library.html#findingprofs.
- "Service Providers Network in the field of augmentative communication" at www.augcomm.com/service.html.
- "The Perfect Speech Language Pathologist for Your Child" by Megan M. Guenther, MA CCC/SLP at planet-hawaii.com/7thwave/dys.slp.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [How to get started](#)
- [Where to get help](#)



The AAC team—the most important component

Once a child is in place to begin receiving services, usually through an early intervention program or the public school system, many professionals, family members and others often become involved. (See [Contacting an organization for services and support](#).) In most cases this team of people is responsible for all the special needs of the child, not just AAC. Even if the child only has a communication disability, the team is essential since a comprehensive AAC program cannot be designed or implemented by a single person for the following reasons.

- The sheer amount of work and the length of time required to develop and execute the program is usually enormous.
- A child naturally communicates in more than one environment and with a variety of different people. Communication interventions should be formulated for all major activities and routines in which the child participates, and carried out in the locations in which these activities naturally occur by parents, teachers and other persons normally involved. (See [The ecological approach: Focusing on participation](#).)
- No single person has all the necessary information to design and coordinate the best program. Typically, family members know the child's strengths, weaknesses, learning style, needs, interests, and daily schedule. Professionals augment this with additional information obtained through assessments, and provide the expertise and background knowledge to assist with system selection, teaching techniques and follow-up evaluations.

Teams typically include some of the following individuals: Parents or caretakers, other family members and friends, speech-language pathologists (SLPs), AAC specialists, physical therapists (PTs), occupational therapists (OTs), school administrators, special education teachers, regular education teachers, assistive technology specialists, recreational specialists, audiologists, medical doctors, and public health nurses. Anyone who has an interest in or is involved with the child, or has knowledge or expertise that would be

helpful in developing and implementing a communication program may participate in team meetings, assessments and decision-making.

[Table of Contents for YaacK: AAC Connecting Young Kids](#)

[How to get started](#)

[Where to get help](#)

[The AAC team](#)



A competent team leader is essential

It is impossible to underestimate the importance of a good AAC team. The ability of team members to work together effectively and resolve conflicts and disagreements as they come up is considered by many family members and professionals to be the single most important factor in the quality of the outcome of the AAC intervention (Ballinger, R., 1998). An effective team can overcome the innumerable obstacles and issues that are typical of the AAC process. On the other hand, a team whose members are at odds with each other may become stymied over even the smallest issues.

Within the team, however, there needs to be one individual who is willing to act as team leader. This individual makes sure that everything necessary gets done, and generally assumes bottom-line responsibility for the entire process. In many respects this must become a labor of love since the leader will often have to work many hours, do the parts of the job that no one else will do, and continue to work toward and believe in solutions that may seem impossible. The more support that can be given the team leader by the other members the more successful and complete the AAC intervention will be.

OTHER RESOURCES:

- "General Note from RJ" at the bottom of "ASK R.J." by R.J. Cooper discusses the necessity of a team leader at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1015&b=10.
- "Effective Advocacy: Guidelines for Assisting Parents" talks about ways in which a team leader can build a good working relationship with a parent or caretaker at www.pacer.org/parent/advocacy.htm.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

[Table of Contents for YaacK: AAC Connecting Young Kids](#)

[How to get started](#)

[Where to get help](#)

[The AAC team](#)

Stress and dissension within the team

Broadly speaking, there are two categories of issues which put pressure and

stress on an AAC team. The first type are inherent to the AAC process itself, while the other has to do with personal and cultural differences.

The difficulties that are inherent to the AAC process are often due to the fact that even when the team is in complete agreement regarding what needs to be done, circumstances beyond the team's control serve to obstruct the process. In particular, lack of time, funding, and other resources can be very problematic in dealing with even the most straightforward issues. Ideally, teams work through these issues by sharing responsibilities and working together to overcome such obstacles.



The following list provides examples of common frustrating issues which are inherent to the AAC process:

- A child with a severe communication impairment cannot simply be given an AAC device and expected to know how to communicate with it. Unlike adults who lose their ability to communicate through accident or disease, young children often have never had the experience of normal communication. In addition to learning how to operate the actual AAC device, a child must often also be taught basic social and communication skills such as getting a partner's attention before interacting, taking turns during an interaction, or maintaining a conversation over time. (See [Basic communicative functions](#).) Some children even appear to be uninterested in communicating at all. For these children, it is often necessary to first work on developing motivation to communicate ([Montgomery, 1986](#)). (See [Teaching a child to enjoy social encounters](#).)
- Every child requires a highly individualized AAC program that will satisfy his or her unique set of needs and constraints. Decisions which determine system selection, environmental adaptations, teaching methods and other issues are characterized by uncertainty and often conducted on a trial-and-error basis.
- Children with disabilities advance at different rates. The progress of a child learning an AAC system may be very slow or even apparently nonexistent for periods of time, and with many setbacks. It is often very difficult to know whether lack of advancement is due to an inappropriate AAC system or teaching technique, or whether the child just needs more time and practice.
- In and of itself an AAC program requires a great deal of time and effort. Frequently, though, a child with a severe communication impairment has many other compelling developmental or medical needs as well. Family members, teachers, communication specialists and other team members are overwhelmed by the level of need confronting them, and the difficult task of prioritizing these concerns. This is further impacted by the presence of siblings, students, clients, and other work which also demand time and attention.
- A child with a severe communication impairment may develop inappropriate behaviors in an attempt to communicate basic wants and needs. This compounds the complexities already inherent in the AAC process, and makes a child less attractive to be with. (See [Children with severe behavioral issues](#).)
- The communication partners of the child often must themselves learn the new AAC system as well as, if not better than, the AAC user. In addition, the child's siblings and peers may have to be instructed in how to communicate with and include the user in activities.

The second type of issue that can stress and strain an AAC team is more insidious and can result in serious opposition among members. This includes issues that develop out of fundamental misunderstandings,

differences in interaction styles, and disagreements in expectation regarding the roles and responsibilities of team members and the desired outcome of an intervention program. The result is dissension among members, and an intervention program that is disjointed and not carried out as planned. Unfortunately, teams characterized by discord and lack of respect are not uncommon, and result in months or years of wasted time and effort on the parts of the members as well as the children ([Ballinger, R., 1998](#)).

The following list provides examples of serious differences of opinions and expectations which often result in dissension among team members:






- Team members may disagree on the child’s potential communication ability. For example, members may disagree on the child’s future capacity for normal speech, or on his or her ability to use a sophisticated—-and expensive—-electronic device. This results in conflict over what will constitute the main component of the child’s communication intervention program ([Ballinger, R., 1998](#)).
- Team members may have different expectations of each others’ roles and responsibilities. For example, family members may expect the communication specialist to do all the work, or to "fix" the child with minimal effort on their parts. On the other hand, professionals may demand that parents carry out substantial intervention efforts at home, not taking into account additional demands on them such as work, other children and the extra effort required in simply caring for a child with special needs. Special education teachers or teacher’s aides may be expected to do all the labor required in fabricating or programming a system, as well as maintaining and updating it on a continuous basis ([Ballinger, R., 1998](#); [Hetzroni & Harris, 1996](#)).
- Team members may have conflicting styles of meeting and working together. An example is the group in which a few dominant members set the agenda, while the remainder sit silent but angry, and feel powerless to become a part of the decision-making process. Members may have different priorities for AAC goals, such as academic competitiveness versus social participation versus self-help and independence. Or even more fundamental disagreements may exist, for example, the basic value of communication, or whether or not it is desirable for the child to participate in activities outside the family. These disagreements are often the result of differences in personal or cultural values between family and professionals ([Hetzroni & Harris, 1996](#)).

OTHER RESOURCES:

- Written from a child's perspective, "Me and My Therapists," by Dr Stuart Aitken, Research Psychologist, touches on some of the issues that sidetrack the intervention process at call-centre.cogsci.ed.ac.uk/CALLResearch/AAC/AACResearchPapers/MeandMyTherapist.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com



-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
-  [How to get started](#)
-  [Where to get help](#)
-  [The AAC team](#)
-  [Stress and dissension](#)

Forging an effective AAC team

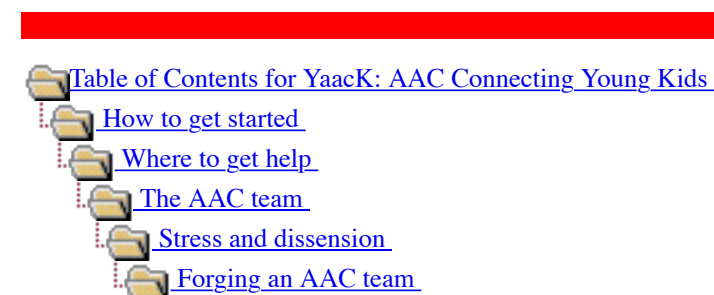
The best way of creating an effective AAC team is to include only members who basically agree on all fundamental issues. This, however, is usually not under the control of the team members. Since teams cannot guarantee the congruity of their membership, therefore, the means with which to become aware of and handle major differences and disagreements must be put into place early. Ultimately, the responsibility for leading the AAC team and creating an atmosphere of mutual respect and cooperation often falls upon one or more of the professionals. This is frequently the communication specialist, special education teacher, or other therapist. There are a number of reasons for this.



- Professionals have more experience in being members of teams since team membership is an integral part of the work they do. Some have had training in group collaboration as a part of their education.
- While professionals do not know the specifics about the child with whom they will be working, they do know the AAC process. Thus, they are in a position to act as guides in directing the overall process.
- Family members not only typically have little or no experience with AAC, they are also under a great deal of stress. They are often not in a good position informationally, or emotionally, to direct the team.

Having stated that in many situations a professional will be team leader, it is important to note that this is not always, nor should it always be true. In situations in which the child has already undergone several years of professional intervention, or there are no professionals who are familiar with AAC, the family becomes extremely knowledgeable about their child's communication needs. Furthermore, families are often willing and able to put in a tremendous amount of time and effort into learning about, developing and implementing their child's AAC program. In these cases, it makes sense for a family member to become the team leader. (See [If there are no AAC experts on the team.](#))

In addition, whether or not a professional is guiding the team, it is the family who should have the bottom-line in any decision making. Outside of explicit ethical concerns, professionals are under more of an obligation to compromise on their opinions and beliefs than are family members. This is because professionals will come into and out of the child's life, but family members live with and care for their child for most of the day, and are, in the end, accountable for their child's development and well-being. In the long run, family members have far more impact on their child than any professional ever does ([Romich & Zangari, 1989](#)).



Consensus-building

Although it is of such crucial importance ([Ballinger, R., 1998](#)), surprisingly few books on AAC discuss how to assist teams in making decisions and working together cooperatively. One excellent book that does so, *Augmentative and Alternative Communication Management of Severe Communication Disorders in Children and Adults* by [Beukelman, D. R., & Mirenda, P. \(1992\)](#), identifies the process of developing team solidarity and



productiveness as "consensus-building." Essentially, consensus-building occurs when all members are able to vocalize their opinions, desires and beliefs, and then work together to create a plan of action that is ultimately agreed to by each and every member. It is not majority rule.

Beukelman describes why it is crucial to make team consensus a top priority from the very beginning. He cites the following repercussions that may occur when a team works in a tense or antagonistic atmosphere.

- Some members are not given the opportunity to provide, or deliberately withhold important information.
- Some members are left out of the decision-making process. This results in their lack of "ownership" of the intervention, and subsequent lack of participation, or even sabotage, of the AAC process.
- Some members develop an overall distrust of other members or the agencies they represent. Listening with an open mind and being willing to collaborate virtually cease.
- Once an atmosphere of dissension and lack of confidence has occurred within the team, it is extremely difficult to redress the situation.

Beukelman offers several recommendations on how to build consensus in an AAC team. These general principles should be acted upon at the very outset of the AAC process.

- Create an atmosphere of openness and cooperation. Develop a process that does not allow a decision to be finalized until all members have agreed to it. This implies that all members are given the opportunity to voice their opinions and suggestions. Quieter members who have a difficult time speaking up must be encouraged to do so in a manner that is sensitive to their style and approach. Cultural differences must be understood and respected. In particular, professionals must be aware of the dynamics that are influential within the family. Being sensitive to such issues can go a long way towards developing a positive working relationship with family members. Discussion of issues that are under contention should continue until every team member feels satisfied with the final decision and agrees to carry it out as planned. This may mean that an intervention is scheduled for just a trial period, or two or more interventions are carried out simultaneously, after which the situation can be reevaluated and team discussions resumed. It is important that no fingerpointing or blame occur if something does not go as planned.
- Encourage the participation of many different persons who are or will be involved in the child's AAC program. Besides major players such as family members and professionals, include persons whose help will be enlisted in carrying out interventions, such as other teachers, teacher's aides, recess personnel, significant persons from the community, etc. Not only is their cooperation more likely to occur if they have participated in the decision-making process, but they can usually contribute information that will enhance the prospect; for a successful intervention. This does not mean that they must attend all meetings or participate in every aspect of the process, but they must be able to have genuine input regarding aspects of the intervention that affect them.
- Encourage the use of [arena assessments](#) in which all therapists get together to evaluate the child at the same time, instead of assessments being conducted separately by each therapist. This saves time for the family and the child, and allows information to be shared by everyone present during the assessment itself.
- Team members must realize that everyone is under a great deal of stress. Family members, for example, frequently feel overwhelmed and are doing the best they can to simply cope. This is particularly true of single-parent families, or homes in which both parents work. Other team members are typically under a lot of pressure as well. For example, special education teachers and other professionals work with many different families and children with disabilities, all of whom require a

great deal of attention! It is the lack of time, in particular, that seems to affect everyone the most ([Ballinger, R., 1998](#)).

- Assign roles and responsibilities clearly, and provide reasonable deadlines. This ensures that every part of the intervention plan is covered. It also reduces the potential for confusion, guarantees that no single person is expected to do most of the work, and allows the entire program to proceed in a timely fashion. One way to accomplish this is to make one member responsible for a specific component and have one or more of the other members assist.
- Upon finalizing an AAC intervention, make sure that everyone involved in carrying it out feels comfortable and confident of their role. This includes not only the operation of the AAC device or system, but how to act as a communication partner, how to handle external disturbances (e.g. other children wanting to use the device), how to physically position the child, how to deal with inappropriate behaviors, how to collect data for evaluation purposes, etc. Provide training and follow-up support, making modifications to the intervention as necessary.
- Prepare for transitions well before they actually take place. Inform and include persons from the new environment in transition planning. If necessary, train them ahead of time in the use of the child's AAC system. This saves the new people from having to gather information all over again, and allows the intervention plan already in place to continue smoothly and without interruption. In addition, visit future locations to look for physical or attitudinal barriers so that adaptations and modifications to the new environment or the AAC system can be made in advance.
- Ideally, the team should have access to ample organizational support services and materials, such as a copier, computer, paper, telephone, meeting room, etc. Frequent communication and sharing of information via telephone, e-mail and fax among members is also very helpful.

OTHER RESOURCES:

- "Functional AAC Use Through Teamwork" by Cynthia Cottier at www.dinf.org/csun_98/csun98_020.htm.
- "Consultation/Collaboration" includes several articles on teamwork at www.ttac.odu.edu/InfoTopics.html#3.
- "Using family dreams to develop meaningful goals involving assistive technology" by Janet Sloand Armstrong and Kelly Jones at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1005&b=5.
- "Family Involvement" is a collection of articles at www.ttac.odu.edu/InfoTopics.html#4.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)



If there are no AAC experts on the team

The degree to which an early intervention center or school has expertise in AAC matters differs considerably. Some have their own AAC specialist, while others are serviced by a specialist who travels from location to location. In many situations, however, no one is familiar with AAC issues, and the leadership responsibilities fall to a special education teacher, speech-language pathologist or family member who must learn about the process through books, journals and Internet-based resources, and then function as the team "expert." (See [Finding answers to specific AAC questions](#).)

Even when there is an AAC specialist available, over time family members and/or teachers often will have developed a tremendous amount of knowledge regarding the child's communication requirements. It is surprising how often professionals design a new program from scratch rather than utilize valuable information available from earlier assessments and interventions, thus, losing the momentum of an already established AAC program ([Ballinger, 1998](#); [Locke & Mirenda, 1992](#).) (See [Forging an effective AAC team](#).)

- [Table of Contents for Yaack: AAC Connecting Young Kids](#)
- [How to get started](#)
- [Where to get help](#)
- [The AAC team](#)
- [Stress and dissension](#)



If the team is just not working...

A team based on openness, cooperation and consensus is ideal, but, unfortunately, often not the reality. If a team is characterized by dissension and distrust, there are a few options available. One possibility is to try to renew the dynamics of the group by adding or dropping members. This may not be practicable. Sometimes it is possible for the family to assemble a new team by transferring the child to a new school or a different early intervention program.

If there is no chance of creating a new team, however, it is incumbent upon the members of the team who are professionals to largely concede to the wishes of the family, unless, of course, there are ethical issues at stake. As stated earlier, it is the family who has the greatest impact on the child in the long run, and it is the family who is ultimately responsible for the well-being and development of the child. (See [Forging an effective AAC team](#).)

- [Table of Contents for Yaack: AAC Connecting Young Kids](#)
- [How to get started](#)
- [Where to get help](#)
- [The AAC team](#)
- [Stress and dissension](#)

Legal assistance

In the situation in which there are fundamental disagreements between the family and professionals, and discussions no longer seem fruitful, it is possible for any member of the team to resort to legal action. In practice, however, most litigation is initiated by the family.

OTHER RESOURCES:

- The Council of Parent Attorneys and Advocates (COPAA) at www.copaa.net.
- EDLAW at www.edlaw.net. EDLAW includes a list of attorneys who represent parents of children with disabilities at www.edlaw.net/public/attylist.htm.
- The Special Ed Advocate includes "...articles, cases, newsletters, and other essential information about special education law and advocacy" at www.wrightslaw.com.
- Assistive and Adaptive Computing Technology in Education offers an extensive list of resources and advocacy information at at-advocacy.phillynews.com/index.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com





Finding answers to specific AAC questions

Because an AAC program is highly individualized, no book, article or website will be able to answer all the questions that come up. Many issues will be unique to the particular child and that child's communication program. The following resources may be of help in answering specific AAC and communication-related questions.

- If another AAC team members cannot answer a specific question, there may be someone else within the system who can. Every community has access to an [early intervention center](#), [special education services in the school system](#), and an [assistive technology center](#), all of which have been mandated by the federal government, and all of which provide services and assistance at little to no cost.
- If the query has to do with equipment, software or some other product, contacting the manufacturer or developer can be helpful. ([See Hardware and software.](#))



On-line discussion groups

Internet discussion groups are an excellent way of getting information from a variety of different types of persons who are well-versed in AAC matters, including adult AAC users, parents of children with communication impairments, AAC professionals, teachers, and others. Posting messages and engaging in an electronic dialogue with others is one way to obtain information. Another is to search the discussion group's archives for previous discussions that relate to a current issue.

The following include discussion groups that deal with AAC and communication-related issues.

- Augmentative Communication On-Line Users Group (ACOLUG) "is a listserv created to exchange ideas, information and experiences on augmentative communication by people from all over the world." The listserv and its archives can be accessed from www.temple.edu/inst_disabilities/ACOLUG/tacolug.html.
- COMMUNICATE: A Resource for Speech Professionals working with Individuals with Developmental Disabilities runs a discussion group (and archives) accessed from tor-pw1.netcom.ca/~yucatan/communicate.html.
- "Auditory Scanning ListServ" at espse.ed.psu.edu/SPLED/McN/auditoryscanning/JoinLS.html
- Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) is "an interdisciplinary association for the advancement of rehabilitation and assistive technologies (AT)." Its

listserv tends to be technical and encompasses all assistive technologies, and it is an excellent place to obtain specific technical information on AAC. Information on how to subscribe to RESNA's listserv and to access its archives is at www.resna.org/sigs/sig11/resnalst.htm.

- Thinking Publications runs a "Speech-Language Pathology Bulletin Board" where SLPs and other professionals post questions and answers on AAC and related issues at www.thinkingpublications.com/board/09comm.html. They also have one for SLPs on computer applications at www.thinkingpublications.com/board/12comp.html.
- Dejanews is a website "where you can read, search, participate in and subscribe to more than 80,000 discussion forums." By allowing users to search the archives of all these discussion groups, it is an excellent way to look for specific information. Dejanews' power search facility is at www.dejanews.com/home_ps.shtml.
- Contaact is a listserv specifically for kids who use AAC. Subscription information is at web.nmsu.edu/~shstuart/address.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)

 [How to get started](#)

 [Finding answers to specific AAC questions](#)

Books

The following are listings of books on AAC and communication-related issues.

- "Selected Books on Augmentative Communication and Adaptive Play" compiled by Linda J. Burkhart is located at www.lburkhart.com/sr.htm#2.
- "Augmentative and Alternative Communication Related Reference List" compiled by Dr. David R. Beukelman and Dr. Pat Mirenda at aac.unl.edu/aacinref.html.



AAC connecting Young Kids

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)

 [How to get started](#)

 [Finding answers to specific AAC questions](#)

Other Internet resources

The following are Internet websites with a strong focus on AAC and/or communication disability-related issues. They are not arranged in any particular order.

- Linda J. Burkhart's website "Technology Integration" has an excellent set of links to other websites that cover the following issues (and more):

- Tutorials
- Augmentative Communication
- Online Articles and Information
- Vendors and Products
- Inclusive Ed
- Specific Disabilities
- Funding and Legal Issues

at www.lburkhart.com/links.htm.

- NET CONNECTIONS FOR COMMUNICATION DISORDERS AND SCIENCES an Internet Guide by Judith Maginnis Kuster is located at www.mankato.msus.edu/dept/comdis/kuster2/welcome.html. "Quick Index" includes the following (and more):

- discussion forums and electronic newsletters
- communication disorders and sciences library
- speech and language disorders
- hearing and hearing disability
- basic foundations for communication disorders and sciences
- commercial products and businesses related to Communication Disorders

- AAT/AUGCOM PARTNERSHIP is a partnership of individuals and organizations interested or involved in augmentative communications and other alternative-assistive technology at:



- THE NICHOLS COMMUNICATOR III PROJECT makes available for free the full design of an electronic communication device which you can build yourself. It is located at members.xoom.com/tonynich



Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)

© YAACK 1999





Choosing an AAC system

The comprehensive AAC assessment

To determine the best AAC system for a child, it is necessary to conduct a comprehensive AAC assessment. This assessment needs to cover both characteristics of the child as well as the potential advantages and obstacles that exist in the environment. Ideally, it results in:

- Deciding which of the child's current methods of communicating should be maintained and/or developed further.
- Selecting new methods of communication, and determining the best way to implement them.
- Making changes and adaptations in the environment and in the way people interact with the child.

At the core of this assessment are four basic questions.

- What are the child's communication needs or goals?
- What are the child's strengths and abilities?
- What barriers are preventing the child from achieving his or her full communication/participation potential?

The next question follows from the answers to the previous three.

- What aids and adaptations (e.g. AAC devices or systems, environmental modifications, policy changes, etc.) will best accomplish the child's goals given his or her strengths and abilities, and current circumstances?




There is no strict order to these questions. In fact, each of them should be asked on a continual basis since, as the child grows and develops, the child's needs and abilities, and the settings in which he or she functions will change. In addition, no single AAC device will necessarily be able to accomplish all of the child's needs in all situations. An AAC system should, therefore, be multimodal, that is comprised of a number of different types of communication methods, each of which is used in different situations. (See [Multimodal communication](#).)

The assessment should be made up of information collected in a variety of ways. Included may be interviews with the persons who know the child best, observations of the child in natural settings, formal testing to obtain specific information or to fill in the gaps, and trial periods with actual AAC devices and systems to see how well they suit the child. It is important to make sure that the child is comfortable and not overtaxed during the assessment, otherwise the child may fall short of his or her true abilities. This means keeping assessment periods short, having parents or other familiar persons present and assisting, making everything as fun and interesting as possible, and honoring the child's need to take breaks or end sessions ([Miranda & Iacono, 1990](#)).

OTHER RESOURCES:

- "Navigating the process: Educational TECH points for parents" by Gayl Bowser and Penny Reed, a guide on getting and using the right technology from your school (not necessarily AAC), at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1113&b=5.
- "Augmentative Communication Assessment" by Stacy Dymond at www.ttac.odu.edu/Articles/AugComAss.html.
- "Augmentative Communication Assessment Protocol for Symbolic Augmentative Systems" by Gamel-McCormick & Dymond at www.ttac.odu.edu/Articles/Gamel.html.





Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Choosing an AAC system](#)
 -  [The comprehensive AAC assessment](#)



The child's communication needs/goals

Communication is functional, interactive and personal. A child's communication needs are determined by what the child, family members, teachers, and other significant persons want the child to accomplish. Without communication, a child's ability to have needs and wants met, to develop and enjoy social relationships, and to learn and share new information and ideas is extremely limited. (See [What is AAC?](#)) A child develops increasing self-confidence and control over his or her own life as the child improves his or her ability to communicate and interact socially. A child's communication requirements, therefore, are directly related to the child's need for self-determination and, ultimately, self-satisfaction in participating in the interactions and events that make up his or her day ([Light, 1989](#); [Van Tatenhove, 1987](#)). (See [Learned helplessness](#).)

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Choosing an AAC system](#)
 -  [The comprehensive AAC assessment](#)
 -  [The child's communication needs/goals](#)



Two approaches: Developmental and ecological

There are two main approaches to identifying what a child's communication needs and, therefore, goals are. One is to examine and work with the child from the viewpoint of normal speech/language development. This is called the developmental approach. It is based on the fact that typically-developing

children go through series of stages. They go through these stages in fairly strict order, and do not progress to the next stage unless previous stages have been mastered. This is true in all areas of development, including motor, cognitive, emotional/behavioral, and speech/language. (See [Normal speech and language development](#).)

Communication intervention that is based on the developmental approach begins with an assessment that identifies at what stage (i.e. what ability or skill level) the child currently is. The goals of intervention, then, are to assist the child in reaching the next stage. The assessment and ensuing therapy are typically done by professionals, with input from family members and others who know the child well. The developmental approach is frequently used with infants and toddlers. (See [Organizations supporting children under three](#).)

However, while this approach often works well with infants and very young children, it tends to become less useful the older the child gets for the following reasons:

- It is extremely difficult to predict speech/language development in an infant or very young child. It is often, if not always, worthwhile to provide therapy based on the assumption that the child will develop normal speech and language, albeit at a slower rate ([Beukelman & Mirenda, 1992](#)).
- The divergence in development between a child without disabilities and one with disabilities often increases with time. At a young age, these differences are relatively small. Consequently, early developmental objectives are still age-appropriate. For example, a six month old infant may be working on the skills of a 3 month old. However, as the child gets older and delays increase, the child with disabilities may still be working on skills that are typical of infants or toddlers, in lieu of skills that are more age-appropriate and functional.
- Children with disabilities will not necessarily complete all the developmental stages, nor will they do them in the same order as typically developing children. Early developmental objectives are more likely to be achievable by a child with disabilities. When a child is not able to make progress within a reasonable time frame using appropriate teaching techniques and adaptations, it makes sense to change the objectives. There have been cases in which children were being "taught" pre-communication skills for years, leaving them with no means or opportunity to actually communicate.
- When children enter preschool or kindergarten their social and academic progress depends on their ability to function in and derive benefit from school and community activities and environments, and to interact with peers. The developmental approach focuses primarily on learning specific skills, and not on the quality of school and community participation.

While it is helpful to know at what developmental stage a child is communicating for therapeutic purposes, the bottom line of a communication intervention is to assist the child in reaching his or her maximum potential socially, academically, and emotionally (e.g. in terms of self-esteem and self-reliance) ([Beukelman & Mirenda, 1992](#); [Blackstone, 1989](#); [Light, 1989](#); [Van Tatenhove, 1987](#)).

In early years, a child's world consists primarily of family and home and, perhaps, early intervention center and therapists. However, when the child reaches school-age, that world expands to include school, teachers, peers and more of the community. Whereas, previously, life more or less centered around the child's abilities and needs, school presents the new challenges and rewards of joining in activities and events designed to meet the needs of a whole group of children. Progress and success at this time depend on the child's ability to fit into and be successful in the new school environment. In addition, the child may also be starting to visit friends' homes and make forays out into the community. Psychologically, the child wants to establish greater independence, and peers are becoming increasingly meaningful. Consequently, at this age, the assessment of a child's communication needs must also involve looking at his or her ability to function in these new-found

activities and events, and identifying ways in which the quality of that participation could be improved through communication intervention.

The ecological model, thus termed because it examines the quality of the child’s functioning in relationship to the activities and environments in which he or she participates or is expected to participate, is an assessment approach that takes into account the child’s increasingly expanding world. With this method every child is examined on an individual basis in the context of his or her life and lifestyle. (See [The ecological approach: Focusing on participation](#).) The ecological approach is more recent than the developmental approach, and incorporates many aspects of the latter into both its assessment and intervention methodologies. It recognizes that the child’s progress in developmentally-based skills does translate into more meaningful participation in activities and environments. Therefore, while, on a larger level, the ecological approach aims at improving the child’s functioning in activities and environments, it continues to embed specific developmental objectives into activity-based goals in order to achieve the quality-of-life outcomes being sought.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Choosing an AAC system](#)
- [The comprehensive AAC assessment](#)
- [The child’s communication needs/goals](#)
- [Two approaches: Developmental and ecological](#)

The ecological approach: Focusing on participation

Currently the ecological approach, which looks at the child’s functioning in relationship to the activities and environments in which he or she participates or is expected to participate, is considered by many to be the best method of assessing needs and identifying goals and instructional programs, particularly for school-age children with disabilities. It was originally developed by [Brown, Branson-McLean, Baumgart, Vincent, Falvey and Schroeder](#) who, in their landmark 1979 paper, described a procedure of systematically examining every environment, subenvironment and activity in which the child is involved, and looking at the meaningfulness of the child’s participation. They referred to this examination as an "ecological inventory." Rather than looking at the child’s abilities and disabilities in comparison to the norm, their model focuses on quality-of-life features such as the child’s independence, inclusion and self-satisfaction in his or her daily activities and routines. Ensuing goals and instruction, then, are aimed at increasing the overall quality and quantity of the child’s participation.

The ecological approach is typically used to evaluate all domains of a child’s life, but can, of course, be used to look just at specific areas. Communication interventions, in particular, lend themselves very well to the ecological approach since communication is an interactive exchange with other people in the context of particular settings and activities. In examining a child’s communication needs in light of the ecological model, it is useful to keep in mind the basic purposes of communication:

- To indirectly gain control over the environment.
- To regulate social encounters.
- To receive and convey information.



Generally speaking, increasing the child's ability to perform these functions through AAC results in improvements in the quality of his or her participation. (See [What is AAC?](#) and [When does a child need AAC?](#))

The rationale behind the ecological approach is that a child needs to be more than a spectator or a passive participant in the activities and routines that make up his or her day. Communication taught for the purpose of improving the quality of a child's participation will have more of an impact on his or her life than language or communication skills that are taught out of context. The basic principles of the ecological approach include the following:

- The intervention process, including assessment and instruction, occurs in the context of natural daily activities and routines.
- The environments and activities focused on are those in which the child is currently involved, or those in which the child is expected to become involved in the near future.
- Goals and objectives are selected on the basis of their functionality and meaningfulness to the child or significant others in the child's life. They are aimed at increasing the quality and quantity of a child's participation in regular activities and routines. This implies also that they are individualized to meet the specific needs of the child.

There are many advantages in using the ecological approach for designing interventions for children with disabilities.

- Children are more motivated to learn because the goals are functional and make sense to the child, and because they are embedded in activities and routines that are interesting and fun.
- Children do not have to be segregated while learning, and are less stigmatized since instruction occurs in natural contexts.
- The resultant shorter, more frequent teaching opportunities distributed throughout the day are a more effective way of teaching than longer, less frequent drill-and-practice sessions.
- Children are more likely to maintain their skills because they are practicing them in natural situations everyday.
- Because the skills are functional and meaningful, children are more likely to independently generalize their use to other settings and with other people ([Udwin & Yule, 1987](#)).
- Skills taught in natural settings can lead to other benefits, such as better relationships with other persons present, improved academic standing, and greater involvement in activities. ([Calculator, 1991](#)).
- Nonprofessionals are often involved in carrying out interventions, and, in fact, may, in many situations, be preferable to professionals because they are the child's natural communication partners.
- The same types of skills that are targeted by other methods can be taught using the ecological approach, so nothing is lost.

The following are descriptions of specific ecological assessment and planning strategies:

- [The ecological inventory.](#)
 - [The McGill Action Planning System \(MAPS\).](#)
 - [Choosing Options and Accommodations for Children \(COACH\).](#)
 - [Personal futures planning.](#)
-

The collaboration and cooperation of the AAC team is especially important when using the ecological approach to assessment and instructional planning. (See [The AAC team—the most important component.](#)) Because goals and teaching programs are based on the child's regular activities, no single person is capable of developing or carrying out interventions. The input of persons who know the child's interests, typical environments and daily schedule are as important as that of the professionals who understand how to convert that information into goals and instructional programs. In addition, because persons who are already a part of the child's life, including family members, often carry out the interventions, they must be involved in the decision-making process in order to optimize outcomes. Interventions must conform to the lifestyle and beliefs of the persons doing the teaching, or else they are likely to be ineffective.

OTHER RESOURCES:

- "A Resource List on Person Centered Planning" by Allen, Shea & Associates at www.napanet.net/business/personal/ASA/resource.html.
- "Personal Futures Planning for People with Disabilities" by The Center for Disability Information and Referral (CeDIR) at www.isdd.indiana.edu/~cedir/pfplan95.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Choosing an AAC system](#)
 - [The comprehensive AAC assessment](#)
 - [The child's communication needs/goals](#)
 - [Two approaches: Developmental and ecological](#)
 - [The ecological approach](#)

The ecological inventory

[Brown et al. \(1979\)](#)'s ecological inventory starts by examining the typical environments and activities in which the child spends time, and then identifies the adaptations and instruction that are necessary to improve the child's functioning within them. The ecological inventory is composed of the following steps ([Westling & Fox, 1995](#)):

- The child's AAC team (or special education team) meets. In addition to professionals, family members are essential to this process since they are the experts on the child's interests, capabilities and daily schedule. Furthermore, it is ideal if other persons involved on a regular basis with the child become involved since they will become an integral part of the intervention. Everyone on the team contributes to the assessment process.
- Together the team first identifies all the environments in which the child regularly spends time, for example, home, school, park, friends' homes, car, etc. Note, this should include environments in which the child does not yet, but would be expected to participate in the near future, for example preschool or the kindergarten classroom.
- The team next identifies important subenvironments within the larger environments. For example, in



the home the child spends time in the kitchen, the living room, the dining room, the bathroom, the child's own bedroom, siblings' and parents' bedroom, and outside in the yard.

- The team then identifies and describes in detail the specific activities of the child that occur in these environments. For example, at home a child typically has routines for waking-up, meals, play time, toileting and grooming, and bed-time. The bed-time routine may involve brushing teeth, putting on pajamas, reading a story with a parent, and saying good-night. Again, activities in which the child does not yet participate but are considered desirable for the child to become involved in, should be included.
- The next step is for the team to identify and prioritize the activities in which an increase in the quality of the child's participation is desired. This is often difficult since everyone wants to see the child progress in different areas. In general, activities that are highly motivating to the child, occur more frequently or for longer periods of time, or involve subskills that are used in many different activities (e.g. taking turns or saying "want") should be given higher priorities. It is also important that family wishes be given more weight than those of professionals, since the family is ultimately responsible for the child's development. (See [Forging an effective AAC team](#).)
- The team can then begin to outline specific ways in which the child can improve his or her level of participation in the target activities. The team conducts "task analyses" of each activity, which means breaking them down into their component steps. These are followed by "discrepancy analyses," in which the differences between the way peers participate in the activities and how the child with disabilities does are outlined. For example, a child without disabilities may typically introduce him or her-self by making eye contact, waving and saying "Hi! I am So-and-so," whereas a child with disabilities may simply look down and smile shyly. Areas in which it is desirable to reduce these differences or modify the manner in which the child functions become the communication needs of the child and the aim of the communication intervention program.
- The team designs and implements instructional programs and adaptations addressing the identified needs. The overall aim is to increase the child's ability to participate in the target activities with greater independence, self-satisfaction, and social interaction. The goal in the example given above might be to provide the child with a voice output communication device (VOCA) that would allow the child to self-introduce with an electronic "Hi! I am Judy," while the child makes eye contact and smiles.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

OTHER RESOURCES:

- Fuchs, D., Fernstrom, P., Scott, S., Fuchs, L., & Vandermeer, L. (1994). Classroom ecological inventory: A process for mainstreaming. *TEACHING Exceptional Children*, 26, 11-15.
- Westling, D. L. & Fox, L. (1995). *Teaching students with severe disabilities*. (pp. 125-128). Englewood Cliffs, NJ: Prentice-Hall, Inc.



The McGill Action Planning System (MAPS)

There are several other recommended assessment and planning strategies which use the ecological approach. Each of these methods examines the child in relationship to his or her whole life, and all place a high priority on the input of those persons closest to the child, in particular, family members. One is the McGill Action Planning System (MAPS) ([Forest & Lusthaus \(1990\); \)](#) [Vandercook, York, & Forest, 1989](#)). This process centers around eight basic questions, and utilizes a facilitator to assist the team in reaching consensus. The eight questions are:

- What is MAPS?
- What is the child's history?
- What is your dream for the child?
- What is your nightmare?
- Who is the child?
- What are the child's strengths, gifts, and abilities?
- What are the child's needs?
- What would the child's ideal day look like and what must be done to make it happen.

OTHER RESOURCES:

- Vandercook, T., York, J., & Forest, M. (1989). The McGill Action Planning System (MAPS): A strategy for building the vision. *The Journal of the Association for Persons with Severe Handicaps*, 14,.
- "Seeing the Whole Child: Making Action Plans for an IEP" by Tim Weiss at www.napanet.net/business/personal/ASA/maps.html.
- "ABC's of Education Making Action Plans (MAPs)" by Anne Malatchi at www.ttac.odu.edu/Articles/abc.html.
- "Mapping Out the Student's Future..." at www.michiganworks.com/transition/midland/maps.htm.

Choosing Options and Accommodations for Children (COACH)

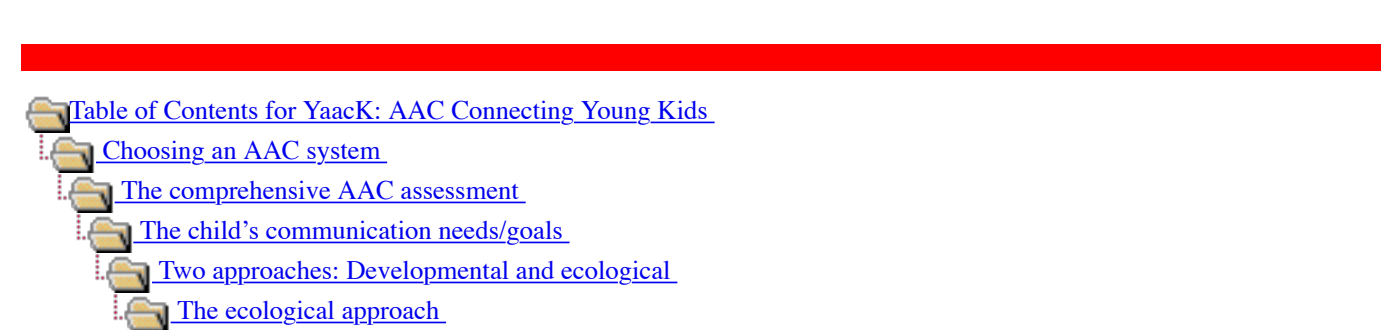


Another evaluation method based on the ecological approach is Choosing Options and Accommodations for Children (COACH) developed by [Giangreco, Cloninger and Iverson](#)

(1993). Using the COACH system, the team identifies "valued life outcomes" which are transformed into goals and implemented through instructional programs and adaptations. Goals are categorized either as high priority educational goals (i.e. IEP goals) based on what the family wants for the child, or "breadth of curriculum" goals which extend over additional areas where new skills are desirable. Emphasis is also placed on "general supports" which are adaptations made to the environment that promote a child's ability to participate. The COACH system is intended to assist children who are already in school, but it can be adapted for use with younger children.

OTHER RESOURCES:

- The most recent book on COACH is Giangreco, M.F., Cloninger, C.J., & Iverson, V.S. (1998). *Choosing outcomes and accommodations for children (COACH): A guide to educational planning for students with disabilities (2nd edition)*. Baltimore, MD: Paul H. Brookes Publishing Co.
- "Description of COACH (Second Edition)" is on the home page of one of its authors, Michael Giangreco, at www.uvm.edu/~mgiangre/coach.html.



Personal futures planning

Another assessment method based on ecological principles is called "personal futures planning" or "person-centered planning" (Mount& Zwernik, 1988). This strategy focuses on the strengths and capabilities of the child, keeping the child's needs the central focus of planning, as opposed to any policies or systems already in place. It is comprised of three parts:




- "The personal profile." At the initial meeting, the team shares basic information about the child. This includes a detailed history, the current accomplishments and lifestyle of the child, and what hopes and dreams each participant might have regarding the child's future.
- "The personal future plan." At a second meeting, goals are developed based on the hopes and dreams envisioned for the child's future. At the same time, potential obstacles are identified and intervention strategies are developed. These strategies must be actionable immediately.
- "Building a network." The final step is to create a support network of persons who will meet on a regular basis to continue planning and executing instruction and adaptations. This is very important because it prevents the discontinuities and lapses that so often characterize the intervention process for a child, and ensures that continued progress is made toward the envisioned future. It requires dedication and commitment on the part of all members.

OTHER RESOURCES:

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and

- "Focus On Severe Disabilities Person-Centered Planning" at www.ttac.odu.edu/Articles/PCentPl.html.
- "Person-Centered Planning: Maps and Paths to the Future" by Howard Garner and Lise Dietz at www.ttac.odu.edu/Articles/person.html.

**personal
experiences to
Ruth Ballinger at
yaack@iname.com**

-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
-  [Choosing an AAC system](#)
-  [The comprehensive AAC system](#)



The child's strengths and abilities

Besides identifying needs, another function of the AAC assessment is to recognize the current strengths, abilities and preferences of the child, as well as those that seem most likely to develop or change as the child matures.

Communicative ability is a highly individualized skill that can really only be evaluated and planned for on the basis of the child's ability to participate meaningfully in his or her own personal activities and settings. (See [The ecological approach: Focusing on participation](#).) There is, therefore, no universal communication assessment protocol, nor is there a single right way to conduct an assessment. The assessment is typically composed of some combination of interviews with family members, teachers and others who are close to the child, standard norm-referenced and non-standardized protocols, and trial-and-error skill testing both with and without aids and adaptations, including potential AAC systems. In fact, it is often recommended that the child try out potential AAC devices and systems during the assessment phase since this can provide very specific information on how well the child is able to utilize them.

OTHER RESOURCES:

- Some AAC manufacturers have rental programs for potential customers.
- The Alliance for Technology Access (ATA) operates centers in most states which offer support and advice, as well as lend AAC equipment for trial periods. A listing of their centers is available at www.ataaccess.org/atacenters.html.
- United Cerebral Palsy (UCP) spearheads a project called Tech Tots which organizes and maintains lending libraries of toys, computers, peripherals, software, and other assistive technology devices for families of young children with disabilities. For more information on Tech Tots, including a list of their centers as well as other organizations that operate lending libraries, go to www.ucpa.org/html/innovative/techtots/index.html.
- Cynthia Cress's Nov. 18, 1998 e-mail response under the heading "Standardized testing and AAC evals" explains why an AAC evaluation is not and should not be a standardized procedure. It is on the [RESNA](#) listserv archives at maelstrom.stjohns.edu/CGI/wa.exe?A1=ind9811&L=resna.



General tips in assessing strengths and abilities

- When assessing a skill or ability in a particular domain, it is important not to simultaneously introduce or teach the child anything new in another area. For example, if a child's ability to activate a particular switch is being assessed, don't attempt to teach the child choice-making or symbol-recognition at the same time. If the child falls short in such a situation, it will not be apparent whether it was due to difficulties in handling the new switch or with the concept of making choices or understanding symbols.
- Assessing a child's abilities and skills depends on the child being able to understand what is being asked (called receptive communication), and being able to express his or her understanding (called expressive communication). For example, a child may not activate a switch after a request to do so, whether the request was made verbally, by presenting the child with the switch, or by modeling so the child could imitate. It is not clear whether the child would have been able to activate the switch but did not understand what was being asked, or did understand the request but was not capable of activating the switch—or both. For some children with communication deficits, this presents a catch-22 situation: The child needs AAC in order to be assessed, but an assessment is necessary in order to determine what that AAC should be. In these situations, the answer may be to first provide the child with some type of AAC based on the information that is available. After the child has learned to communicate sufficiently with it, the remainder of the assessment can be completed and a more comprehensive AAC program designed. This is particularly true for children with severe motor disabilities ([Goossens', 1989.](#))
- Ideally, assessments should be conducted in natural environments, that is settings in which the child typically spends time. Information on what the child is capable of and what he or she needs to be learning tends to be more accurate and useful when gathered in this way. Family members and/or other familiar persons should be present not only to make the child feel more comfortable, but so as to include significant others in the sharing of information. (See [Arena assessments.](#)) If the child evidences stress, strain or fatigue, the assessment session should be terminated and continued at a later time not only for ethical reasons, but also because information gathered would no longer be accurate.
- It is not essential to cover every single area of a child's functioning during an AAC assessment. Only developmental areas that are delayed or involved need to be assessed. In fact, it is undesirable to do so since a complete assessment is time-consuming, stressful and unnecessary not only to the child and family, but to the professionals on the team as well. Assessments or reassessments can be conducted whenever it is felt that a crucial area was missed, characteristics of the child have changed in a substantive manner, or circumstances surrounding the child are different (e.g. the child is in transition, for example, to kindergarten) ([Halle, Alpert, & Anderson, 1984.](#)).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com



External obstacles

There are many reasons why a child may not be communicating or participating as well as could be in the activities and events of daily life. Characteristics of the child, the environment, or the persons with whom the child is involved may be at the root of a child’s lack of communication or passivity. Obviously, the child’s own communication impairment is one cause. Other reasons, however, are less apparent, like ignorance or negative attitudes on the part of partners towards individuals with disabilities, or the child’s own lack of self-confidence. It is important to identify these barriers and to address them.



Access barriers and opportunity barriers

In their book, [Beukelman & Mirenda \(1992\)](#) include detailed descriptions of the different types of obstacles to participation that exist for a child with severe communication impairments. Essentially, they describe two main types: "access barriers" and "opportunity barriers".

Access barriers are those in which the inability to participate is due to problems inherent in the child, the environment, or in the AAC system itself. These are generally addressed by straightforward instruction, aids and adaptations. The following table gives some examples of access barriers to communication, as well as solutions.

Access barriers	Solutions
<ul style="list-style-type: none">• Child has a communication disability.	<ul style="list-style-type: none">• Provide child with AAC.
<ul style="list-style-type: none">• AAC is inaccessible (e.g. AAC is not brought outside during recess).	<ul style="list-style-type: none">• Ensure availability of AAC at all times. The child may use different types of AAC that are appropriate to the situation (e.g. sign language during swimming). (See Multimodal communication.)
<ul style="list-style-type: none">• AAC does not have the necessary vocabulary.	<ul style="list-style-type: none">• Keep vocabulary complete, relevant and up-to-date. (See Vocabulary selection strategies.)
<ul style="list-style-type: none">• There are obstacles in the environment (e.g. child in wheelchair cannot get close enough to teacher to use his or her AAC system).	<ul style="list-style-type: none">• Modify the environment.

<ul style="list-style-type: none"> • Child lacks the self-confidence to use AAC in order to participate. 	<ul style="list-style-type: none"> • Work with child to increase self-confidence. Also teach partners how to encourage and assist child in participating.
---	--

Opportunity barriers are those in which the inability to participate is due to impediments imposed by the attitudes and fears of persons, or dsicriminatory organizations and policies that are external to the child and the environment. These are often more insidious and difficult to pinpoint, but no less inhibiting than access barriers. The following table gives some examples of opportunity barriers to communication, as well as solutions.

Opportunity barriers	Solutions
<ul style="list-style-type: none"> • Partners lack knowledge of how to include child. 	<ul style="list-style-type: none"> • Teach or train partners. (See Conversational control vs. conversational efficiency.)
<ul style="list-style-type: none"> • Partners have negative attitudes towards individuals who have disabilities (e.g. peers think child with disability is weird). 	<ul style="list-style-type: none"> • Educate, assist and support partners in including child. (See Using peers in interventions.)
<ul style="list-style-type: none"> • Organizations have policies that limit the ability of child to participate (e.g. a chess club does not allow a child to use computer-based AAC during tournaments). 	<ul style="list-style-type: none"> • Modify policies.

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Choosing an AAC system](#)
 - [The comprehensive AAC system](#)

Specific assessment questions: Communication

These questions look at both how the child currently communicates and what the child’s communication needs are.

- How does the child currently communicate?

Expressive communication may be through speech, gestures, eye gaze, facial expression, non-speech vocalization, crying, etc. Even behavior problems, such as aggression and self-injury, may be forms of communication. (See [Children with severe behavioral issues.](#))

- Does the child engage in intentional communication? If so, does he or she use symbols?

Unintentional communication is when a child’s behavior is still at the reflexive stage, but adults imbue it with communicative meaning. This is in contrast to intentional communication, when a child communicates in a direct attempt to influence another person.

A child is presymbolic if he or she must refer to an object or activity that is present in order to communicate about it. The child is capable of using symbols, however, if he or she understands that objects, pictures or other types of representations can stand for other objects, activities or people. (See



[Normal speech and language development](#) and [Assessing intentionality, and the understanding of means-end, causality and symbols.](#))

- How well does the child understand the communications of others (receptive communication)?

As mentioned above, receptive communication is important not only to the child's ability to communicate with others, but also to the assessment itself. A child who does not understand what others are communicating may not be able to respond in a manner that accurately depicts his or her cognitive, motor, expressive language and other abilities. (See [General tips in assessing strengths and abilities.](#))

- In which environments and settings does the child communicate or want/need to be able to communicate?

Note relevant characteristics such as noise level, typical distance between child and partner, weather conditions, etc.

- With whom does the child typically communicate or want/need to communicate?

Note relevant characteristics of partners, such as age, whether they are literate or not, special conditions such as vision or hearing impairments, etc.

- What kinds of things does the child communicate or want/need to communicate?

Consider the functions of communication—to indicate needs and wants, to interact socially, and to convey and receive information and ideas. Also consider the age of the child and who the partners are; a child interacts one way with parents, another way with teachers, and yet another with siblings or peers. (See [The ecological approach: Focusing on participation.](#)

- Does the child appear to enjoy social or communicative interaction?

Some children avoid social contact and initially need to learn how to enjoy interacting with others. (See [Teaching a child to enjoy social encounters.](#))

- What motivates the child to communicate?

For example, does the child typically want to obtain or reject objects or activities? Does he or she enjoy attention from adults, or siblings and peers?

- How do others respond to the child's attempts to communicate?

Children with disabilities may communicate in very subtle ways, and their communicative attempts may be ignored until they start fussing, crying or behaving in extreme ways. (See [Normal speech and language development](#) and [Children with severe behavioral issues.](#))

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com



Specific assessment questions: Cognitive abilities

Understanding a child’s cognitive abilities helps to determine the level of complexity of the contents of the AAC system (i.e. vocabulary, choice of symbols and organization strategies).

- What cognitive understanding does the child have?

In particular, does the child engage in intentional communicative behavior? Does he or she appear to understand the concepts of causality, means-end and symbols? Causality is the understanding of cause and effect. Means-end understanding is very similar to causality and is the realization that one action results in the occurrence of something else. These are important in teaching a child that pointing to a picture, making a manual sign or pressing a button on a voice output communication aid (VOCA) results in communication to a partner.

The understanding of symbols is the awareness that one item can represent another. This allows a child to use objects, pictures and, eventually, printed words to represent actions, thoughts and ideas ([Van Tatenhove, 1987](#)). (See [The first goal: Intentional communication](#) and [Assessing intentionality, and the understanding of means-end, causality and symbols](#).)

- If the child does understand symbols, which ones will work best?

Usually—but not always—tangible objects are easier to understand than pictures, which are easier than simpler line drawings, which are easier than abstract symbols ([Beukelman & Mirenda, 1992](#); [Mirenda & Schuler, 1988](#); [Reichle, York, & Sigafos, 1991](#)). However, there are tradeoffs among these choices, including portability (objects are heavy and bulky) and the amount of vocabulary that can be made available at one time (not very many objects can be presented at the same time, and even pictures are often bigger than line drawings). Generally, the most abstract system that a child is capable of working with offers the greatest flexibility.

See [Children with cognitive disabilities](#).

It may be necessary to actually begin teaching the child a set of symbols in order to determine whether it is the appropriate type of symbol or not. In choosing which symbol system to start with, it is often recommended that a more rather than less sophisticated type of symbol that seems within the realm of the child’s capability be attempted. It may be better to fail at this and to re-select a less advanced symbol system, than it is to settle on a system that does not allow the child to reach his or her full potential. (See [Types of symbol systems](#) and [Teaching symbols](#).)

- Does the child do better utilizing recognition versus recall memory?

Systems in which the child communicates without external devices, called unaided systems, such as speech or sign language, require recall memory, that is the child has to remember the symbol without any additional cues. Systems in which the child communicates with an external device, called aided systems, such as picture boards and voice output communication devices (VOCAs), involve recognition memory, that is the system itself

Help me—and everyone who reads this site—by

presents the child with a choice of symbols and the child just has to remember what the symbols mean. Recognition memory is generally considered easier than recall memory. On the other hand, aided systems that utilize recognition memory have vocabulary-size limitations while unaided systems do not have such externally-based restrictions. The child's memory skills also determine how the symbols are organized and arranged in aided systems. (See [Aided vs. unaided systems](#) and [Organizing vocabulary for speed](#).)

**mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

- Table of Contents for YaacK: AAC Connecting Young Kids
 - Choosing an AAC system
 - The comprehensive AAC system
 - Specific assessment questions
 - Cognitive abilities



Assessing intentionality, and the understanding of means-end, causality and symbols

Unintentional communication is the nonvoluntary or reflexive behaviors typical of infants that adults interpret and respond to as having communicative value. For example, when an infant cries, the parent may say "Oh, you are crying because you are hungry. Here is a bottle." Intentional communication occurs when a child behaves with the aim of influencing another person. Intentional communication covers a wide range of types of communication from non-symbolic, idiosyncratic behavior all the way to conventional, symbolic communication such as speech, sign language or a voice output communication aid (VOCA). (See [Normal speech and language development](#).)

Causality is the understanding of cause and effect. Means-end understanding is very similar to causality and is the realization that one action results in the occurrence of something else; for example, giving an adult a wind-up toy will typically result in the adult activating it. These are important in teaching a child that pointing to a picture, making a manual sign or pressing a button on a VOCA produces an effect in another person (i.e. results in communication).

The understanding of symbols is the awareness that one item can represent another. The child can then use objects, pictures and, eventually, printed words to represent actions and thoughts. This allows the child to refer to events and ideas that are not physically present, but are out of sight, in the past or future, or are abstract.

It is very important to determine the extent to which a child understands intentionality, means-end, causality, and symbols. Many practitioners make the implicit assumption that the child understands these by attempting to teach an AAC system that utilizes these concepts (e.g. depends on pointing to pictures, or making signs). The instruction will be unsuccessful, and, frequently, the child, instead of the program, considered a failure.

It is sometimes difficult to determine whether a behavior is intentional or not. Generally speaking, if the behavior would have just as easily occurred outside of the presence of another person, then it is probably unintentional. (However, several researchers point out that some children who produce a communicative behavior even if no one is around, may still be considered intentional communicators. Paradoxically, these are typically children undergoing aggressive communication programs. In the attempt to teach them that their

communication does have an effect on other persons, they never experience an unanswered communicative attempt. They never learn the necessity of obtaining the partner's attention prior to communicating because an adult is always there to respond ([Reichle, York, & Sigafoos, 1991](#)).

A child probably comprehends the concepts of means-end and causality if the child appears to understand how switch toys operate, demonstrates looking at or giving objects to an adult for the purpose of receiving assistance, or constantly tries to gain the attention of adults in a deliberate manner. If these actions are not present, then the child’s initial AAC program should not consist of switches or other indirect means of signaling. It also means that symbols should not be used, and that the child should be touching, pointing, reaching for or gazing directly at the object in reference.

Generally, a child understands symbols if he or she anticipates an activity by the appearance of one of the objects used in that activity, indicates an awareness of the meaning of frequently appearing symbols such as the CocaCola logo, or is interested in television or books. In contrast, a child is probably at a pre-symbolic level if he or she does not use objects as they were intended, but instead mouths, grabs or throws them ([Mirenda & Schuler, 1988](#)).

A test to determine whether the child understands symbols is to see whether or not the child can match similar objects. Presented with an object that is identical to one place in front of the child, he or she may grab or point to the identical object, or look back and forth between two identical toys ignoring dissimilar ones in the vicinity. If the child appears to be able to match identical objects, the same method can be used to see whether the child can match other types of symbols, such as photos, drawings, or line drawings to an object. (See [Teaching symbols](#).)

If the child is unable to even match objects to objects, then symbols should not be initially used in the AAC program. The child should be taught communication techniques, such as pointing, gazing or gesturing, that refer directly to the object in reference. At the same time, though, the program should begin using communicative techniques that advance the child’s cognitive understanding. This dual approach allows the child to be immediately successful in communicating, which increases the motivation to learn, while simultaneously progressing towards a more sophisticated and powerful method of communicating ([Van Tatenhove, 1987](#)).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Choosing an AAC system](#)
- [The comprehensive AAC system](#)
- [Specific assessment questions](#)

Specific assessment questions: Motor abilities

This determines how the child will access his or her AAC.

- What are the child’s current speech and oral motor abilities, and what are the prospects for their further development?



While some children with severe disabilities may never be able to depend on speech as their primary method of communication, many will be able to develop enough speech to effectively communicate with certain people or in certain situations. It is strongly recommended that vocalization be one part of

a comprehensive AAC program whenever possible. Even children who never develop any speech may be able to communicate through non-speech vocalizations. For example, the quickest and most convenient way for a child to get someone's attention may be to produce a sound loud enough to be heard across a room, as opposed to locating and pressing a button on an AAC device. It also means that a child is always with a means to communicate at least somewhat even if his or her primary AAC system is unavailable.

- What movements does the child have sufficient control over that can be used for AAC activation and control?

A child with good motor control may be a candidate for sign language or gestures. For children with greater motor disabilities, the primary purpose of this part of the assessment becomes to find one or more motor responses that the child can accomplish consistently and reliably. This would allow the child to activate one or more switches on an electronic device, or indicate a symbol on a communication board or to a partner who is scanning a communication board. (See [Switches and other types of input](#).) Besides consistency, it is important also to note the speed and force or pressure with which the movement can be made, any undesirable movements or reflexes that accompany it, and how fatiguing it is over time ([Silverman, 1980](#)).

It is also essential that proper positioning of the child be determined, not only for the purpose of the assessment, but for the future use of AAC as well. Positioning is absolutely key, particularly for a child with severe motor impairments. A child who is improperly positioned will experience unwanted reflexes, decreased range of motion, reduced field of visibility, and/or fatigue.

- How does the child move from place to place?

While this does not have a direct impact on the use of AAC, portability is a significant, and often overlooked, issue. It is important to determine how a device is to be transported and made available to a child who walks and runs versus one who uses a walker or wheelchair. In addition, children are not as large or as strong as adults and many AAC devices are too big or bulky to be carried comfortably. This can result in the AAC not being accessible for substantial portions of time.

See [Children with motor impairments](#).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:Ruth.Ballinger@yaack.com)

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Choosing an AAC system](#)
 - [The comprehensive AAC system](#)
 - [Specific assessment questions](#)

Specific assessment questions: Sensory functioning

- Does the child have any vision difficulties?

There are many different types of vision problems that can affect a child's



ability to discriminate among and utilize visual symbols besides visual acuity. It may be difficult to evaluate exactly what a child can and cannot visually process. Sometimes there is the mistaken assumption that because a child can navigate successfully around a room, he or she is able to utilize visual symbols. This is not always true since the visual requirements for maneuvering through space are different from those used in distinguishing visual symbols.

A child with vision impairments may require enlarged or otherwise specialized visual symbols, or even tactile or auditory symbols. It may be necessary to test several types of symbols before deciding which ones work best. (See [Types of symbol systems](#).)

See [Children with sensory disabilities](#).

- Does the child have any hearing difficulties?

A child with hearing impairments may not be able to hear speech intelligibly, and, thus, may need adaptations in receiving communication from others. This places an added burden on partners who may have to learn a new visually-based AAC system, such as sign language, gestures or visual symbols. Children with some residual hearing often benefit from a simultaneous language teaching approach in which the adult utilizes a visual AAC mode along with regular speech. (See [Simultaneous communication](#).)

- Is the child overly sensitive to stimuli?

Some children evidence extreme sensitivity to certain textures, pressures, sounds, or visual images. It is important to become aware of these and to adjust instruction and the environment in order to accommodate and/or overcome them. (See [Children with autism or autistic-like behaviors](#).)

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Choosing an AAC system](#)
 - [The comprehensive AAC system](#)
 - [Specific assessment questions](#)



Specific assessment questions: Behavioral issues

- Does the child engage in inappropriate or challenging behaviors, including aggression, self-injury or self-stimulation?

Sometimes children who are unable to communicate effectively will resort to inappropriate behaviors as a way to accomplish what they want. One solution is to determine what it is they are trying to communicate, intentionally or unintentionally, and then provide them with the means to communicate the same messages in an acceptable manner. (See [Children with severe behavioral issues](#).)





-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Choosing an AAC system](#)
 - [The comprehensive AAC system](#)
 - [Specific assessment questions](#)

Specific assessment questions: Current and potential obstacles

- What are the access or opportunity barriers preventing the child from achieving his or her full communication/participation potential?

(See [Access barriers and opportunity barriers](#).)



-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Choosing an AAC system](#)
 -  [The comprehensive AAC system](#)
 -  [Specific assessment questions](#)

Specific assessment questions: Aids and adaptations

- What aids and adaptations (e.g. AAC devices or systems, environmental modifications, policy changes, etc.) will best accomplish the child's goals given his or her strengths and abilities, and current situation?

Essentially, this constitutes the child's actual communication intervention program. Ideally, this should be a comprehensive, [multimodal](#) plan encompassing the types of AAC that the child will be using and how their instruction will proceed, as well as adaptations to the environments in which the child typically spends time and modifications to individual attitudes and organizational policies so as to encourage or enhance the child's ability to communicate/participate. If any component of the plan is neglected, progress of the child may be compromised. This requires that the AAC team continue to meet on a regular basis to constantly reevaluate the child's development and make adjustments to the plan as necessary.



OTHER RESOURCES:

- "Using An Assistive Technology Checklist to Facilitate Good Assessment and Planning" by Kelly Jo Lynch, OTR, ATP and Penny Reed, Ph.D, Director, Wisconsin Assistive Technology Initiative at www.dinf.org/csun_98/csun98_157.htm.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com





The assessment and the AAC team:

The assessment as an opportunity for team consolidation

Frequently by the time the assessment for an AAC system is being conducted, the child's AAC or special education team has already been formed and assessments in other areas completed. If this has not occurred, as is sometimes true in the case of accident victims or children with solely a communication impairment such as apraxia, then the team will probably be assembled at this point in order to do the assessments. The assessment process is a particularly critical period for a team because the information being gathered and shared will become the basis for the final choice of AAC and its accompanying instructional program. At this point, the team is usually still without the pressure of having to make any important long-term decisions. Thus, it presents an excellent opportunity for team members to get to know each other well, and to learn how to work together effectively.

During the assessment process, it is important to:

- Obtain all relevant information from everyone who can contribute. This includes family members and others close to the child, teachers and other professionals, and persons who are or will be a significant part of the child's life, such as a recreational specialist.
- Share this information so that all team members have the same background on which to base subsequent decisions.
- Use [arena assessments](#) whenever possible, as opposed to therapists conducting separate assessments.
- Get used to and adjust to different members' personal working and meeting styles, and develop interpersonal relationships that are respectful, comfortable and open.
- Begin to learn about each team member's expectations, fears and hopes for the child.

Arena assessments

Arena assessments occur when more than one therapist conducts an evaluation simultaneously, with at least one family member also present. Arena assessments are ideal for fostering openness and trust among team members. With everyone participating and witnessing the same event, sharing of



information occurs naturally and participants become more aware of each others' particular goals and concerns for the child. Arena assessments provide an excellent opportunity for all team members to have equal access to information and establishes a shared background on which future discussions can be based. Even when arena assessments are not possible, at least one family member should be present during every evaluation since this is an ideal way for family and professionals to share information and learn about the child together.

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Choosing an AAC system](#)
- [The assessment and the AAC team](#)

When family and professionals disagree

One of the most important considerations in selecting an AAC system is that it conform to the desires of the child, and the child's family and other close partners since these are the persons whose lives are most affected by the choice of AAC. Naturally, the extent to which the child has opinions which can be taken into account depends on characteristics of the child, as well as the ability of adults to identify any indications of preference that the child might make. Note that the child does not have to explicitly state a preference; adults can utilize implicit information such as how often and how long the child uses a particular form of AAC, and whether he or she appears to enjoy learning or using it ([Soto, Belfiore, Schlosser, & Haynes, 1993](#)).

It is crucial that the preferences of the family be taken into consideration, or even given precedence over those of the professionals on the team, since they know the child best. Family members are the ones who have been and will remain responsible for the child after the current set of professionals are no longer working with the child. Moreover, professionals may be basing their judgements on seeing the child only in school or therapy situations. Even when professionals and specialists strongly disagree with the family for solid professional reasons, failure to give priority to the considerations of the family can result in the AAC system simply not being used, especially with friends and family ([Angelo, Jones, & Koskoska, 1995](#); [Hetzroni & Harris, 1996](#)). (See [Forging an effective AAC team](#).)



Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Choosing an AAC system](#)
- [The assessment and the AAC team](#)
- [When family and professionals disagree](#)

Issues of importance to families

Some of the following issues have been identified as important to the child and family in the selection of an AAC system ([Mirenda & Iacono, 1990](#); [Parette, &](#)

- Families may not want their child to use AAC at all, or may not want their child to use it in public. They may feel that it stigmatizes the child, or signifies the end of all hope that the child will ever learn to speak. These fears are understandable, and it is important for professionals to respect their desire to protect the child. At the same time professionals can gently help the family realize the importance of AAC in allowing the child to participate at home, in school and in the community, and all the ways that AAC can help the child develop, especially cognitively and socially. (See [When does a child need AAC?](#) and [Does AAC impede the development of natural speech?—and other fears.](#))
- Families may prefer unaided approaches (i.e. AAC that does not use external apparatus, for example sign language), or speech even if it is of limited intelligibility. They may feel it is more natural and intimate using a low or no-technology system with their child. They may be uncomfortable with electronic devices, especially with the programming, maintenance and repair that they entail. (See [High tech vs. low or no-tech.](#))
- On the other hand, families may prefer high technology aids. They may feel that electronic AAC provides more power, flexibility and potential for growth. In addition, they may feel that use of a computer or voice output communication aid (VOCA) provides their child with a competitive edge in today's computer-based society. (See [High tech vs. low or no-tech.](#))
- The child may dislike the voice output of a computer or VOCA. Children are sometimes reluctant to use a voice that they feel does not represent themselves ([Yinger, 1997](#)). The child may refuse to use the device and prefer a low or no technology approach, and no one may know the reason why. (Thus, if a child is not using a VOCA for an unknown reason, it may be worthwhile experimenting with a different voice. Child voices of the same gender are good choices.)
- The family may want the professionals on the team to make all the decisions. By giving away their power in this process they can relieve themselves of the overwhelming pressure of making a selection that will have a life-long impact on their child. In this situation, the professionals on the team can help the family realize that their input is extremely valuable because they know their child best. Furthermore, the family can be made to understand that the AAC process is an ongoing one and that no decision is irrevocable.



- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Choosing an AAC system](#)
- [The assessment and the AAC team](#)
- [When family and professionals disagree](#)

Solutions to family-professional differences

In situations in which the professionals disagree with the family, the ideal solution is for members of the AAC team to continue to gather information, then meet to hash out their differences, and finally come to a set of decisions on which everyone can agree. (See [The AAC team—the most important component](#) and [Forging an effective AAC team.](#)) One possible solution is to focus on different AAC systems



at home and at school. For example, using speech with limited intelligibility at home and an alternative communication mode at school allows the child to maintain both academic growth at school and the comfort of using a faster and more intimate technique at home. (See [Multimodal communication](#).)

An interim solution is to utilize trial periods for different types of AAC, with agreed-upon methods for evaluating the degrees of success. More than one type of AAC can be tried out simultaneously, which is a faster way to evaluate multiple systems, although it can become confusing to the child. However, sometimes the best system emerges relatively quickly, after which it becomes the main focus of the intervention.

In cases in which no agreements, not even a temporary arrangement, can be reached, one of the parties, usually the family, may decide to resort to legal action. (See [Legal assistance](#).)

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)
© YAACK 1999





Selecting the right AAC system:

Guidelines in selecting an AAC system

After the initial assessment, one of the first tasks is to choose which AAC devices or systems will be given to the child. The following are general guidelines to use in the selection process.

- It is initially easiest to eliminate systems that are obviously inappropriate. Once the possibilities have been narrowed down, it is highly recommended that the child try out one or more AAC systems that seem promising. This is particularly true of expensive devices such as computers and voice output communication devices (VOCAs). (In many cases, the child will have already tried one or more devices during the assessment.)

Usually, a system or device must be tested by the child for a period of several weeks in order to get a full picture of how well the child is able use it, how it fits into the settings and activities that make up a typical day, and whether or not the child and his or her family like it or not. Unexpected problems or issues may arise when a system is actually being learned and used by the child in regular environments. It is important to note that children often do not know how, or will even resist using AAC because it is unfamiliar and may feel intrusive. Thus, if a child does not meet expectations during a trial period, this does not necessarily mean that the system is not the right one, or that the child will never use it.




- A good rule of thumb in selecting the various modes of communication that will make up a child's AAC system is to always choose the method that is the quickest and most efficient, and does not cause negative side effects such as fatigue or harmful reflexes. Since communication requirements vary in different situations, [multimodal communication](#) is the best way to achieve these goals ([Reichle, 1997](#)).
- In selecting AAC it is easy to get distracted by equipment and systems, and forget that technology is not what teaches a child to communicate, people do. It is important, therefore, to keep in mind what the child's communication goals are, and to have already begun thinking about teaching methods ([Blackstone, 1989](#); [Udwin & Yule, 1987](#)).
- While the entire AAC team is involved in the decision-making process, the child's and family's desires and opinions must be given the greatest weight. Without the support of the family, AAC systems are likely to go unused in the home which is where a young child spends a great deal of time. In addition, it is the child and his or her family who will be using the AAC system long after specific teachers, therapists and other team members have left the picture. (See [When family and professionals disagree](#).)
- There are several interactive database programs that can be of great help to team members trying to select the right AAC system for a child. Typically, these programs will ask a variety of questions regarding the child's communication-related abilities and needs, and then, based on the answers, suggest one or more specific AAC devices or systems. It is important to be aware that some of these programs may focus only on electronic devices and are not programmed, therefore, to suggest an unaided approach such as sign language or a no-technology approach such as a communication board.

Nevertheless, these programs can be very useful to an AAC team with relatively little experience, or team members who are unable to keep up with the proliferation of AAC devices that have come onto the market in recent years. While they should never be expected to provide the magic answer to a child's AAC needs, they can be useful in helping the team identify potential devices for further evaluation or tryouts. One way of evaluating the quality of one of these programs is by the sheer number of devices listed in its database.

OTHER RESOURCES:

- Some AAC manufacturers have rental programs for potential customers.
- The Alliance for Technology Access (ATA) operates centers in most states which lend AAC equipment for trial periods. A listing of their centers is at www.ataccess.org/atacenters.html.
- United Cerebral Palsy (UCP) spearheads a project called Tech Tots which maintains lending libraries of toys, computers, peripherals, software, and other assistive technology devices. For more information, go to www.ucpa.org/html/innovative/techtots/index.html.
- Needs First: AugCom System Search Tool, developed by Barbara Couse Adams and Cindy L. George, at www.augcomm.com/needsfirst.html.
- AAC Feature Match Software by Doug Dodgen and Associates is at www.dougDodgen.com/fm/Introduction.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Choosing an AAC system](#)
 -  [Selecting the right AAC system](#)

High tech vs. low or no-tech

Whether to focus mainly on a high technology AAC solution such as a computer or voice output communication aid (VOCA), as opposed to a nonelectronic system like a communication board used with finger-pointing or eye gaze depends, at least in part, on the following:

- What the child and his or her family want.
- The cost of the system.
- Flexibility of the system and its ability to keep up with the child's communication growth. One rule of thumb is that an electronic device for a youngster should be expected to last about three years ([Bizot, 1998](#)).



- Whether partners (family members, peers, strangers, etc.) can understand it or will have to learn it (i.e. a VOCA can be readily understood; sign language would likely have to be learned).
- Whether teachers are already familiar with the system or have already taught it.

It is important, however, that no decision be made solely based on the following issues.

- It is hoped, or even expected, that the child will eventually speak. (See [When does a child need AAC?](#) and [Does AAC impede natural speech?—and other fears.](#))
- Cost of the system.

No matter what decision is made, it is a good idea to teach the child how to communicate with at least one technology-independent AAC system for situations in which it is not possible to use an electronic device (swimming, for example), or to safeguard against the possibility of a system breakdown or loss. (See [Multimodal communication.](#))

OTHER RESOURCES:

- Cynthia Cress's Sept. 22, 1997 e-mail response under the heading "2 years old & best early AAC systems" discusses some of the issues to consider regarding a high tech AAC system for a two-year-old. It is on the [ACOLUG](#) listserv archives at listserv.temple.edu/cgi-bin/wa?A2=ind9709&L=acolug&F=&S=&P=20234.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com





AAC devices and systems:

The main categories of AAC

The following are the main categories of AAC. They do not represent the entire range of communication modes in use. This list focuses only on systems that require the child to be an intentional communicator and understand symbols. (See [Assessing intentionality, and the understanding of means-end, causality and symbols](#).) It does not include the myriad other ways in which a child communicates intentionally or unintentionally, such as facial expressions, body position, muscle tone, vocalizations, etc.

- Graphical communication boards have no or low technology requirements, and utilize pictures, drawings, abstract symbols and/or text as symbols. Examples are communication books, wallets or vests that are referenced by pointing, eye gaze, touching, or scanning that is activated through switches or by indicating to an adult. The symbols on a graphical system may be represented visually, auditorily and/or tactually. These systems tend to be relatively inexpensive and are often homemade.

A disadvantage of these types of graphical systems, however, is the fact that the partner has to pay attention to the communication board when the child is using it, and not to the child; likewise, the child has to look at the board, too, instead of the partner's face. In addition, the child must use another method to obtain the attention of someone who is not close by and attending. (See [Multimodal communication](#).) Adults may also have to learn the symbol system being used.

Eye gaze techniques are one form of accessing a low or no-technology AAC system. They can be used either to indicate real objects directly, or symbols on a communication board. (See [Eye gaze techniques](#).) They are typically used by children with severe motor disabilities. The main advantage of eye gaze techniques over other methods is speed and efficiency of communication. One of their greatest disadvantages is that they require substantial effort from the partner to decipher exactly at what the child is looking ([Goossens', 1989](#); [Goossens' & Crain, 1987](#)). (See [Conversational control vs. conversational efficiency](#).)

- Voice Output Communication Aids (VOCAs) are also graphical systems, but, unlike communication boards, are high technology devices that output speech. VOCA typically refers to a dedicated electronic speech apparatus, but, for the purposes of this resource guide, computers are referred to under this category since they can also be used as speech output devices. (Even cassette tape recorders can, in some instances, accomplish the same goals as a VOCA.)

VOCAs range considerably in their flexibility, from a single message VOCA to a sophisticated VOCA with a lot of memory and the ability to store a virtually unlimited number of messages. Vocabulary must be programmed into a VOCA, which may be done at least partially at the manufacturer's or entirely by the purchaser.

- Sign language consists of consistent finger and/or hand movements, and may include conventional (e.g. American Sign Language) and idiosyncratic sign languages (e.g. signs that the child has made up which are understood by family members).

- Gestures are physical movements that are grosser than signs, utilizing entire arm or body movements. Although often a child’s gesturing is self-developed, there are conventional gesturing systems which can be formally taught.
- Speech is considered to be spoken words that are comprehensible to at least one other person.
- Vocalizations are sounds produced by the throat and mouth that are not words or approximations of words, but are able to be used for communication consistently and reliably.
- Concrete objects are tangible objects which are used as symbols for other objects or activities. They may be whole, miniature or partial objects, and are indicated by being pointed to, reached for, touched or held.

OTHER RESOURCES:

- "AAC Toolbox for 2000" by Paula Walser MS/CCC SLP, ATP at www.csun.edu/cod/conf2000/proceedings/0131Walser.html.
- "Introduction to Augmentative and Alternative Communication (AAC)" at call-centre.cogsci.ed.ac.uk/CALLResearch/AAC/AACIntro.
- "Forms of Low Tech Communication Aids" by Linda Fielding at www.ttac.odu.edu/Articles/Commair1.html.
- "Optimising access to communication boards and devices: The contribution of the Occupational Therapist" by Desleigh de Jonge at curriculum.qed.qld.gov.au/lisc/articles/therapy/thart1.htm.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Choosing an AAC system](#)
 - [AAC devices and systems](#)
 - [The main categories of AAC](#)

Aided vs. unaided AAC systems

An aided AAC system is one that utilizes an external device. Examples are voice output communication devices (VOCAs), computers and communication boards. Unaided systems are those which are independent of a device, such as speech, vocalization, gestures or sign language. There are advantages and disadvantages to both types of systems.



	Aided systems	Unaided systems
Examples	<ul style="list-style-type: none"> • Communication boards • VOCAs • concrete objects 	<ul style="list-style-type: none"> • Sign language • gestures • vocalization

	<ul style="list-style-type: none"> computers 	<ul style="list-style-type: none"> speech
	Aided systems	Unaided systems
Advantages	<ul style="list-style-type: none"> Flexibility. <p>Devices used in aided systems are highly flexible and can be designed to take advantage of a child's strengths and skills, and to compensate for disabilities. They can be accessed in a variety of ways, their output can be visual or auditory, and they can be used with different symbol systems and vocabulary organizational strategies. In particular, they are excellent for children who have severe motor impairments, since they can be switch-activated. (See Communication boards and VOCAs and Direct selection and scanning techniques.)</p> <ul style="list-style-type: none"> Use of recognition memory. <p>In general, aided systems utilize recognition memory (the child is presented with several message choices and merely has to choose the correct one), as opposed to recall memory (the child has to remember how to produce a message with no external cues). Recognition memory is considered cognitively easier than recall memory. Thus, aided systems are beginning to be used more and more with children who have cognitive impairments, even though they may be capable of sign language (Iacono & Duncum, 1995; Iacono, Mirenda & Beukelman, 1993).</p> <ul style="list-style-type: none"> Nontransience. <p>Aided systems are usually nontransient, that is their messages are continually accessible. This means a child can examine them visually or tactually for as long as necessary. The exceptions are auditory-based aided systems for children with visual impairments.</p> <ul style="list-style-type: none"> Use of different sensory modes. <p>The device can present the child with message choices in any of the five sensory modes. This makes aided systems good for children with sensory impairments, as well as for children who manifest specific sensory learning styles.</p> <ul style="list-style-type: none"> Capable of speech output. 	<ul style="list-style-type: none"> Convenience. <p>Unaided systems do not depend on anything external. Thus, the child is never without this mode of communication. It is not subject to breakage, loss or lack of availability.</p> <ul style="list-style-type: none"> Unlimited vocabulary potential. <p>A child's vocabulary depends only on what he or she is capable of learning and is not limited by the characteristics of the device or what someone else has programmed in.</p> <ul style="list-style-type: none"> Speed. <p>All things being equal, unaided techniques have the potential to generate communication at faster speeds.</p> <ul style="list-style-type: none"> Cost. <p>Unaided systems do not have to be purchased or constructed.</p>

	<p>Among aided systems, VOCAs represent a new class of AAC. A device with voice output has the advantage of being readily understood by others, as well as providing the child with immediate feedback regarding what message was actually transmitted. This helps the child monitor his or her own communication and self-correct as necessary. Moreover, some children seem to prefer using VOCAs to sign language (Iacono & Duncum, 1995; Soto, Belfiore, Schlosser, & Haynes, 1993).</p>	
	Aided systems	Unaided systems
Disadvantages	<ul style="list-style-type: none"> • Inconvenience. <p>Aided systems are less convenient. Portability is a big issue since they have to be carried or mounted on wheelchairs.</p> <ul style="list-style-type: none"> • Cost (in terms of money and time). <p>The devices must be constructed or purchased, and are subject to weather, breakage and loss. Their content (i.e. messages and vocabulary) is limited to what the device is capable of holding, and to what is programmed or added in by an adult. All in all, the user is highly dependent on the device itself, as well as the adults who are maintaining the device.</p> <ul style="list-style-type: none"> • Lack of intimacy. <p>In addition, some people feel that interlarding a device in a social interaction reduces the feeling of closeness and intimacy.</p>	<ul style="list-style-type: none"> • Recall memory. <p>Unaided systems depend on recall and not recognition memory. The child has to independently remember how to communicate a particular message. This is considered more difficult than being able to choose correctly from a set of messages presented on a device (Iacono & Duncum, 1995).</p> <ul style="list-style-type: none"> • Transience. <p>Unaided systems are more transient than aided ones. Speech, for example, lasts only as long as it takes to say the words. Sign language is considered a little less transient since a sign can be made visible for a period of time. Still, in order for the next sign to be made, the previous one is no longer available.</p> <ul style="list-style-type: none"> • Motor requirements. <p>Unaided systems necessitate specific motor abilities. Speech demands sophisticated oral-motor skills, and sign language requires fine and gross motor skills. Gestures and vocalization are less demanding, but still require distinct motor abilities.</p>

	Children who do not have these capabilities are not candidates for these modes of communication.
--	--

Traditionally, if a child has the requisite motor skills, practitioners have recommended that an unaided system be used. Sign language, for example, has been very widely used among children diagnosed with Down Syndrome or autism. More recently, however, researchers have been looking at the effects of learning style, specific cognitive/memory skills, and the role of speech feedback (i.e. voice output of computers and VOCAs) in successful AAC outcomes. This has resulted in larger numbers of motorically capable children being equipped with aided AAC, and, in particular, VOCAs ([Ronski, Mirenda, & Schuler, 1988](#)).

In addition, it is highly recommended that a child be taught at least one unaided system, even if only for emergency purposes. The reason for this is that aided systems can be lost, stolen or otherwise unavailable. Lack of availability is one of the most common reasons for lack of use of AAC cited by adult AAC users ([Murphy, Markova, Collins, & Moodie, 1996](#)). Unless the child has an alternative mode, he or she may be without the means to communicate for a long period of time. (See [Multimodal communication](#).)

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

 [Table of Contents for Yaack: AAC Connecting Young Kids](#)

 [Choosing an AAC system](#)

 [AAC devices and systems](#)

Issues with different AAC devices and systems

Here are some of the many issues that need to be considered in the selection of an AAC device or system. Some of the answers will be inherent to the device or system itself, others have to come from the manufacturer of the device. (See [Finding answers to specific AAC questions](#).)



- If a device uses batteries, how long will the batteries last before needing to be recharged?
A dead battery without a replacement could leave a child without his or her primary means of communication.
- How reliable is the device?
Users are more likely to encounter breakdowns with technology-dependent devices than with technology-independent devices.
- How easily is the device repaired?
Sometimes high tech devices like voice output communication aids (VOCAs) and computers take weeks to be fixed.
- How easy is it to make, program, add to, modify or update the device?
High technology devices, for example, must be programmed. Many graphical devices, both high and low technology, require overlays or pages to be constructed. Given the number of activities—and,

therefore, messages—in which the child may be involved in at home, at school and in the community, updating can require a substantial amount of work.

- What is the quality of the speech output of a VOCA? Can it generate different voices, such as a female's or a child's?

Not only is it crucial that partners be able to understand the speech output of the device, but children are often very sensitive to the quality and type of voice that is being used to represent themselves. The wrong voice could mean the child's refusal to use the device, and the adults involved would probably never know why the device was rejected ([Bizot, 1998](#)).

- How portable is the device or system? Can it mount on a wheelchair? Can a young child handle it independently?

Keep in mind that children should be able to communicate at all times, even while walking or otherwise moving from place to place, playing, riding in the car, etc. Children are also small and may have difficulty handling a large or heavy device whether they have physical disabilities or not. This underscores the importance of developing a [multimodal AAC](#) program, in which different AAC devices or systems are used in different circumstances.

- How sturdy is the device or system?

Children can be very hard on equipment, including AAC devices.

- How expensive is the device?

Expense must be looked at in terms of both money and time. High technology devices can cost thousands, while low technology ones can often be homemade. Yet, the time required to construct all the overlays or vocabulary pages necessary for many different activities in different environments may be so great that the high tech device becomes more cost effective. In addition, it is important to consider how difficult it would be to replace a device if it were lost, stolen or irreparably broken.

- Can the device accommodate direct selection or scanning as needed?

Direct selection is when the child is able to directly indicate a message, for example, by pushing a button, pointing or looking at a selection. When a child is unable to use direct selection, message items must be presented to the child sequentially until the child indicates a choice, called scanning. (See [Direct selection and scanning techniques](#).)

- Can the system be used independently, or does it require the assistance of a partner?

A system is independently used if the child is able to produce messages without adult help. For example, if the child directly selects the message, or is able to activate and interrupt an electronic scanner then he or she does not require the help of an adult. A system requires the assistance of a partner if the partner is in control of scanning and awaits a signal from the child indicating message choice. Examples of this are if the partner recites the available choices (auditory scanning), or points from one picture to another on a picture board (visual scanning).

- Can the system be used over distances? Can it be used if the partner is not looking?

A picture board or sign language necessitates the partner being close enough to see the picture or sign that is being indicated. An eye gaze system is even more demanding, and requires that the partner be positioned so that he or she is able to tell at what the child is looking. On the other hand, a child who can vocalize, use speech, use a VOCA, clap loudly, etc. is able to get the attention of a partner some distance away who is not looking at or paying attention to the child.

- Does the system provide feedback (i.e. does it let the child know whether the right selection was made or not)?

Many VOCAs offer the user several kinds of feedback; for example, when a message button is pushed a light may go on, a beep may be heard, and, of course, the message is spoken aloud. All this informs the child that a button was pushed successfully, and what the message on the button was. On the other hand, if a child is pointing at a picture on a picture board, he or she may not know whether or not the correct picture is being indicated until the partner responds. Feedback allows the child to self-correct independently when necessary.

- How rapidly can communication occur?

The speed of communication play a large role in conversational quality. Interactions between AAC users and non-users tend to be imbalanced, with non-users dominating conversations, and users primarily in the role of respondent. Studies have shown that one of the main stumbling blocks to equalizing their standing is the speed with which the AAC user can converse. (See [Conversational control vs. conversational efficiency](#).) One way a child may be able to increase conversational speed is by utilizing more than one mode of communication at the same time, for example using speech and gestures whenever possible, relying on a VOCA only as necessary. (See [Multimodal communication](#).)

- How difficult is it for the child to learn how to operate/use the device? How difficult is it to learn the symbol system?

Often there is a trade-off between ease of learning and system flexibility for both devices and symbol systems. For example, a VOCA with only three buttons may be very easy to figure out, but it offers limited opportunity for growth. Among symbols, pointing to tangible objects may be easy to learn, but is less flexible and convenient than graphic symbols.

- How much vocabulary can be made available at one time?

For example, a computer-based system may be able to store thousands of messages, or a picture board can be made with many pages. On the other hand, a system based on tangible objects will be highly limited due to the size of the objects.

- How comprehensible is the system to partners?

VOCAs, for example, output regular speech, but sign language or other symbol systems can be like a foreign language and must be learned by partners.

- How viable is the system in different kinds of weather and at various times of day?

It is obvious that rain and darkness can be issues, but computer screens and LCD screens can be difficult to read in bright sunlight too.

- Can the system accomplish other activities besides AAC? In particular, can the system accommodate writing as well?

A computer, for example, is very flexible in this regard ([Vanderheiden, 1984](#).) For many children, a writing device is essential.

- Is there capacity within the system for a child to grow and develop, without it being too complicated for the child to use now, or too expensive?

In selecting a system, it is necessary to ensure that the child is capable of using it effectively right now, but also that there is room to accommodate advancement. The cost of the system comes into play, too, since systems, electronic ones in particular, are often not expected to last forever. Regarding VOCAs, one rule of thumb is to expect the device to last approximately three years for a child ([Bizot, 1998](#)).

OTHER RESOURCES:




- "Customised Tray Mounting Systems for Communication Devices" by Jo

Help me—and

Ford, Occupational Therapist at curriculum.qed.qld.gov.au/lisc/articles/at/atart44.htm.

- "How much smaller can you get? A look at small communication devices" by Penny McCulloch at curriculum.qed.qld.gov.au/lisc/articles/at/atart5.htm.
- "Have cart, will travel" by Mike Meyers and Pat Chisholm, a description of how to construct a cart on which a child can transport an AAC device, at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1104&b=2.

**everyone who
reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Choosing an AAC system](#)
 [AAC devices and systems](#)



Issues with symbol systems

A symbol is anything that represents something else. Symbols are useful because they allow us to refer to objects and events that are not currently present, or are abstract. A child who is pre-symbolic points at, looks at, gestures towards or otherwise refers to what is present and happening in the here and now. (See [Assessing intentionality, and the understanding of means-end, causality and symbols](#) and [The first goal: Intentional communication](#).) Symbol systems include speech, sign languages, formal gesturing, and graphical systems (i.e. picture-, drawing- or text-based systems).

The type of symbol system is somewhat determined by the choice of AAC. For example, speech encompasses English and other languages, sign language may be American or some other type, a graphical system may use pictures or the alphabet. (See [The main categories of AAC](#).) Once the broad choices have been made, it is necessary to select the specific symbol systems to be used with each type of AAC. Although there are different types of sign language and gesturing systems from which to choose, discussions regarding symbol system selection typically refer to those used with communication boards, voice output communication aids (VOCAs), computers, and other graphical systems because the options are very diverse.

The selection of a symbol system is important and individualistic. It cannot be decided by age, cognitive ability or developmental level of the child, although these do influence the decision. A predominant physical issue that impacts the choice of a symbol system is whether the child has a sensory impairment, which may affect his or her ability to perceive and process certain types of symbols. Children with visual impairments may require tactile or auditory symbols alone or in conjunction with enhanced visual symbols. (See [Children with sensory disabilities](#).)

In addition, it is important to consider whether the persons with whom the child will be communicating already know a specific symbol system. Choosing an already familiar symbol system means that teachers or family members do not have to learn a new one, and may have had some experience in teaching it. On the other hand, it is important to make sure that a particular symbol system is not being recommended simply due to someone's desire not to have to learn a new system, or to lack of information about other systems ([Romich & Zangari, 1989](#)). (See [Teaching symbols](#).)

Sometimes a child will initially be taught one symbol system and then move on to a more abstract system that allows for increased sophistication of messages and speed of production. Studies have shown that, in general, the more concrete and real-looking the symbol, the easier it is learn to use, although the less flexible it is. For example, focusing on nouns, the order from easiest to hardest to learn among the following symbol systems is: objects, color photographs, black-and-white photographs, miniature objects (i.e. the identical object but on a smaller scale), black-and-white line symbols (including Picsyms, Self-Talk, Picture Communication symbols and rebuses), Blissymbols, and, finally, written words. ([Beukelman & Mirenda, 1992](#); [Reichle, York, & Sigafos, 1991](#)). A child who is a pre-intentional communicator, for example, may have to start out learning with concrete objects, and then move on to a more abstract and less cumbersome system. See [Start with objects as symbols](#).)

OTHER RESOURCES:

- "AAC Symbol System References" at www.asel.udel.edu/at-online/technology/aac/symbols.html. (Note that this site is currently undergoing renovation and is not available.)

The following books include comprehensive descriptions of different symbol systems.

- Beukelman, D. R., & Mirenda, P. (1992). *Augmentative and alternative communication management of severe communication disorders in children and adults*. Baltimore, MD: Paul H. Brookes.
- Reichle, J., York, J., & Sigafos, J. (1991). *Implementing augmentative and alternative communication*. Baltimore, MD: Paul H. Brookes.
- Silverman, F. H. (1980). *Communication for the speechless* (3rd ed.). Needham Heights, MA: Allyn and Bacon.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

-
- [Table of Contents for Yaack: AAC Connecting Young Kids](#)
 - [Choosing an AAC system](#)
 - [AAC devices and systems](#)
 - [Issues with symbol systems](#)

Minspeak vs. Dynamic Display

Related to the selection of a symbol system is its organization. The organization of symbols is very important because it establishes how a child locates a particular message, and, consequently, affects the speed (how long it takes) and efficiency (how many movements are required) to output a message. Currently among voice output communication aids (VOCAs), there are two predominant symbol organizational systems, Minspeak, also known as Semantic Compaction, which is associated with the Prentke-Romich Co. (www.prentrom.com), and Dynamic Display Pictograph technology, which is associated with Sentient Systems (www.sentient-sys.com). Both are symbol organizational systems used with sophisticated voice output communication aids (VOCAs) that allow the user to quickly locate the desired message among all the available messages.

In simplest terms, Minspeak uses a single overlay in which a number of picture-covered buttons are located.



By pressing a button or combinations of buttons, the desired message is activated. The pictures themselves are logically selected to act as cues to remind the user of the underlying message(s). One picture can represent more than one word or concept. For example, a picture of an apple can represent an apple, food in general, or red objects. If the user wants to say a certain food, then the apple is selected to represent food, followed by at least one other button to, then, indicate the specific food.




In contrast, dynamic display systems are organized on a hierarchical basis, with each level of pictures increasing in specificity. Pressing a picture-button automatically displays only the set of pictures (i.e. categories or messages) that are under the category of the previous button. The first level of pictures, therefore, represent the largest themes. Pressing one of these picture-buttons automatically reveals the next logical set of pictures representing items in that theme. In this manner the user navigates down through automatically-appearing menus until the desired message is found. For example, pressing the picture-button that represents food may bring up a screen with pictures that represent breakfast foods, snacks, lunch food, etc. Pressing one of these buttons would then bring up the specific foods in that category.

Today, the differences between Minspeak and DDP have lessened, in particular since the introduction of a device, the Vanguard by Prentke-Romich Co., that utilizes Minspeak in a DDP format (P. McNairn, personal communication, March 1, 1999).

OTHER RESOURCES:

- "Dynamic display pictographic AAC: Tips, tricks and techniques" by Philip R. Lawrence at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1008&b=3.
- "Frequently Asked Questions about Minspeak" by Robert V. Conti, B.A., Jeffrey Micher, B.A., and Gail VanTatenhove, MS, CCC-SLP at www.lti.cs.cmu.edu/scs/faq.html.
- "Semantic Compaction in Both Static and Dynamic Environments: A New Synthesis" by Russell Thomas Cross, B.Sc.(Hons), MRCLST, Bruce R. Baker, A.M., Linda Valot Klotz, M.A., CCC-SLP, and Arlene Luberoff Badman, M.A., CCC-SLP at www.jsrd.or.jp/dinf_us/csun_98/csun98_064.htm.
- Ask AAC users themselves on Augmentative Communication On-Line Users Group (ACOLUG) listserv at www.temple.edu/inst_disabilities/ACOLUG/tacolug.html.
- "Minspeak Operator Home Pages" at the bottom of "Links" by Prentke-Romich Co. at www.prentrom.com/links/links.html

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

	Table of Contents for YaacK: AAC Connecting Young Kids
	Choosing an AAC system
	AAC devices and systems

Facilitated Communication

Facilitated communication is a technique of AAC in which the adult acts as a

direct intermediary for the child in communicating. In other words, the child guides the adult who then writes, types or uses an AAC device for the child. One example would be the child's hand holding and guiding a partner's hand as it types out a message on a computer, or points to pictures on a communication board. Training of the partner is essential since the partner must make sure that it is the child who is providing the direction, and not the adult.



There has been a substantial amount of controversy regarding facilitated communication. The main dispute surrounds the extent to which the resulting messages are truly intended by the child, as opposed to subconsciously composed by the adult. The following articles, all from the August, 1994 issue of *Mental Retardation* provide an overview of the issues involved. They represent an attempt to present both sides of the facilitated communication debate.

- Levine, K., Shane, H. C., & Wharton, R. H. (1994). What if...: A plea to professionals to consider the risk-benefit ratio of facilitated communication. *Mental Retardation*, 32, 300-304.
- Ferguson, D.L., & Horner, R. H. (1994). Negotiating the facilitated communication maze. *Mental Retardation*, 32, 305-307.
- Goode, D. (1994). Defining facilitated communication in and out of existence: Role of science in the facilitated communication controversy. *Mental Retardation*, 32, 307-311.
- Halle, J. W. (1994). A dispassionate (if that's possible) observer's perspective. *Mental Retardation*, 32, 311-314.
- Hitzing, W. (1994). Reply to Levine et al.'s "Plea to professionals." *Mental Retardation*, 32, 314-317.
- Levine, K., Shane, H. C., & Wharton, R. H. (1994). Response to commentaries on risks of facilitated communication. *Mental Retardation*, 32, 317-318.

OTHER RESOURCES:

- "Bibliography of published journal articles about facilitated communication" at web.syr.edu/~thefci/fcjrnl.htm.
- "Facilitated Communication " at home.vicnet.net.au/~dealccinc/facil.htm.
- "A review of research into Facilitated Communication" by Gina Privitera Speech-Language Therapy Adviser at curriculum.qed.qld.gov.au/lisc/articles/therapy/thart3.htm.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com





Specific devices and products:

Specific hardware and software

The following includes information on specific AAC devices, as well how they have been used and where to find out more about them. Also are links to the product manufacturers and vendors. (See [How to get answers to specific AAC-related questions](#).)

- Closing The Gap Resource Directory, a collection of computer-related products and services with descriptions and manufacturer contact information for products determined appropriate for use in special education and rehabilitation, at www.closingthegap.com/rd/index.html.
- ABLEDATA, an electronic database of information on assistive technology and rehabilitation equipment with more than 23,000 product listings, at www.abledata.com.
- "AAC Manufacturer List" at www.asel.udel.edu/at-online/technology/aac/manufacturers.html.
- The Communication Aid Manufacturers Association (CAMA), a not-for-profit organization of the world's leading manufacturers of augmentative and alternative communication (AAC) software and hardware products, at www.aacproducts.org.
- "AAC Vendors Information" at aac.unl.edu/AACVII.html.
- "Exhibitors at the 1996 Closing the Gap Conference" at www.itpolicy.gsa.gov/cita/vendors.htm.
- Fact sheets which cover a number of topics related to assistive technology at www.ndipat.org/fact/factoc.htm.
- Assistive Technology Educational Network (ATEN) Equipment Database at <http://www.aten.ocps.k12.fl.us/FMDATA/equipeval.taf?function=form>.
- "Computer Based AAC Using the Synergy MAAC and Synergy PC—Strategies and Case Studies" by Dawn Russell, M.A., CCC-SLP & Bridgit Bruce at www.dinf.org/csun_98/csun98_175.htm.

Switches and other types of input

Switches are most important for children with motor impairments because they

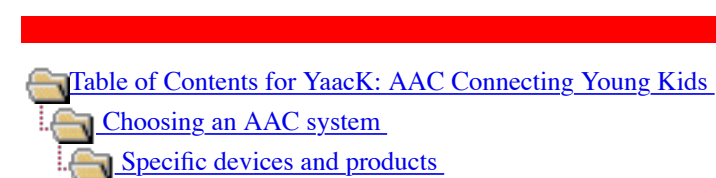
allow a child to control an electronic AAC device if even just one consistent and reliable motor response can be established. (See [Teaching children with motor impairments](#).) There are many, many different types of switches. There are switches designed to be activated by any part of the body, including fingers, hands, toes, feet, elbows, head, tongue, chin, and lips.



Obviously, the more switches a child is able to operate, the faster and more efficiently a child can utilize a communication device since different switches can handle different functions. Nevertheless, a child who is a single switch user can become an effective communicator. One method which can be used is to activate the switch to start scanning and then reactivate it at the right point to stop scanning. The inverse method is when the switch scans only as long as it is depressed. Thus, the child activates the switch to start scanning, continuing to depress the switch until the desired message is reached, and then releases the switch to activate the desired message. The step method is when a single activation of the switch moves the scanning cursor one element forward. When the switch is not activated for a longer specified period of time, the cursor automatically selects the element over which it is positioned. This method tends to be slower and requires many switch activations, one for each element passed over as well as one for the item chosen. However, it does not require as much physical control as the other techniques, and can be used initially until the child develops the ability to utilize a more efficient method ([Reichle, York, & Sigafoos, 1991](#)). (See [Teaching direct selection and scanning techniques](#).)

OTHER RESOURCES:

- Assistive Technology Educational Network (ATEN) Switch Database at www.aten.ocps.k12.fl.us/FMDATA/Switches.taf?function=form.
- "Assistive Technology: It Can Help! Part III— Adaptive Input" at www.dreamms.org/mar95.htm.
- "Switches and Joysticks and Mouses, Oh My! Alternative Input Methods for Dynavox 2/2C and Dynamyte" by Kim Henry, BS, BSEE Rehabilitation Technology Specialist at www.dinf.org/csun_98/csun98_071.htm.



Types of symbol systems

The following provide information on different symbol systems in use today.

- "AAC Symbol System References" at www.asel.udel.edu/at-online/technology/aac/symbols.html.





Obtaining an AAC device:

Funding information

- "Funding for AT" which includes the excellent "The Augmentative Communication Funding Resource Booklet: Tales from the Trenches" under "Funding for AAC" at asel.udel.edu/at-online/funding. Also "The Road to Funding" under "Printed Resources" at <http://www.prentrom.com/printed/printed.html>.
- An extensive list of "Frequently Asked Questions" under different categories by The Assistive Technology Funding and Systems Change Project (ATFSC) at www.ucpa.org/html/innovative/atfsc/faq.html.
- "Funding" by the Washington Assistive Technology Alliance (WATA) contains information in different categories at wata.org/funding/index.htm.
- "Funding Assistive Technology (AT) Web Site Resources" at www.ndipat.org/fund/fundg1.htm.
- "Guide to Assistive Technology Funding in Alaska," although aimed at persons living in Alaska a useful guide for anyone, at www.corecom.net/ATA/guide.html.
- Sharon Glennen, Ph.D.'s Oct. 9, 1997 e-mail response under the heading "Medical Assistance Funding More Tips" on the [ACOLUG listserv archives](mailto:acolumb@temple.edu) at listserv.temple.edu/cgi-bin/wa?A2=ind9710&L=acolumb&F=&S=&P=11711.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

Borrowing or purchasing a used device

- The Alliance for Technology Access (ATA) operates centers in most states which offer support and advice, as well as have AAC equipment that can be borrowed. A listing of all their sites is at www.ataaccess.org/atacenters.html.
- Assistive Technology Exchange AT-Exchange is an online database for the exchange, sale, and



donation of assistive technology devices at wata.org/atexchange/index.htm.

- DRAGnet is a non-profit company that recycles used computer systems and related materials to benefit persons with disabilities at www.dragnet.org.

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)
© YAACK 1999





Teaching

General tips on teaching

Adults often assume that communication is instinctive—presenting a child with AAC means he or she will simply pick it up and use it. However, everyone has had to learn how to communicate, taking years to accomplish this during infancy and early childhood. Children learn communication through imitation and the positive reinforcement of the results of their communicative attempts. They go through a series of stages, starting during early infancy with unintentional, reflexive behaviors, and move on to conventional, symbolic communication, typically speech. (See [Normal speech and language development](#).)

Unfortunately, children with severe disabilities have physical, cognitive, sensory and/or other types of impairments that prevent them from being able to initiate or respond to communicative acts in a conventional or expected form. They may not be able to master the normal stages of communication development even in a delayed manner. Furthermore, their initial months or years may be complicated by medical emergencies and lengthy hospital stays during which they have little opportunity for communication or control of their environment. As a consequence, the child being given AAC for the first time often must not only learn how to operate the new system, but also acquire some of the basic concepts of communication. He or she must accomplish these skills with no natural models to imitate, and with teachers and partners who may be having to learn the system themselves for the first time ([Light, 1988](#); [Montgomery, 1986](#); [Warrick, 1988](#)).

Needless to say, teaching a child how to communicate with AAC is very challenging. There is no single method that will work with all children. Determining exactly what to teach and how to teach it must be highly individualized not only to meet the needs of the child, but to fit into the beliefs and lifestyle of the family as well as teachers, therapists and other persons who are involved. Therefore, while the following information is based on current best practices, not all of it may be appropriate for every child.

This section refers more often to teaching communication as opposed to teaching AAC. The reason for this is that the focus of an intervention should not be merely to teach a child how to operate or use an AAC device or system. The purpose of a communication program is to enrich a child's quality of life, and its aim should be to teach a child communication and communication-related skills that will best enhance that child's participation in the activities and events of his or her day. (See [When does a child need AAC?](#)) With a few exceptions, the following instructional techniques can be used with any type of communication or pre-communication skill, including speech. They also help to keep adults focused on the goal of developing communication, and not simply teaching the child specific AAC functions.

The following are general tips on teaching AAC to a child. As stated previously, they are not always right for all children all the time. How a child learns best is a highly individual matter.



Who teaches: parents or teachers

- Ideally, both family members and teachers work together in teaching the child. This allows the child to learn in more environments and in a wide variety of activities. In addition, greater consistency can be maintained ([Calculator, 1997](#)). Using the same program at home and in therapy or at school is ideal, as long as it is appropriate to the different settings, and not forced upon either party. When everyone who is involved in teaching the child feels confident and inspired, there is a greater probability of success. Without this, attempts to work with the child will be lackluster at best, and nonexistent at worst.

In particular, whatever the family is counted upon to do must fit into their lifestyle and routines, and not be burdensome. To ensure that this occurs, everyone involved, and the family in particular, must have fundamentally agreed with both the choice of AAC and its accompanying teaching program. The persons who will be carrying out the teaching plan should be involved in the decision-making process, and no plan formalized until a consensus has been reached ([Angelo, Jones, & Koskoska, 1995](#); [Hetzroni & Harris, 1996](#); [Reichle, 1997](#)). (See [Forging an effective AAC team](#).)

- A related concept is the use of siblings and peers in interacting/teaching the child. Often it works to have them also use the same system while communicating with the child. For example, they can use sign language, too, or share the child's VOCA during an exchange. (See [Simultaneous communication](#).) This makes the child's use of AAC feel more natural, less stigmatizing. If possible, have the child meet other children or adults who have AAC. This allows the child to begin to see the use of AAC as a more normal situation, and also has the potential of providing additional communication role models for the child ([Van Tatenhove, 1997](#)).




Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com



Find those "teachable moments"

- Ideally, formal instruction should occur frequently and for short periods of time. This is easier to do when teaching is integrated into daily activities and routines, including play time. (See [The ecological approach: Focusing on participation](#) and [Naturalistic teaching methods](#).) Some methods of instruction are less demanding on a child and, thus, can occur for longer periods of time. (See [General naturalistic techniques](#), and [Simultaneous communication](#).) A child experiencing frustration during a teaching episode suggests that teaching may be occurring too frequently, for too long a period of time, or that an inappropriate AAC system or

teaching methods are being used.

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Teaching](#)
 -  [General tips on teaching](#)



Teach in natural settings




Teach in natural settings, places in which the child is familiar and feels at ease. Focus on communication skills and vocabulary that fit into the activities that take place in those environments. Again, this is easier to do when teaching is integrated into daily activities and routines. (See [The ecological approach: Focusing on participation](#) and [Naturalistic teaching methods](#).) For an infant or very young child this means teaching during such activities as mealtime ([Morris, 1981](#)), bath time, play time, etc. For the preschool or school-aged child this means teaching in an inclusive classroom setting ([Halle, Alpert, & Anderson, 1984](#); [Lowenthal, 1995](#)).

This is not always possible, however. For example, it may be desirable to teach communication skills relevant to settings which are difficult to get to or to spend much time, such as in a doctor's office or restaurant. In these situations, teaching may have to occur outside the real setting.

OTHER RESOURCES:

- Circle of Inclusion "offers demonstrations of and information about the effective practices of inclusive educational programs for children from birth through age eight" at circleofinclusion.org.
- "TWELVE FREQUENTLY ASKED QUESTIONS" about the inclusion technique called "circles of friends" at www.innotts.co.uk/~colinn/faq1.htm.
- For specific mealtime teaching strategies, see Morris, S. E. (1981). Communication/interaction development at mealtimes for the multiply handicapped child: Implications for the use of augmentative communication systems. *Language, Speech, and Hearing Services in Schools*, 12, 216-232.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Teaching](#)
 -  [General tips on teaching](#)

Learning should be fun

- Get to know the child very well and then individualize goals and teaching methods. The more the child is seen as an independent and complete

person, the more he or she will be automatically treated with respect and understanding. Ideally, objectives that are really meaningful to the child should be chosen, and taught with compassion and humor.

Develop good rapport with the child. A child is more likely to want to work and communicate with someone with whom he or she feels comfortable and safe. With closeness comes the understanding of when to push the child and when to let go, when something is too hard and when the child is feeling lazy and just not trying.

Getting to know the child can begin before or during the communication assessment. In addition, family members should be made to feel very much a part of information sharing and decision-making. They can provide invaluable information about the child that no testing could ever uncover, such as what the child likes and dislikes, what his or her learning style is, and how to make the child laugh and be happy. (See [Forging an effective AAC team](#).)



- Allow the child to experiment in non-communicative ways with his or her AAC. When a child is first being taught AAC, especially if it is an external device (as opposed to an unaided method such as sign language), the adult may become worried when the child appears to use it in every way imaginable--except to communicate. However, this is how children learn about and begin to feel comfortable with their AAC, and has been compared to the experimental babblings of an infant or young child ("[Survey](#)," 1999).
- The child's motivation is crucial. Early communicative exchanges should be centered around what is of interest and concern to the child. If a child is not motivated to communicate, a first step in the teaching process may be to figure out how to motivate the child. In some cases motivating a young child to communicate with AAC can be surprisingly difficult.

Children are typically motivated by obtaining tangible items such as food or toys, gaining the attention of an adult, and/or getting away from disliked situations or people. (See [Basic communicative functions](#), [Requesting](#), [Getting attention](#), and [Rejecting](#).) Adults can tell what a child likes and dislikes by behaviors such as vocalizing, reaching, smiling, looking, crying or fussing, or becoming agitated. Some children with severe disabilities evidence very subtle cues such as changes in muscle tone or rate of breathing.

Sometimes it is not known what the child enjoys, especially if the child has had little opportunity to indicate preferences. In addition, family and professionals may be unwittingly preempting the need for communication of needs and wants by over-controlling the child's life or giving the child everything he or she needs and wants without expecting any communication on the part of the child. In these cases it is worthwhile finding out what motivates the child by setting up "testing" situations (which can also teach a child choice making at the same time). For example, one or more types of food or toys can be placed in front of the child and the child's reaction observed ([Reichle, York, & Sigafos, 1991](#)). Another method is to try to keep notes on when, where and with whom the child exhibits strong reactions such as smiling, laughing, crying or becoming agitated. A pattern may emerge indicating what the child likes and dislikes.

For the more communicatively advanced child, motivation includes providing vocabulary that is appropriate and interesting to the child. (See [Vocabulary selection strategies](#).) On a broader level, every child should be provided with activities and events that are interesting and engaging and can become the basis for topics of conversation. Although routines are often an important part of a communication

intervention strategy, they can include fun activities such as regular outings to a fast food restaurant or the zoo. Nothing seems to do away with the need to talk more than a life that is monotonous and boring ([Durand, 1993](#)).

- Teach communication that is functional. This means messages that the child can use immediately to achieve something desirable. However, while practical goals are important, don't fall into the trap of teaching only communication that adults feel is important, like asking for a drink of water or to use the bathroom. Goals should be functional, but play is the function of children. This also means selecting vocabulary and conversational topics that are of interest to the child. Examples include topics relating to favorite toys, activities, jokes, etc., as well as age-appropriate vernacular such as, "That's cool!" or "It sucked." (See [Topic-setting strategies](#).) Teaching functional communication is easier when it occurs within the context of natural routines and settings ([Beukelman & Mirenda, 1992](#)). (See [Naturalistic teaching methods](#).)
- Make sure that, very early in the teaching process, the child is able to communicate effectively and efficiently at least a little bit with his or her newly-learned skills. This clearly demonstrates the value of communication and increases the motivation of the child. Early success is one of the best predictors of future effort and diligence.
- Make sure that both the AAC system and choice of goals and objectives are developmentally appropriate. It is obvious that a child will fail if they are beyond his or her capabilities. For example, a child who does not understand symbols will not be able to use a picture-based communication book. What is less apparent, however, is when a child becomes frustrated and unsuccessful because the system, objectives or vocabulary are too easy. The resultant lack of use of AAC can look deceptively like behavior that occurs when the system and goals are too difficult.
- Honor the child's current idiosyncratic methods of communicating and don't replace them with more conventional modes unless there are good reasons to do so. Children are sometimes forced to use a new method of communication exclusively because the family or teacher is trying to be diligent in instructing the child. Unfortunately, this can undermine the value and benefits of communication. From the child's point of view, he or she is being taught a new, more difficult way to communicate something that he or she is already able to communicate effectively. For example, a child who smiles and waves to greet people in the hallway may be forced to break eye contact with them in order to look down and press a button on a VOCA. This child may well choose to simply stop greeting others rather than make the additional effort that is being demanded.

Nevertheless, there may be good reasons to teach the child more conventional modes of communication ([Durand, 1993](#); [Reichle, 1997](#)):

- If the old method is harmful to the child or others, as in aggressive or self-destructive behaviors, or reflexive behaviors that are causing injury to the child. (See [Children with severe behavioral issues](#).)
- If the old method is socially unacceptable or age inappropriate and stigmatizes the child.
- If the replacement communicative behavior is easier for the child to perform. This may occur after the child has developed some fluency with AAC. For example, it may be easier for a child to point to a picture on a communication board than to attempt to say the words.
- If the replacement communicative behavior is more effective due to being more readily understood by others. For example, if a child used one-word utterances to both make comments and requests. It would be worthwhile to teach the child to communicate more explicit two-word phrases that immediately distinguish requests from comments.
- If the replacement communicative behavior is more efficient. For example, a child may point

towards a loaf of bread and then have to listen to a complete listing of sandwich possibilities before being able to indicate which one he or she would like. On the other hand, just one or two button presses may indicate exactly what kind of sandwich he or she wants.

- Flexibility is essential in implementing goals and objectives, as well as teaching techniques. What works perfectly for one child may be completely wrong for another. Keeping records on the child's progress can be key in determining the effectiveness of whatever program is used and indicating any modifications or additions necessary.
- In general, acknowledge what the child communicates, even when the child is communicating in an unacceptable way. This clearly indicates to the child that his or her communication is being received and is of value. For a child who is still at the pre-intentional stage of communication, this also teaches the concept of intentional communication. (See [Normal speech and language development](#) and [The first goal: Intentional communication](#).) This does not mean that the child always has to get his or her way, nor does it mean that an inappropriate way of communicating has to be indulged. The child can, over time, be taught a more acceptable way to communicate the same message, and how to tolerate delay gratification. (See [Children with severe behavioral issues](#).)
- Children often do not communicate simply because they don't have to, are not expected to, or are not given sufficient time to do so. Therefore, frequent pauses and asking open-ended questions as opposed to yes-no questions can be effective. The child should be given clear signals that it is his or her turn to communicate, for example, stopping, looking at the child and waiting expectantly. In addition, the child requires a lot of time to initiate or respond. Young children in general will often take a very long time to say something, and a child with an AAC device needs even more time during which he or she is made to feel relaxed and unhurried. This can mean up to several minutes. If a child begins to communicate, don't try to complete the sentence (unless the child is obviously finished communicating). Furthermore, expect a response from the child. Children will often pick up on and respond to such an expectation ([Basil, 1992](#); [Light, Collier, & Parnes, 1985](#)).
- Children are mainly interested in playing. To maintain the child's interest and attention, teaching sessions should be fun. Games and other play activities that are based on the child's interests are typically motivating. Drill-and-practice techniques used outside of natural contexts should be avoided unless considered absolutely necessary. In general, toys that foster interaction and communication such as baby dolls, kitchen sets, board or card games, or trains, cars and other vehicles are preferable to toys that are played with independently. Adapt toys as necessary for children with physical or sensory impairments. Switch toys and simple computer programs are also useful in teaching communication and communication-related skills ([Beukelman & Mirenda, 1992](#)).
- Children love to be in control. Incorporate messages that allow the child to make choices and have some say over what happens to him- or herself, for example, selecting a video or TV program, or where to go for an outing. Even being able to tell Dad to put his hand on his head, roar like a lion and hop up and down on one foot can be highly motivating, as in the game "simple simon."
- Follow the child's lead as much as possible ([Beukelman & Mirenda, 1992](#)). Let the child be the initiator of activities or topics of conversation and then have the partner be the responder. If a child repeats a verbal routine over and over—as children are wont to do—go with it. Studies have shown a child is able to communicate more when he or she has started the conversation, and when the pattern of words used is familiar ([Yoder & Davies, 1990](#); [Yoder & Davies, 1992a](#)). (See [Activities and routines as teaching tools](#).)
- Consistency is important, especially for children learning early communication and communication-

related skills. All the people with whom the child communicates need to be made aware of this and, if necessary, trained in the particular techniques and responses being used. In some cases an alphabetical dictionary of the child's communication, including how to interpret the child's behaviors and respond may be helpful. An example entry might occur under the words "mouth," "eat" and "hungry," and state "When Mary opens and closes her mouth repeatedly, this means she wants something to eat. Get her picture board of food and slowly point to each item on it, simultaneously stating the food item's name. Wait until she indicates what she wants to eat by pointing" ([Reichle, 1997](#)).

- It is a good idea to keep data on the effectiveness of the AAC program in order to be able to determine what to do next. This is required to be in the IEP if the child has one. Data collection must be reasonable and appropriate for the program as well as the persons expected to gather it. If it is a burden, it simply will not be done.

OTHER RESOURCES:

- "Functional Language Instruction for Linguistically Different Students with Moderate to Severe Disabilities" by Elva Duran at www.cec.sped.org/digests/e501.htm. Much of this article pertains to AAC users who can, in effect, be considered culturally and linguistically different.
- "Activity Based Instruction" at www.tr.wou.edu/train/cdcbest.htm#ACTBAS.
- "Frequently Asked Questions" by Dr. James Macdonald offers information and suggestions on developing communication through play and early social interactions at www.oberlin.edu/~bmislin/cp/FAQ.htm.
- Linda Pratt's May 12, 1998 e-mail posting under "don't underestimate...." describes a child whose expressive abilities take a dramatic leap forward when her AAC is reprogrammed with more advanced vocabulary. It is on the [ACOLUG listserv](#) archives at listserv.temple.edu/cgi-bin/wa?A2=ind9805&L=acolug&F=&S=&P=7181.
- "Communication Interactions: It Takes Two" is an overview of how to interact with children who are deaf-blind. This information is, however, useful for any beginning communicator. It is at www.tr.wou.edu/dblink/comm.htm.
- An excellent book with detailed descriptions of specific teaching techniques for children of different ages, with varying skill levels and impairments, see Blackstone, S. W., Cassatt-James, E. L., & Bruskin, D. M. (Eds.). (1988). *Augmentative communication: Implementation strategies*. Rockville, MD: American Speech-Language-Hearing Association.
- "Go Fish" at www.prentrom.com/teaching/games.html, and "Clothing relay race" at www.prentrom.com/teaching/fun.html are teaching tips from Prentke Romich Co.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:Ruth.Ballinger@iname.com)



Fun activities

Computers, toys, games, and AAC camps are excellent ways to teach communication and communication-related skills to children of all ages and abilities. They are motivating, can be designed to teach different kinds of skills, can serve to encourage interaction with peers, and can be used in many different settings ([Beukelman & Mirenda, 1992](#)).

Currently there is some debate over what the role of computers and television should be in a young child's life. This discussion centers over the need for a child to experience mainly hands-on learning, and the fact that time with computer programs and television is time that is not spent manipulating objects and learning directly about the physical world. However, for a child with disabilities, especially one with motor disabilities, it may be extremely difficult to handle and manipulate objects. In this situation computers and television can become one important way of learning about the world. In addition, children can work on fine motor, cognitive, communication and social skills utilizing specific computer programs. Computers and computer-based equipment, in many cases, will become the child's primary means of communicating and controlling the environment. Thus, used with discretion, computers and television have the potential to play an important role in the life of a child with disabilities.

TOYS:

- "New products at toy fair have special applications" by Joan Tanenhaus at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1037&b=5.
- The National Lekotek Center "Leading the way for Accessible Play" provides toy and software lending libraries and a Resource Helpline 1-800-366-PLAY among other services at www.lekotek.org.
- "Toys for Special Needs Children," a compilation of catalogs, at nncf.unl.edu/toys.html.
- Assistive Technology Fact Sheet on "Adapted Toys" describes how to adapt toys for children with different types of disabilities at www.arkansas-ican.org/fstoytxt.htm.
- Living with SMA (spinal muscular atrophy): The Joy Of Toys! by Lori Hungate at www.mdausa.org/publications/Quest/q23smatoys.html.
- Tech Tots is a network of technology lending libraries including toys, computers, peripherals, software, and other assistive technology devices at www.ucpa.org/html/innovative/techtots/index.html.

GAMES:

- Playing Around: Using Games to Facilitate Language Development of People Who Use ACC by Kristen Newman, M.A. CCC-SLP and Linda V. Klotz, M.A. CCC-SLP at www.dinf.org/csun_98/csun98_076.htm.
- Specific games and ideas that motivated one five-year-old by Merell Liddle on the Oct. 28, 1997 [ACOLUG listserv](#) archives under "Young children and AC devices" at listserv.temple.edu/cgi-bin/wa?A2=ind9710&L=acolug&F=&S=&P=24151.
- Using "magic tricks" to encourage communication by Laurie McArthur on the Dec. 10, 1997 [ACOLUG listserv](#) archives under "SLP seeks info on opinions" at listserv.temple.edu/cgi-bin/wa?

[A2=ind9712&L=acolug&F=&S=&P=8571](#).

- Forming a singing group by Anthony Arnold on the June 22, 1997 [ACOLUG listserv](#) archives under "Singing & ACOLUG" at [listserv.temple.edu/cgi-bin/wa?A2=ind9706&L=acolug&F=&S=&P=12236](#).
- Games for a five-year-old by Colleen Yinger on the Dec. 6, 1997 [ACOLUG listserv](#) archives under "games on alphatalker" at [listserv.temple.edu/cgi-bin/wa?A2=ind9712&L=acolug&F=&S=&P=5400](#).
- "Let's Play! Project looks to provide families with ways to play through the use of assistive technology" at [cosmos.ot.buffalo.edu/letsplay](#).

COMPUTER ACTIVITIES:

- "Computer play for the very young: More than cause/effect" by Madge Bradley at [www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1035&b=3](#).
- "Connections for success: Young children, computers and software" by Linda Benton at [www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1033&b=1](#).
- "Computer Fun and Adapted Play: Strategies for Cognitively or Chronologically Young Children with Severe Disabilities Part I & II" by Pati King-DeBaun, M.S. CCC-SLP at [www.dinf.org/csun_97/csun97_066.htm](#).
- "Keyboard Kids: A curriculum for Teaching Basic Computing Skills to Young Children with Disabilities" by Howard P. Parette, Jr., Ginny Heiple, Deborah Rudolph and Nancy Dunn at [www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1038&b=6](#).

CAMPS:

- "AAC Summer Camps" at [www.prentrom.com/camps.html](#).
- Information on an AAC Camp in California called "Building Bridges" by Cassie Sementelli on the Feb. 22, 1999 [ACOLUG listserv](#) archives under "AAC camps" at [listserv.temple.edu/cgi-bin/wa?A2=ind9902&L=acolug&F=&S=&P=21692](#).
- "AAC CAMP FROM A-Z" by Janie Cirlot-New, M.S., CCC/SLP, Bud Rizer, Ed.D. T.K. Martin Center for Technology and Disability, and Jan Shook, M.S, CCC/SLP DynaVox Systems Inc. at [www.csun.edu/cod/conf2000/proceedings/0163CirlotNew.html](#).

OTHER:

- ContAACt is a listserv designed for kids who use AAC at [web.nmsu.edu/~shstuart/address.html](#).
- Books on toys as tools used in teaching children communication at [www.kidsource.com/Books/amazon%20info/The%20New%20Language%20of%20Toys.html](#).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com



What to teach first

Deciding what to teach a child first is, of course, an individual matter dependent upon characteristics of the child as well as the environments in which the child spends time. Oftentimes, though, the child’s age will determine who delivers communication instruction, as well as the type and location where it takes place.



Infants and toddlers

Instruction typically takes place at an early intervention center and/or in the home, often with the therapist and family members present. (See [Organizations supporting children under three](#).) Typically, the skills that are focused on are those associated with the next stage in the sequence of communication learning based on speech and language development in children without disabilities. (See [Two approaches: Developmental and ecological](#).) Given the young age, this child will likely be an unintentional or early intentional communicator and, thus, learning pre- or early communication, social and cognitive skills. (See [Assessing intentionality, and the understanding of means-end, causality, and symbols](#) and [The first goal: Intentional communication](#).)



The use of communicative behaviors that are self-developed and unconventional (e.g. vocalization, grabbing, or throwing) may be encouraged at this early stage to allow the child to focus entirely on comprehending the idea of communication as an intentional act that offers control over the environment and people. Later, when the child has mastered the concept of intentional communication, he or she can begin to learn more conventional modes of communication. (See [Basic communicative functions](#), [Conversational skills](#) and [Teaching sentence structure](#).)

The preschool- or school-aged child

A communication program for an infant or very young child is typically based on where the child currently is developmentally, and how to assist the child in reaching the next stage. However, determining what to teach a preschool- or school-aged child depends more on what the child’s communication needs are



in relationship to the activities and environments in which he or she participates or is expected to participate.

At this stage, the child needs to be able to communicate a greater range of needs, desires and information at home, in school and in more community settings. Most children will be receiving special services through their local public school, and the thrust of the AAC program developed there will be to assist the child in educational activities. Nevertheless, it is important to recognize the necessity of social communication, as well as the value of designing interventions that are motivating to the child. (See [Organizations supporting children three and older](#), [When does a child need AAC?](#), and [The ecological approach: Focusing on participation](#).)

In summary, a first communication intervention program for a preschool- or school-aged child should consist of goals which assist the child in achieving more meaningful participation in relevant environments using objects, activities and methods that are motivating, and beginning at a level that is challenging but still allows for immediate success.

**Help me—and
everyone who
reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)
© YAACK 1999



Advancing communicative competence

For a comprehensive book with many detailed descriptions of specific teaching techniques for children of different ages, skill levels and impairments, see Blackstone, S. W., Cassatt-James, E. L., & Bruskin, D. M. (Eds.). (1988). *Augmentative communication: Implementation strategies*. Rockville, MD: American Speech-Language-Hearing Association.



The first goal: Intentional communication

Children all start out as unintentional communicators; that is their behaviors are not intended as communication, but are interpreted by adults as being communicative. For example, crying is interpreted as if the infant were "telling" the parent of a desire for food, even though the crying is involuntary and would have occurred outside of the presence of the parent. Typically, the child next develops into an intentional, but still nonsymbolic, communicator. This is characterized by such actions as reaching, looking at, or pointing towards something to indicate a desire for it. Finally, the child develops symbolic communication skills, the most prevalent being spoken language. (See [Normal speech and language development](#) and [Assessing intentionality, and the understanding of means-end, causality and symbols.](#))



For a child with disabilities who is not yet an intentional communicator, a communication program should first aim at teaching intentionality. Essentially, this means teaching the child that certain behaviors (i.e. communicative ones) get specific responses, and that, through these, the child can deliberately exert some control over his or her life. At this point the child is pre-symbolic, so pictures and other symbols are not appropriate. Furthermore, it is often recommended that behaviors already in the child's repertoire be used, rather than teaching new behaviors in addition to new cognitive skills. For example, reaching, looking, pointing, or facial expressions may already be regularly used by the child. The objective, then, would be to assist the child in using them for the purpose of communication ([Van Tatenhove, 1987](#)). (See [Eye gaze techniques](#).)

General recommendations for teaching a child intentional communication include the following.

- Become aware of how the child is currently communicating, even though it is still unintentional. Identify communicative behaviors over which the child could potentially develop control, such as movements, facial expressions, or vocalizations. Respond to these as if they were conscious actions. Responses should be as consistent as possible. The child will learn to connect the behavior with its response and begin to produce the behavior in order to elicit the response.
- Make statements that comment on what the child's behavior is communicating. For example, say to the

child "You are raising your arms. That means 'up.' I will pick you up" ([Van Tatenhove, 1987](#)). Besides helping the child to realize that raising his or her arms results in being picked up, this can serve to increase the child's understanding of speech (called receptive language). It also helps the parent or teacher to be consistent in responding to the child's communicative behaviors.

- Focus on communicative behaviors to which the natural response is something that is highly motivating to the child. For example, if the child enjoys attention, then a social response is good because it will prolong the interaction. Children may also request (unintentionally) toys or food, and be given it. The child is initially producing the behavior at random, but eventually should come to connect the behavior with its consequence or reward. ([Schweigert, 1989](#)).
- Acknowledge and respond to every communicative attempt by the child. Try to respond in a consistent manner even in different situations. This may mean having to inform others what a behavior or action by the child is communicating, and how to respond to it. A "dictionary" in which communicative behaviors and actions by the child, the situations in which they typically occur, and what the response should be are all written down can help different partners coordinate their interactions with the child ([Reichle, 1997](#)).
- Activities and routines can be very useful in teaching intentional communication. Create structured, predictable routines that can be centered around daily events such as mealtime, bath time, dressing, toileting and bedtime. The idea is that the child will eventually begin to anticipate the different steps in the activities and routines. This may be indicated by facial expressions or movements that indicate pleasure, dislike or an awareness of what is going to happen next. Simple, repetition-based games which most young children enjoy are also excellent in developing early communication skills. Choose games that are short and easy, involve taking turns with a partner, and can be varied slightly. Examples of such games are peek-a-boo, or "Row, Row, Row Your Boat" in which partners sit facing each other, holding hands and rocking back and forth. While playing these games, pause periodically to see if the child in some way indicates a desire for more. (See [Activities and routines as teaching tools](#).)
- Try to keep the child informed of who is present and what is happening. For children with dual sensory impairments (i.e. disabilities in both vision and hearing), or minimal environmental awareness, [Beukelman and Mirenda](#) suggest that whenever a new partner initiates a routine the following information should always be provided to the child through verbal, tactile, movement-based, olfactory, or other modes:
 - A greeting to the child by and identification of the new partner. (For example, an adult may always wear a large watch. Whenever this adult encounters the child, the adult can greet the child verbally and, at the same time, have the child feel the watch.)
 - Identification of the new routine. (For example, the child may always be given a wet washcloth to touch prior to being given a bath. This becomes the signal that it is bath time.)
 - Identification of available choices. (For example, make the child aware of the different options available using whatever signals have already been established with the child.)

The end of the routine should always include:

- Indication that the routine is over.
- Indication that the partner is leaving (if that is the case).

OTHER RESOURCES:

- "Expressive Communication How Children Send Their Messages to You" adapted from an article originally written by Kathleen Stremel at

**Help me—and
everyone who**

- "Early Interactions With Children Who Are Deaf-Blind" by Deborah Gleason at www.tr.wou.edu/dblink/early.htm.
- "Receptive Communication How Children Understand Your Messages to Them" adapted from an article originally written by Rebecca M. Wilson at www.tr.wou.edu/dblink/recept.htm.

reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Teaching](#)
 - [Advancing communicative competence](#)
 - [The first goal: Intentional communication](#)



The scripted routine

A "scripted routine" is a method of teaching a child intentional communication through the use of routines ([Beukelman & Mirenda, 1992](#)). Routines present an excellent context in which to teach communication because the child is able to learn the steps that make up the routine. Once the child knows the steps, less cognitive capacity needs to be devoted to the routine, leaving the child more room to focus on other aspects such as communicating about the routine ([Yoder & Davies, 1992a](#); [Yoder & Davies, 1992b](#)).

The scripted routine involves the following ([Beukelman & Mirenda, 1992](#)). Prior to each step in a routine, the adult provides the child with a tactile, olfactory, or movement-based cue that indicates what the next step is. At the same time, the adult narrates what is about to happen. Then the adult pauses for several seconds and looks for any signal from the child indicating that he or she understands what is about to occur. If the child responds positively, then the adult continues by acknowledging the response and continuing the routine. If the child responds and this response is interpreted as a rejection of what is to come, then the parent or teacher can honor the request by stopping the routine, skipping the step, or discontinuing the routine for a few moments and then trying again. If the child does not respond at all, the adult can repeat the tactile and verbal cues and again await a response, or continue with the routine.

An example of a scripted routine during hand washing would be to sprinkle a few drops of water on the child's fingers (tactile cue) and say "Now we are going to rinse your hands in the water" prior to actually placing the child's hands under the water. Acknowledging a response from the child might be, "You wiggled your fingers. OK, now here's the water."

The scripted routine can also be simplified simply by not providing the initial touch/smell/movement cue. In this version the adult just pauses before each step to look for a signal of awareness from the child ([Beukelman & Mirenda, 1992](#)).



The Van Dijk method: Nurturance and movement

One comprehensive program whose purpose is to ready a child for learning symbolic communication is the Van Dijk method. The Van Dijk method was originally developed for children with vision and hearing impairments (dual sensory impairments), but is currently being used with children with a variety of disabilities. It is described in detail in [Beukelman & Mirenda, 1992](#) and [Westling and Fox, 1995](#).

The key to the Van Dijk method is the establishment of a very close and intimate relationship between adult and child. It is composed of six sequential steps, all of which are conducted as much as possible in the context of real activities, games and routines. Physical touch and movement are important components of this method.





- **Nuturance.** First the adult develops a warm and nurturing relationship with the child, and becomes very sensitive to the child's signals. By getting to know the child well, the adult can recognize and respond to the unintentional communication of the child.
- **Resonance.** The adult begins by making physical contact and moving with the child in a rhythmic manner. An example, would be moving a toy truck back and forth together. Periodically the adult pauses to see if the child will initiate a response such as continuing the movement independently. The adult acts upon any response from the child as if it were an intentional communicative act.
- **Coactive movement.** The next step is for the adult and the child to move together when they are not in physical contact. Initially cues are used by the adult and then gradually faded. The movements become increasingly complex, and objects are introduced. Anticipation shelves, also called calendar boxes, may be utilized at this stage. Anticipation shelves are a series of boxes in each of which an object representing an activity is placed. The boxes are arranged in order, and the child learns to remove the object from the box in the series which represents the upcoming activity. After completion of the activity, the child returns the object to its box, and removes the object in the next box. This begins to teach the child the concept of symbols (i.e. that an object can represent an activity).
- **Nonrepresentational reference.** The child develops an understanding of his or her own body parts through movement and the body parts of a doll. This provides the child with an awareness of his or her own body and self as separate from the adult.
- **Deferred Imitation.** The child begins to imitate familiar movements of the adult after the adult has ceased making them. Initially full body movements (standing up, sitting down) are used, followed by whole limb and then smaller hand movements.
- **Natural gestures.** The child is taught to communicate with gestures that are self-developed and already a part of the child's repertoire of behaviors. This is the beginning of intentional communication.

OTHER RESOURCES:

- Writer, J. (1987). A Movement-Based Approach to the Education of Students Who Are Sensory Impaired/Multhandicapped. In Goetz, L., Guess, D., & Stremel-Campbell, K. (1987). (Eds.) *Innovative program design for individuals with dual sensory impairments*. (pp. 191-224).

- Beukelman, D. R., & Mirenda, P. (1992). *Augmentative and alternative communication management of severe communication disorders in children and adults*. Baltimore, MD: Paul H. Brookes.
- Westling, D. L. & Fox, L. (1995). *Teaching students with severe disabilities*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- "What's A Calendar Box?" by Pam Schachter Educational Specialist at www.nfb.org/calbox.htm

**everyone who
reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**





-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Teaching](#)
 -  [Advancing communicative competence](#)
 -  [The first goal: Intentional communication](#)



The Early Communication Process

[Schweigert and Rowland](#) developed a four-level program which they used with children who had dual sensory (both vision and hearing disabilities) and motor impairments. Each step depends on the child being able to communicate directly with the adult, or to activate a communication device directly or with a switch in order to communicate. In addition, it is important to use objects and activities that are motivating to the child. This procedure is an excellent one for children who do not enjoy social attention. (See [Teaching a child to enjoy social encounters](#).)

- The first level teaches children how to get the attention of an adult. The child is taught how to interact directly with the adult or with a communication device. Every time the child does this, he or she receives (i.e. is rewarded with) the adult's attention. If a child is not motivated by attention, then the child is initially reinforced with something that is motivating (e.g. a toy or food), along with the adult's attention. By pairing the desired item with adult attention, the child begins to link the social attention with the desired object and begins to see both as pleasurable. Eventually the object is no longer used and attention becomes the entire reward.
- The second level focuses on making simple requests and expressing interests.
- The third level teaches expressing preferences.
- The final level introduces symbols. The child learns to make requests and express preferences with symbols instead of the objects and events themselves.

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Teaching](#)
 -  [Advancing communicative competence](#)
 -  [The first goal: Intentional communication](#)

Visually cued instruction

Visually cued instruction is based on what is called "symbol exchange," in which the child requests a desired object by presenting a picture symbol of it to the adult, and exchanging the symbol for the object. It teaches intentional communication, the use of symbols and requesting simultaneously. It is an excellent approach for children who are visually oriented, and who may not be exhibiting many of the social behaviors that underly effective communication, such as eye contact or orienting one's face towards the listener. (See [Teaching a child to enjoy social encounters](#) and [Children with autism or autistic-like behaviors](#).)



For detailed information on visually cued instruction go to:

- "Visually Cued Instruction" by Nola Marriner, Ph.D. at www.talklc.com/handout/Outline.html.
- The Picture Exchange Communication System (PECS), a commercial product that utilizes visually cued instruction techniques, at www.pecs.com.

[Table of Contents for YaacK: AAC Connecting Young Kids](#)
[Teaching](#)
[Advancing communicative competence](#)
[The first goal: Intentional communication](#)

Milieu teaching

Milieu teaching consists of naturalistic methods that have traditionally been used to encourage spoken language in children. These techniques have also been found to be effective in teaching children AAC and early communication-related skills ([Yoder, Warren, Kim & Gazdag, 1994](#)). (For a detailed description of these methods, see [Milieu teaching](#).)



[Table of Contents for YaacK: AAC Connecting Young Kids](#)
[Teaching](#)
[Advancing communicative competence](#)
[The first goal: Intentional communication](#)

Applied Behavior Analysis (ABA)

Applied behavior analysis (ABA), also referred to as behavior modification, behavior therapy, behavioral intervention, or behavioral treatment, utilizes behaviorist principles in teaching communication. At its core, ABA analyzes every interaction into three sequential components: the action or event that triggers the communication or behavior (called the stimulus), the communication or behavior that occurs in response (called the behavior or response), and the subsequent reaction to the communicative or behavioral response that just occurred (called the consequence). For example, upon seeing a toy (the stimulus), a child






may point and initiate the statement "I want that" (the response), to which the adult says "Here it is" and hands it over (the consequence).

Any of these three parts can be manipulated through teaching of the child or the partners, as well as environmental adaptations. For example the initial event or stimulus may be manipulated so as to facilitate communication. An example would be placing a desirable object on a high shelf so that the child has to request it. The response being elicited, the request for the object by the child, can be encouraged through prompting. Finally, by making sure that the consequence to the child's behavior or response is positive and consistent—in this case promptly giving the child the object—the child has incentive to continue to respond in that manner.

ABA is a component of many different types of instructional procedures. (See [The Early Communication Process](#), [Basic communicative functions](#), [Milieu teaching](#), and [Interrupted behavior chains](#).)

OTHER RESOURCES:

"[Applied Behaviour Analysis](#)" at www.accessin.com.au/~paris/autism/aba.htm.

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Advancing communicative competence](#)

Basic communicative functions: Making choices, requesting, getting attention and rejecting

Making choices, requesting, getting the attention of an adult, and rejecting something that is not wanted are among the first aims of a child's communication. These four functions give children control over their own lives. Besides increasing independence, they tend to decrease the incidence of behavior problems ([Durand, 1993](#); [Robinson & Owens, Jr., 1995](#)). They make excellent starting points in teaching communication because they are highly motivating and cognitively easy to understand. Furthermore, after the child has mastered them, they can, in turn, be used in teaching the child more advanced communication skills. Which to teach first should be determined by what is most motivating to the child. For some children it may be the ability to choose or request toys or food, or to get the attention of an adult; for others it may be to let a partner know that an object or activity is disliked. Of course, more than one function can be taught at the same time.

Sometimes there is the fear that a child will abuse these skills by requesting items or attention on a constant basis, or rejecting items and activities that are medically or physically necessary. However, there are proven techniques that can be used to teach the child to delay the need for immediate gratification, and to tolerate activities and objects that are necessary but disliked. (See [Children with severe behavioral issues](#).)

In summary, a child needs to have these four communicative functions in his or her repertoire because:

- The inability to communicate in an appropriate manner may result in alternative ways of communicating that are destructive to self or others.
- These functions are the most logical communication skills with which to begin a teaching program since they are easily understood and highly motivating. Moreover, the rewards for successfully communicating are immediate and natural. For example, the reward for being able to request



**Help me—and
everyone who**

for something is to get it.

- Teaching these functions does not depend on the child understanding the use of symbols. (See [Assessing intentionality, and the understanding of means-end, causality, and symbols.](#))
- These functions can be used to teach the child more advanced communication and communication-related skills such as symbols, new vocabulary, scanning, or multi-word phrases.
- These functions result in giving the child immediate power over his or her life. This reinforces the value of, and motivation to, continue learning.

**reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

[Table of Contents for YaacK: AAC Connecting Young Kids](#)
[Teaching](#)
[Advancing communicative competence](#)
[Basic communicative functions](#)



When a child chooses "incorrectly"

A general rule in teaching any of these four functions is to always respond precisely to the child's communication. For example, if the child appears to choose a neutral or unwanted object over a highly desired one, give the child the neutral or unwanted object. The child may, in fact, have wanted the neutral or unwanted object, perhaps to examine it. Even if the child has made a mistake in choosing, not responding to the child's explicit communication and insisting that the child to choose again contradicts what choice-making is all about. It merely indicates to the child that no matter what is communicated, he or she will eventually get a certain item. Likewise, if a child requests, instead of rejects, a typically unwanted object or activity, it is important to provide it. Either the child really did want it, or the child can learn from his or her mistake. The only way for a child to learn the power of communication, and the necessity to use it accurately, is by experiencing the consequences of his or her choices ([Beukelman & Mirenda, 1992](#)).

[Table of Contents for YaacK: AAC Connecting Young Kids](#)
[Teaching](#)
[Advancing communicative competence](#)
[Basic communicative functions](#)



Making choices

In teaching a child how to make choices, initially just one or two items may be presented to the child. The objective is for the child to communicate a preference by looking at, reaching for, or in some way indicating a desire for an object that is presented. Having communicated, the child is given the item. After the child has mastered this, the number of items can be increased, or, if the child is using an unconventional method of communicating, he or she can be taught a more conventional method of indicating his or her choice. Offering choices is also a good way to determine a child's preferences if they are not known. What motivates a child is extremely useful information in teaching communication.





It is important to look out for, and resolve, particular problems that occur in teaching choice-making.

- If the child does not react at all, the child may not be aware of the items. Repositioning the items may allow the child to become aware of them. If the child is visually impaired, the child can be assisted in touching, smelling, tasting and/or hearing them. If the child still does not respond, it may be that the child is tired, or nothing is sufficiently motivating. In this case, different items may be presented, or the situation altered (e.g. if food items are being offered, pick a time when the child is naturally hungry). Finally, a child may not react if he or she does not understand what is being offered. For example, a child who does not understand symbols will not react to pictures. In this case, real objects need to be presented.
- If the child always seems to signal for the item in a certain position (e.g. the nearest), then the items need to be repositioned to make sure the child is aware of all of them, and can indicate each one with equal ease. If the child continues to react to the item in the same position, or indiscriminately grabs at any or all of the items, it may be that the child likes all the items. In this case, some can be replaced by neutral items (e.g. a piece of cardboard). It is also recommended that the placement of the items be frequently changed so that, if the child has one or two favorites, he or she has to find them in different positions. It is, however, generally not recommended that strongly disliked items be included since these can engender negative reactions on the part of the child that overpower the opportunity for a positive choice ([Reichle, York & Sigafos, 1991](#)).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

OTHER RESOURCES:

- "My son...has cause/effect...can play with toys, through a switch, but we don't know where to go after that..." by R. J. Cooper at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1011&b=6.

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Advancing communicative competence](#)
 [Basic communicative functions](#)

Requesting

One difference between choice-making and requesting is that making a choice requires that items be presented for selection, while requesting can be done spontaneously in or out of the presence of the desired item. Requesting is highly motivating to children since they are able to get what they want with it. For this reason it is frequently used in an initial teaching program ([Beukelman & Mirenda, 1992](#); [Goodman & Remington, 1993](#)).

A request can be general (i.e. the word "want" can be used to ask for anything), or it can be specific, for example, "want a drink," or "want milk." Often a generalized request is taught first because it is the most powerful. The drawback to this is that it may be difficult for the partner to figure out specifically what is being requested. After having mastered a general request, specific requesting may be taught, although this sometimes generates confusion. When transitioning from the use of generalized to specific requesting, it is a



good idea to acknowledge the child’s general requests while teaching the newer more specific ones. For example, "You are letting me know you want to eat something. Now tell me what you would like to eat" ([Reichle, York & Sigafos, 1991](#); [Van Tatenhove, 1987](#)). The move from generalized to specific requesting is sometimes a good way of introducing the concept of scanning. (See [Direct selection and scanning techniques](#) and [Scanning](#).) Excellent naturalistic methods for teaching requesting include [milieu teaching techniques](#), and [prompting and prompt-free strategies](#).

After the child has mastered making requests in the presence of the desired item, he or she can be taught to request an item that is not visible. This can be done by removing familiar items and prompting the child to ask for them. It helps to provide clues that trigger the child’s desire for the object. For example, if a doll is ordinarily used along with a toy crib and some doll clothes, seeing just the crib and clothes may trigger the child’s desire to play with the doll.

Another method is to withhold an item that is necessary to a routine or activity from the child. The activity itself stimulates the child to ask for the specific item. (See [Interrupted behavior chains](#).) Another technique is to choose a time or situation when the child is likely to be hungry, thirsty or cold, and then prompt the child to ask for food, drink or warmer clothing. ([Reichle, York & Sigafos, 1991](#)).

[Table of Contents for YaacK: AAC Connecting Young Kids](#)

[Teaching](#)

[Advancing communicative competence](#)

[Basic communicative functions](#)

Getting attention

Being able to get the attention of an adult is important, but difficult for some children. In addition, attention-getting skills are crucial for users of AAC devices that do not output sounds. For those who use speech or VOCAs, sending a message also gets the attention of a partner. However, for those who use silent methods such as gestures, sign language, communication boards, etc., the child must get the attention of the partner prior to communicating a message. In fact, visually-based AAC device users usually require a sound-based communication method for getting a partner’s attention, such as vocalization, a buzzer, a whistle, a clap, etc. (See [Multimodal communication](#).)

Another reason for teaching ways of getting a partner’s attention is that sometimes a child does not understand that this is a necessary part of communication. For some children, a first objective is to teach intentional communication. (See [The first goal: Intentional communication](#).) Thus, initial efforts aimed at helping the child make a connection between his or her behavior and adults’ responses often mean that every communicative attempt on the part of the child results in an immediate reaction. Such a child never has the need to get the attention of the adult prior to communicating, and, thus, does not understand that this is necessary. This can be offset by incorporating attention-getting strategies into an intentional communication instructional program ([Reichle, York & Sigafos, 1991](#)). (See [The Early Communication Process](#).)

Attention-getting can be taught using [prompting and prompt-free strategies](#) or can be included in [routine-based teaching techniques](#).



[Table of Contents for YaacK: AAC Connecting Young Kids](#)

[Teaching](#)



Rejecting

Teaching a child how to say "no" to an unwanted object or activity is a sometimes neglected communication skill. Yet, the inability to say no in an appropriate manner is frequently associated with behavior problems. When a child is not able to indicate rejection, the child may find him- or herself suddenly in the midst of an undesirable predicament, resulting in immediate and forceful rejection behavior. (See [Children with severe behavioral issues](#).)

Like requesting, rejecting can be taught initially in a general form that will serve in any situation, such as "no." When this is mastered, more specific forms can be taught, for example, "no milk" (i.e. I don't want milk.) In teaching rejecting, it is often difficult, but important, not to remove an unwanted item or situation in response to an inappropriate behavior. This only serves to reinforce for the child that the quickest way out of the situation is to act out. By the same token, it is important to give the child a method of rejection that allows the child to escape from an unwanted situation in a quick, reliable and efficient manner. For example, vocalization, shaking one's head, or waving a hand back and forth can be fast and easily understood by others, as opposed to locating and pushing a button on a voice output communication aid (VOCA).

In teaching a child to reject, the adult must learn to recognize early the child's current manner of rejecting. For example, the child may begin with a frown, then wave his or her hands and whine, and finally start to cry or scream. As soon as the adult notices the frown starting to appear, the child should be prompted to communicate "no," and the offending object removed immediately. In fact, because a child's self-developed way of rejecting can occur extremely quickly in response to an unwanted item, it may be necessary to teach the child the new rejection signal outside of an actual negative situation. For example, initially teach the child to say "no," shake his or her head, or touch a "no" symbol through imitation or physical prompting. When the child is familiar with the form he or she can be taught to use it in the presence of an unwanted item or activity. As the child begins to master communicating a rejection, any residual prompting from the adult can be faded. (See [Prompting and prompt-free strategies](#), and [Fading prompts](#).)





Initially it may be important to honor the child's newly learned ability to communicate a refusal at every opportunity, especially if it is replacing dangerous rejection behavior. This is difficult with regards to activities that are medically or physically necessary. If possible, remove the unwanted activity upon the request of the child, and then continue again after a pause, or break it up into smaller steps. After the child has mastered the new method of rejecting, he or she can be taught to delay the removal of the unwanted object or activity for longer and longer periods of time ([Beukelman & Mirenda, 1992](#)). (See [Children with severe behavioral issues](#).)

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

Conversational skills: Initiating and maintaining a conversation

In basic terms, a conversation has three parts, a beginning, a middle or body, and an ending. Each requires different skills. To begin a conversation, one has to get the attention of a partner and bring up a topic that is of interest to both parties. Maintaining the interaction requires such skills as taking turns, and being able to stay on the same topic or move smoothly to another topic of interest. Ending the interaction implies finding a point in the conversation in which it is okay to stop, and then informing the partner of one's intention of terminating the conversation. Of these three, the first two are usually considered the more important. Children who use AAC may need systematic teaching and practice to master these skills. This is not only because they may be unfamiliar with the actual skills, but also because characteristics of AAC systems usually necessitate significant conversational adjustments by both child and partners.



-  [Table of Contents for YaackK: AAC Connecting Young Kids](#)
-  [Teaching](#)
-  [Advancing communicative competence](#)
-  [Conversational skills](#)

Conversational control vs. conversational efficiency

A lot of focus has been placed on the conversational imbalance that occurs between persons with and without disabilities. Persons with disabilities are known to seldom initiate, to respond primarily with short statement such as yes and no, and, overall, to occupy significantly less of the conversational space than do their partners without disabilities ([Calculator, 1997](#); [Light, 1988](#)).

This is, indeed, notable and disturbing. On the other hand, it is important to keep the entire interaction in perspective. Rather than just focusing on initiations and number of words spoken, it is worthwhile to look at the overall quality of such conversations: how long each one is, how often they occur, how engaged each party is, how much information is conveyed, etc. One study found that, in conversations between two individuals without disabilities, one of whom was asked to use AAC, the AAC users automatically became less of an initiator and more of a responder. The additional time and effort required to communicate with the AAC device caused the conversation to lose its natural timing and rhythm, and for the non-AAC partner to lose interest. For the sake of conversational flow, the AAC users naturally adopted a more passive role, relying on their partners to steer the conversation in an attempt to increase the pace. Speed of communication is, in fact, considered one of the most important factors in normalizing conversations. Studies have found that normal speakers use 150 to 250 words per minute, but that AAC users average less than 15 words per minute ([Beukelman & Mirenda, 1992](#); [Venkatagiri, 1995](#)). In effect, conversational control and conversational efficiency appear to often be at odds with each other.

What this study suggests is that merely to focus on increasing the number of initiations or the number of words output by a child who uses AAC may not necessarily be helpful, and can even be detrimental to the overall interaction. What need to be identified are the obstacles that are impeding a particular child's conversational ability. Obstacles may include the child's own lack of confidence, learned helplessness, conversational inexperience or lack of interesting subject matter, or may be inherent to the child's skill in



using the AAC, such as slowness or a large number of mistakes. These specific issues need to be addressed if the overall quality of the interaction is to improve.

At the same time, much can be gained by increasing partners' sensitivity to the characteristics and needs of AAC users. Partners can be taught to increase an AAC user's conversational control by pausing for longer periods to give sufficient time to initiate or respond, using open-ended as opposed to yes-no questions, and following the user's lead ([Farrier, Yorkston, Marriner, & Beukelman, 1985](#)).

OTHER RESOURCES:

- Mike Gregory 's Nov. 6, 1997 e-mail posting under "Communication Boards" describes issues in conversing with a communication board on the [ACOLUG listserv](#) archives at listserv.temple.edu/cgi-bin/wa?A2=ind9711&L=acolug&F=&S=&P=5764.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

[Table of Contents for YaacK: AAC Connecting Young Kids](#)

[Teaching](#)

[Advancing communicative competence](#)

[Conversational skills](#)

Initiating interactions

Children with communication impairments often have difficulty initiating a communicative exchange, which has instigated much research and debate. In one study, for example, families were taught a number of different techniques to facilitate communication with their AAC-using child. The results were positive; the children became substantially more communicative, and used longer, more sophisticated responses. Yet, they did not increase their rate of initiating conversations. Learned helplessness was one factor cited in explaining why these children remained non-initiators. This suggests the importance of early intervention in the prevention of learned helplessness in children with disabilities ([Basil, 1992](#)). (See [Contacting an organization for services and support](#).)

To a large extent, initiating conversation comes with practice and self-confidence. To help a child who is not initiating due to lack of opportunity or apprehension, the following may be of assistance ([Reichle, York, & Sigafos, 1991](#)).

- A child is more likely to want to participate in an activity in which other children are already involved and enjoying.
- Routines are excellent devices for teaching initiating since it is easier for a child to initiate if he or she is already well-acquainted with the activity. (See [Activities and routines as teaching tools](#).)
- Many naturalistic teaching strategies are excellent for teaching a child to initiate interactions. (See [Milieu teaching](#) and [Prompting and prompt-free strategies](#).)



Help me—and everyone who

- Put something new or unusual in the environment that will catch the interest of the child
- Do something that the child finds mildly objectionable to elicit a protest or rejection. (See [Interrupted behavior chains](#).)
- Prompt the child. For example say, "Go ahead and ask them if you can join their game."

**reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Advancing communicative competence](#)
- [Conversational skills](#)
- [Initiating interactions](#)



AAC connecting Young Kids

Topic-setting strategies

[Beukelman & Mirenda \(1992\)](#) stress the importance of providing the child with a means for bringing up new topics. This consists of providing and teaching relevant vocabulary, and giving the child an engaging way to introduce a topic of interest. They suggest collecting items that represent activities and events that are of interest to the child and putting them in a folder or book, or assisting the child in making collections of objects such as miniature cars, stuffed animals, etc. These props allow the child to introduce the topic easily and in an interesting manner. Even if the child still does not initiate, the partner, upon seeing the props, can easily bring up a subject of interest to the child by asking about them.

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Advancing communicative competence](#)
- [Conversational skills](#)



AAC connecting Young Kids

Maintaining a conversation

Sensitive partners are very important in maintaining a conversation with a child who uses AAC. Some of the main reasons that a child may not hold up his or her end of the conversation include the child's own lack of confidence, or the slowness often inherent in using AAC, particularly among beginning users. Partners may find themselves with the urge to "help" the child by doing most of the talking themselves, asking the child only questions that are quickly and easily answered, such as yes/no questions, or even terminating the interaction because it appears to be too effortful for the child.

Instead, partners can make adjustments that allow and encourage the child to continue a conversation. First, it is important to have a conversation that is of interest to both parties. This could involve the exchange of new information, the discussion of a familiar story or topic, or it could be a game or routine that both parties




enjoy. Without being rigid about it, partners can provide the child with longer pauses, ask more open-ended questions (i.e. questions that cannot be answered by just one or two words), and expect longer responses from the child. If a familiar story, game or routine is being used, the partner can add variations in order to expand the child's repertoire. Finally, the partner can follow the child's lead by allowing the child to set the topic and then following along. Children are known to have a greater attention span and to communicate more on topics which they, as opposed to their partners, have introduced ([Calculator, 1988b](#); [Yoder & Davies, 1990](#); [Yoder & Davies, 1992a](#)).

A specific strategy that encourages a child to continue a topic of conversation starts by encouraging the child to initiate a subject of interest through the use of pictures, props or other means. (See [Topic-setting strategies](#).) The partner responds to the child's initiation, and then adds a question or comment about the topic, to which the child is expected to respond. After the child responds, the partner follows up in the same manner ([Beukelman & Mirenda, 1992](#); [Westling & Fox, 1995](#))

OTHER RESOURCES:

- Phil Lawrence's Dec. 17, 1997 e-mail response under "Social interacting with AAC" discusses the importance of AAC users being able to make "small talk" on the [ACOLUG listserv](#) archives at listserv.temple.edu/cgi-bin/wa?A2=ind9712&L=acolug_&F=&S=&P=19013.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at Yack@iname.com](mailto:Yack@iname.com)

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Advancing communicative competence](#)

Teaching sentence structure

After a child has mastered basic one- to three-word phrases, it may be time to begin encouraging the child to start using more complete sentences. Sometimes this involves introducing a new, more advanced AAC system. For example, communication boards may not facilitate the use of grammatically correct sentences, whereas sign language or a voice output communication aid (VOCA) will. Essentially, the type of AAC and symbol system used will have an affect on how the child is taught sentence structure. If a VOCA is used, choice and organization of vocabulary become crucial in this endeavor. (See [Vocabulary selection strategies](#) and [Organizing vocabulary for speed](#).)

OTHER RESOURCES:

- "Field of Dreams: Sowing Language and Reaping Communication" by Gail M. Van Tatenhove, PA, M.S., CCC-SLP discusses the importance of developing increasingly sophisticated language at <http://kaddath.mt.cs.cmu.edu/scs/95-gvt6.html>.





Teaching AAC-related skills

Teaching a child to enjoy social encounters

Some children do not like social encounters and will actively avoid them. This will serve to delay communication because communication requires interaction with others. Therefore, an early part of their communication program should include teaching them how to take pleasure from social engagement with others ([Schweigert, 1989](#)). The following techniques can be used to accomplish this.

- The adult can try to attract the interest of the child by initially attempting to enter the child's world. The adult starts by merely being in the physical proximity of the child, and, over time, begins to move closer to the child. If this is successful, the adult can then begin to imitate the child. If the child starts to watch the adult, indicating an interest in what is happening, the adult can increase the intensity of movements and sound, and/or begin to engage the child more directly. For example, if the child enjoys touching a particular object, the adult may start by touching a similar object in the same way, and then go on to touching the child's object. This could lead to a game in which the adult playfully takes the child's object, briefly does something with it, (e.g. puts it on the adult's own head), and then gives it back to the child. When the child is comfortable with this routine, communication instruction may be initiated with the adult waiting for the child to reach for the object before giving it back ([Mirenda & Schuler, 1988](#)).
- When reinforcing the child, always pair a non-social reward (e.g. toys or food) with adult attention. The child can then begin to associate attention with the pleasure derived from the non-social reinforcement. Eventually, the attention should come to be regarded as desirable in and of itself. The [Early Communication Process](#) developed by [Schweigert and Rowland \(1992\)](#) includes teaching a developmentally young child to enjoy social attention.
- [Visually cued instruction](#) is another structured program that is excellent for children with little awareness of social skills. It can be used with children who do not yet exhibit intentional communication or the understanding of symbols.

Teaching symbols

After a child has mastered non-symbolic communication, such as requesting by pointing to or looking at desired objects, or pushing away unwanted objects, the next step is for the child to learn how to use symbols. Communicating with symbols allows the child to refer to objects and events that are not



immediately present (i.e. objects that are not physically present, and events that have already occurred or have yet to occur). Symbols are also necessary for the discussion of abstract concepts, and, thus, are essential in academic endeavors. Many children naturally gain an understanding of symbols as they develop cognitively. However, some children, in particular those who are severely cognitively impaired, may have to be explicitly taught symbols. (See [Assessing intentionality, and the understanding of means-end, causality, and symbols](#), [Issues with symbol systems](#), and [Types of symbol systems](#).)

Some children easily confuse different symbols, especially those that are similar-looking. A child may be able to correctly use the first few symbols learned, but, as more are added, begin to mix them up or produce symbols at random. This suggests that the child is unable to remember the symbols well enough to distinguish them. One solution is, at least initially, to choose symbols that are sufficiently different from each other to allow the child to distinguish among them ([Franklin, Mirenda, & Phillips, 1996](#)). This means that some children will start out with symbols that differ greatly, while others can be taught symbols that are more similar in preparation for differentiating symbols that are very similar-looking ([Reichle, York, & Sigafoos, 1991](#)). Sometimes it is beneficial to give a child explicit practice in differentiating symbols, such as a symbol matching task ([Thorley, Ward, Binopal, & Dolan, 1991](#)).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:Ruth.Ballinger@iname.com)

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Teaching AAC-related skills](#)
- [Teaching symbols](#)

Start with objects as symbols

[Van Tatenhove \(1987\)](#) recommends starting with real objects when teaching symbols to children who are still pre-symbolic. (See [Assessing intentionality, causality, means-end, and the understanding of symbols](#).)



- Make sure the child is able to communicate intentionally, and, in particular, to make requests. (See [The first goal: Intentional communication](#) and [Requesting](#).)
- Use two identical sets of objects that the child enjoys. When the child requests one of the objects, do not give the child the object that was indicated, but its identical pair. Van Tatenhove refers to this as an object-to-object representation. When the child comprehends that indicating one object is the way to access its pair, the child has developed an understanding of symbols.

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Teaching AAC-related skills](#)
- [Teaching symbols](#)

Communicating with pictures

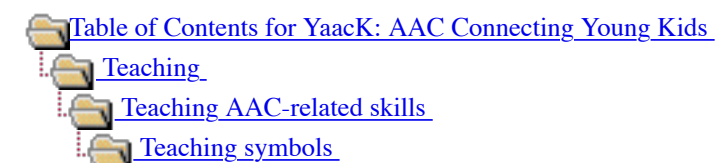
Once the child has mastered object-to-object representations, he or she can be taught more abstract symbols, such as picture symbols. (See [Start with objects as symbols](#).) Again, pairs of identical objects are used initially ([Van Tatenhove, 1987](#)).

- The child will begin with object-to-object representations, that is the child will be indicating an object in order to receive its identical pair. This time, however, a photograph of the object is placed above each of the objects from which the child will be requesting. When indicating an object in order to request it, the child should begin to link the picture with its object. Over successive trials, the child can be assisted in shifting attention from the object to its picture, by making the object less, and the photograph more, prominent. For example, their relative positions could be slowly changed so that the photograph becomes more centered and the object pushed towards the back ([Reichle, York & Sigafos, 1991](#); [Van Tatenhove, 1987](#)). (See [Prompts designed into the AAC](#).)
- Later remove the objects, so that the child can indicate only the pictures to make requests. It often helps to explicitly state the connection between using the photograph to make the request and receiving the object simultaneously, for example, "You are looking at the picture of the puzzle. Here is the puzzle" ([Van Tatenhove, 1987](#)).



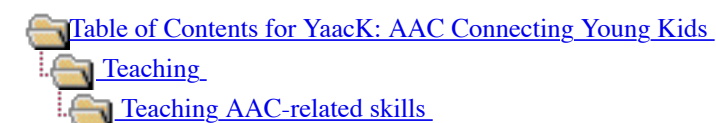
OTHER RESOURCES:

- "Picture this: Teaching Icon Associations" from Prentke Romich Co. at www.prentrom.com/teaching/picture.html.



Communicating with sign language

Sign language is another major symbol system. It is frequently taught using [simultaneous communication](#), [milieu teaching](#), and [prompting and prompt-free strategies](#).



Direct selection and scanning techniques

Direct selection or scanning must be used when a child has to choose among an array of messages, as with, for example, communication boards or voice output

communication aids (VOCAs), as opposed to directly producing the desired message such as with speech and sign language. In direct selection, the child independently locates and then activates the message. In scanning, the child waits while an external navigator, either another person or the device itself, moves through the messages highlighting each one separately. When the desired message is reached the child indicates or activates it.

In general, direct selection is considered preferable to scanning since it has the potential to be faster. Scanning involves long waiting times during which the child must remain attentive and remember the intended message, increasing cognitive demands as well as the likelihood of fatigue and boredom ([Ratcliff, 1994](#)).



Scanning is typically used with children with motor disabilities who are unable to push or touch one of a series of buttons or pictures, but are capable of activating a switch or indicating an affirmative to a partner. If it is unclear whether direct selection or scanning is preferable for a child, then both may be taught simultaneously. This is also a good idea if a child's motor skills are degenerating such that he or she is currently capable of direct selection, but will lose that ability in the future.

Scanning can be visual (e.g. pointing to each choice in a series), auditory (verbally labeling each choice) or both (for example, if each choice is verbally identified as well as pointed to). Using a combined visual and auditory scanning technique may enhance receptive (i.e. the child's ability to understand) as well as expressive language skills.

Auditory scanning is considered more difficult than visual scanning for the following reasons:

- In the visual mode, items are permanently available. The child can examine any picture at any time.
- In the auditory mode, once a choice is presented, it is no longer accessible. If the child is being presented with an unfamiliar list of choices, he or she may have to listen to the entire sequence in order to know everything in it, and then have the sequence repeated in order to, then, make a choice. Memory and attention requirements are greater than they are for the visual mode.

Because of the difficulties inherent in auditory scanning, some children may always choose the first or the last item in the sequence to reduce the effort required, particularly during the learning stage. To prevent this, neutral items can be mixed with highly preferred items. In addition, the relative positions can be frequently changed, the list of items can be reduced in length, or auditory cues can be given (e.g. stating known preferred items in a louder voice) to help the child get started in using scanning ([Light, 1993](#); [Reichle, York, & Sigafos, 1991](#)). (See [Prompts designed into the AAC](#).)

OTHER RESOURCES:

- "Auditory Scanning ListServ" at espse.ed.psu.edu/SPLED/McN/auditoryscanning/JoinLS.html
- Cynthia Cress' Sept. 29, 1997 response under "single switch info request" discusses teaching switches to very young children on the ACOLUG listserv archives at listserv.temple.edu/cgi-bin/wa?A2=ind9709&L=acolug&F=&S=&P=26678.
- "My son...can play with toys, through a switch, but we don't know where to go after that..." from an article by R. J. Cooper at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1011&b=6.
- "Cerebral palsy and visual impairment: An access challenge" by Cynthia

Brown and Tracy Shepherd at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1013&b=8.

- "Scanning anyone?" by Vicki Nelson at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1106&b=3.
- [Beukelman and Mirenda](#) have a section on direct selection and scanning in *Augmentative and Alternative Communication Management of Severe Communication Disorders in Children and Adults*.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

- Table of Contents for YaacK: AAC Connecting Young Kids
- Teaching
- Teaching AAC-related skills
- Direct selection and scanning techniques


Scanning


[Reichle, York, & Sigafoos \(1991\)](#) offer an excellent strategy for teaching a child how to scan utilizing a choice-making format. The assumption is that the child is a beginning communication board or voice output communication aid (VOCA) user. If the child is also pre-symbolic, then real objects can be used. Prior to beginning teaching, a signal for yes or switch that the child will be using to indicate a preference must have already been established.





- Initially just one item, a preferred one, is presented. The child has to learn to wait until the partner or device indicates the item before producing the yes signal or switch activation response in order to request the item. The position of the item on the board should be changed randomly each time so that the child becomes aware of the entire board. While teaching, the child's attention can be redirected to the board, if necessary, with verbal prompts ("Look over here"), auditory prompts (tapping the pictures with a finger) or physical prompts (gently redirecting the child to face the board). Otherwise, it is best not to say or do anything else so as not to distract the child. Scanning should take place at an appropriate speed, slowly enough for the child to be able to follow.
- When the child has mastered waiting, a "distractor" (i.e. a neutral item) is added. The adult may indicate either the neutral or the preferred item first and, again, the child has to learn to wait until the desired item is indicated before responding. The positions of the distractor and desired item should be frequently changed.
- When the child has mastered selecting the preferred item from among the two options, more items can be added. Their positions should continue to be changed, as well as the order in which they are indicated. If necessary, cues can be used, such as enlarging the desired item to make it more prominent, adding a colorful border, etc. In auditory scanning, the desired item may be stated in a louder voice. Eventually the cues can be gradually faded (i.e. the size reduced or a normal tone of voice used). (See [Fading prompts](#).)


- Once the child has mastered scanning, the positions of items can be fixed. This allows the child to remember where they are located, necessitating less attention on the part of the child, and allowing an increase in the speed of the scanning.

[Table of Contents for YaacK: AAC Connecting Young Kids](#)

[Teaching](#)

[Teaching AAC-related skills](#)

[Direct selection and scanning techniques](#)

[Scanning](#)



Row-column scanning

Row-column scanning can be taught by initially teaching the child how to scan through a vertically-positioned column of general-category items.

Eat
Drink
Play

When the child is able to choose among these, more specific items can be added to the horizontal rows on the right. An example of such a communication board follows.

Eat	banana	cookie	popcorn
Drink	juice	milk	soda
Play	cars	playdough	slide

The child must learn to first choose only among the items vertically arranged in the left-most column. Once this choice is made, the child then has to focus only on the items in the horizontal row to the right of the initial selection ([Reichle, York, & Sigafoos, 1991](#); [Van Tatenhove, 1987](#)).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com





Scholastic endeavors:

Literacy

The best way to prepare a child for learning to read and write is to present literacy-related activities as early as possible. These include looking at books and reading stories together, as well as providing the child with pens, pencils, crayons and markers. This is often not an easy task. The families and teachers of children with disabilities frequently feel other activities need to take precedence, such as those involved in increasing mobility, or self-help skills. In addition, families and teachers may have to overcome the child's own lack of interest, problems with physical positioning, sensory issues, or the difficulty a child may have in grasping and manipulating writing implements. In general, providing a child with disabilities with literacy-related activities takes time and effort.

Nevertheless, literate AAC-using adults credit the support of family and teachers in giving them many and varied early literacy activities with helping them to learn to read and write. Thus, it is important to provide the child with as many such opportunities as possible, and to maintain the expectation that the child will learn to read and write ([Koppenhaver, Evans, & Yodre, 1991](#); [Light & McNaughton, 1993](#)). In general, a child who uses AAC benefits from the same types of literacy-related experiences as all children, although adaptations may be required. The following are suggestions regarding such activities ([Beukelman & Mirenda, 1992](#); [Light, Binger, & Smith, 1994](#); [Light & Smith, 1993](#); [Pierce & McWilliam, 1993](#)).

- Although it is ideal if the child has his or her AAC system while being read to, some families feel it takes away from the intimacy of the situation. This is especially true when the system prevents the child from sitting on someone's lap. A compromise may be to use the AAC systems sometimes and be without it at others, or a smaller AAC device may be used, such as a loop cassette tape that will still allow the child to participate.
- Books and stories that utilize a lot of repetition should be selected, and the child's AAC programmed so that he or she can participate during these parts. The same books and stories can be read multiple times so that the child becomes very familiar with them. This helps the child become more of a participant since less cognitive capacity is required to comprehend the story and more can be devoted to interacting ([Yoder & Davies, 1992a](#)).
- The child should be positioned so that he or she can see the pictures and words of the book.
- Story plots can be related to the child's own real-life experiences so that the child can develop a better understanding of them.
- Long pauses and open-ended questions encourage the child's participation.
- The child's writing implements may require adaptations to maximize their successful use, for example pens and pencils can have built-up handles or velcro loops for attaching around the child's palm.

While learning to read, one method used by children without disabilities is sounding out the sounds of letters

and syllables. Non-speaking children are not able to do this, leaving them at a disadvantage. It may help if they are able to make these sounds with a device such as a cassette loop tape, a VOCA, or someone else's voice. Children may also be encouraged to sound out words in their heads as they are learning to read. Printed words affixed to pictures and other symbols can assist graphical AAC users to associate the written words with the messages. Finally, some abstract AAC symbol systems in which words are often composed of a combination of simpler symbols (e.g. Blissymbols) are thought to enhance a child's ability to break up a word into its component letters ([Koppenhaver, Evans, & Yodre, 1991](#)).

OTHER REFERENCES:




- "One Size Does Not Fit All: Tailoring AAC Training to the User" by Barbara B. Shadden, Angie Hodges, and Kasey Hodges is a case study of a young AAC-user learning literacy skills at www.dinf.org/csun_98/csun98_004.htm.
- "Babes in Bookland" by Pati King-DeBaun contains information on how to read to a child with disabilities, including step-by-step instructions on constructing your own "talking book" at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1017&b=12.
- "How can I teach my struggling students to read?" by Mary Mourousias includes tips and suggestions as well as specific reading, spelling and writing programs at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1077&b=1.
- "From Picture Producers to Real Language and Literacy: A Practical Guide" by Karen A. Erickson, Ph.D. offers general guidelines on enhancing reading and writing skills among Minspeak users at <http://128.2.110.35/scs/96ke.html>.
- "Adapting Curriculum for Augmentative Communication" by Karen L. Moos and Shirley K. Hartwig provides examples of literacy and language activities for AAC users at the preschool, kindergarten and first grade levels at www.dinf.org/csun_97/csun97_087.htm.
- "Using assistive technology in thematic activities" by Carolann Cormier, Alicia Folland-Tillinghast, and Lauren Skau describes the wide variety of language-based activities that can be created around a single theme at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1018&b=1.
- "Full-inclusion as a lived experience: A case study of a transdisciplinary team" by Seth B. Harkins and Laura Drower compares the differences in the ways in which children with severe motor impairments and children without disabilities acquire literacy at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1055&b=9.
- "Managing the Change from Symbol Based Communication to Text Based Systems" by Paul Hawes and Paul Blenkhorn discusses the need for literacy learners to be able to switch between their AAC device and computer-based word processing and educational software at www.dinf.org/csun_98/csun98_012.htm.
- "Writing and Speaking Through Pictures" by Yvonne Gillette and Jeri Lynn Hoffman describe a software product that allows literacy learners to match pictures with words, then produce the words in print, and, finally combine words into phrases and sentences at www.dinf.org/csun_98/csun98_070.htm.
- "To Facilitate Commenting and Turn-Taking While Reading" by Prentke Romich Co. offers tips on teaching reading to AAC users at

**Help me—and
everyone who
reads this site—by
mailing your**

www.prentrom.com/teaching/booknook.html.

- "Storytime tricks" offers ideas to be used during storytime at www.creative-comm.com/sttricks.html.

suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Scholastic endeavors](#)



Academics

OTHER REFERENCES:

- "Quick and Easy Ideas and Materials for Using Classroom Materials to Teach Academics to Nonverbal Children" by Carolyn Rouse, CCC-SLP and Katera Murphy about a book by this name at www.dinf.org/csun_98/csun98_087.htm.
- "Three Principles of Universal Design for Learning" by Center for Applied Special Technology (CAST) discusses ways to present information to children of varying abilities at www.cast.org/concepts/concepts_three_p.htm.

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)
© YAACK 1999





Specific teaching techniques

In choosing which instructional techniques to use in teaching a child, the following considerations are important:

- Ideally teaching should take place at home as well as at school or in therapy. This speeds up learning as well as stresses the value of communication in many different environments. While this presumes that family members must be teachers as well, it does not mean that they must endure daily rigid teaching sessions that are time-consuming and disruptive. In fact, the manner in which a child's AAC is used at home must fit into the family's lifestyle if it is to be successful there. Examples of what might be practical at home are:
 - Following up with communication skills and vocabulary introduced at school.
 - Reading or telling stories to the child.
 - Talking to the child as much as possible, using language that is at or just barely beyond what the child understands, and pausing frequently to allow the child to respond. Family members may or may not also use their child's AAC system to highlight key words as they are spoken. (See [Simultaneous communication](#).)
 - Programming vocabulary used at home into the AAC device so that it is reinforced at school.
 - Playing games with the child that require communication.
 - Encouraging siblings and others to communicate with, and expect to be communicated with, the child using AAC.
- For their part, teachers should be aware of and follow up in the classroom with what the child is learning at home. Many family members are willing and able to spend a great deal of time working with their child. There may be cases in which they know much more about their child's AAC than the classroom teacher or school communication professional. This is particularly true when the child begins school or moves to a different class and gets a new set of teachers and professionals. In these situations, the teachers and professionals should acknowledge the experience and expertise of the family, and design interventions for the classroom based at least partly on what has been done at home. Unfortunately, a lot of backtracking occurs when a new teacher does not continue with an AAC plan already in place but, instead, starts a new and different communication program.
- It is important that there be a data collection system in place to determine the effectiveness of teaching. This does not have to be a complicated and meticulous system; in fact, if it is too demanding, chances are it will not be carried out at all. Ideally, the information collected should be based on fact and not opinion, and indicative not only of whether a plan is working, but also, if it is not, the reasons why it seems to be failing. This information is crucial in determining how an existing instructional plan can be added to or modified.
- Specific characteristics of the child should be taken into consideration. These include such attributes as:
 - The child's learning style (i.e. visual, auditory, tactile).
 - Whether or not the child has a tendency to become dependent on prompting by an adult. (See [Prompting and prompt-free strategies](#).)
 - Whether or not the child will imitate.

- What motivates the child.

- The type of AAC system being used has implications regarding how it is taught. For example, physical guidance can be used with gestures and sign language, as well as graphical systems like communication boards and VOCAs. It cannot, however, be used with speech. Speech requires that the child be able to imitate. ([See Teaching different modes of AAC.](#))

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

OTHER RESOURCES:

- For detailed descriptions of specific teaching techniques for children of different ages, skill levels and impairments, see Blackstone, S. W., Cassatt-James, E. L., & Bruskin, D. M. (Eds.). (1988). *Augmentative communication: Implementation strategies*. Rockville, MD: American Speech-Language-Hearing Association.

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)

 [Teaching](#)

 [Specific teaching techniques](#)

Naturalistic teaching methods

In the past, a communication intervention often meant placing a child in a separate therapy room and using drill-and-practice techniques to teach specific responses to questions or statements. Nowadays, it is strongly recommended that a child be taught communication (and other skills) in the midst of real-life settings and activities ([Leister, Koonce, & Nisbet, 1993](#)). This follows a general trend in which children with disabilities are no longer removed from their peers and taught in isolation, but integrated into the regular classroom. Studies have found the following to be true about learning in natural environments, typically the regular education classroom:

- Because the settings and activities are real, the communication skills being taught are practical and meaningful, and, as a consequence, more motivating.
- Peers are available as models. Children with disabilities not only learn new vocabulary, but are being clued into the entire social routine surrounding a communicative exchange. A child can have mastered a large number of messages—and many became experts at outputting messages upon demand in a one-to-one therapeutic situation—but have no idea how to communicate with them in real circumstances. For example, a child may learn to say "I am fine" to the teacher's "How are you?" but when approached by a smiling, waving peer in the hallway who says "Hey, how's it going?" be at a loss as to how to respond ([Westling & Fox, 1995](#)).
- Children tend to learn more efficiently by using communication to accomplish things, rather than being taught about the messages (i.e. receiving a description of what a word means and how it is used). In other words they learn what messages mean by using them, even though, at times, they may not even be exactly sure what the words mean. (This is called the pragmatic approach.) ([Light, Collier, &](#)



[Parnes, 1985](#)).

- Because children are learning the general circumstances under which communicative exchanges occur, they are better able to use their knowledge even when faced with a completely new situation. (This is called generalization.) For example, a child learning to communicate while playing at school, may, then, be able to successfully use these skills while playing at home or at a friend's house. Children who learn through drill-and-practice are often unable to transfer their knowledge anywhere outside the therapy room because the surrounding factors are so different.
- With training and support, peers can be included in an AAC program. Peer-mediated communication interventions can be very effective ([Romski, Sevcik, Robinson, & Bakeman, 1994](#); [Romski, Sevcik, & Wilkinson, 1994](#)).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Teaching](#)
 - [Specific teaching techniques](#)
 - [Naturalistic teaching methods](#)



General naturalistic techniques

A collection of naturalistic techniques, generally based on how parents communicate with their normally developing infants and young children, is recommended for youngsters with disabilities. These techniques are unintrusive, loosely applied and feel natural, making them easy for parents to use at home without disrupting family life, and for teachers to use in the midst of regular classroom activities. Naturalistic techniques include the following.

- Talking to the child as much as possible and/or providing a model for the child to imitate by using the child's AAC to simultaneously highlight key words while speaking. (See [Simultaneous communication](#).) This should occur naturally, utilizing statements that are at or just ahead of the child's current ability to understand language. This means using simple vocabulary, shorter statements and a slower rate of speaking. One way of accomplishing this is to narrate what is occurring. For example, "Sock." (Point to or hold sock up.) "Sock on." (Put the sock on the child's foot.) "Other sock on." (Put the other sock on.) In addition, frequent pauses, while looking at the child and waiting a sufficient length of time (even up to a minute or two) allows the child to respond or initiate communication. This technique increases the child's receptive language comprehension as well as provides opportunities for communication ([Light, 1988](#); [Reichle, 1997](#); [Romski, Sevcik, Robinson, & Bakeman, 1994](#)).
- Paying attention to what the child is interested in (as opposed to the adult directing the child's attention towards something else). Ways of doing this include noting what the child appears to be focusing on, and then talking about it or including it in interactions with the child, or imitating what the child is doing. If the behavior being imitated is one that is not desirable, such as finger watching, the adult can begin to modify it into a more socially acceptable behavior, such as a peek-a-boo or waving game once the child is engaged in the interaction. This is especially useful for children who do not enjoy interacting with other persons ([Reichle, 1997](#)).

- Responding to the child's communicative attempts. A child is more communicative if the adult does not introduce a new topic but continues one that was introduced by the child by asking questions or making comments about it ([Yoder & Davies, 1990](#)). Even if the child's communications are unintentional, acknowledge what they appear to mean and respond accordingly. (See [Assessing intentionality, and the understanding of means-end, causality, and symbols](#) and [The first goal: Intentional communication](#).)

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

OTHER RESOURCES:

- "The Caring Connections... That Help Children Communicate" by Ayala Manolson, Helen Buck and Claire Watson describe a natural, intuitive approach to teaching communication at www.hanen.org/carconn.html

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Specific teaching techniques](#)
- [Naturalistic teaching methods](#)

Simultaneous communication

Simultaneous communication, also called total communication or aided language stimulation, is a technique whereby the adult speaks normally, simultaneously using AAC to stress important words. For example, "Let's play ball," would be accompanied by the words "play" and "ball" in the AAC mode. This technique is used with children who are learning AAC, or AAC and spoken language at the same time.

Basically, simultaneous communication exposes the child to a model of AAC use, in as natural a manner as possible. When designing the AAC system with simultaneous communication in mind, it is necessary to include vocabulary that the adult will need along with the child's vocabulary since the adult will be using the system too.

The benefits of simultaneous communication are numerous ([Beukelman & Mirenda, 1992](#); [Goossens', 1989](#); [Goossens' & Crain, 1987](#); [Ronski & Sevcik, 1993](#); [Ronski, Sevcik, Robinson, & Bakeman, 1994](#); [Ronski, Sevcik, & Wilkinson, 1994](#)).

- The child may be learning to understand speech (called receptive language) at the same time. Many teaching techniques have as their goal expressive language (i.e. the child's ability to communicate to someone else) rather than receptive language, even though receptive language has been linked to progress in expressive communication ([Remington & Clarke, 1993a](#)).
- It is an excellent method for children who are learning both AAC and speech at the same time. In fact, studies have shown that, when exposed to simultaneous speech and sign language, both children with and without disabilities have been able to learn natural speech faster. (See [Does AAC impede the development of natural speech?—and other fears](#).)



- If the child already understands the spoken words, he or she can infer their AAC equivalents, thus, increasing the speed at which the corresponding AAC terms are learned.
- Learning takes place in natural circumstances. Not only is this more motivating, but children are able to immediately use their new vocabulary in real situations. This has been found to be a more practical and successful mode of learning than drill-and-practice methods.
- This method can be utilized during any activity or routine, at any time of day. It lends itself to child-directed (as opposed to adult-directed) learning. Teaching that occurs when following the child's interests results in increased attention span and motivation on the part of the child ([Yoder & Davies, 1990](#)).
- Simultaneous communication does not depend on or require the child to make a specific response, or even to respond at all, although responses may be encouraged. This form of teaching is, therefore, error-free; the teaching session does not have to be discontinued if the child is not responding, nor does the child have to be prompted or corrected.
- It can easily be used along with other teaching techniques.

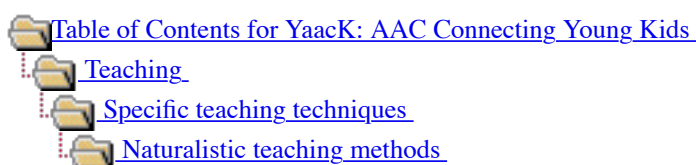
However, simultaneous communication techniques may not be for all children. Research has shown that some children only pay attention to the visual (e.g. the AAC) part of the message, and disregard the spoken words. These are likely to be children who are visual learners or who prefer less transient modes of AAC. (Transience refers to how long a message or symbol is available. Speech sounds are the most transient; a sign can be made visible for a longer period of time but disappears when the next sign is made; and pictures, which are permanent, can be examined at length.) (See [Children with autism or autistic-like behaviors](#) and [Aided vs. unaided AAC systems](#).)

A child who is only attending to the visual aspect may not be learning to comprehend the corresponding speech. Because it is important for a child to understand spoken language, in these cases it may be worthwhile to explicitly teach the child the meaning of spoken words (i.e. teach receptive language) by sometimes using speech exclusively. This may be in addition to utilizing simultaneous communication to further the goal of fostering the child's ability to communicate with others (i.e. expressive communication) ([Remington & Clarke, 1993a](#); [Remington & Clarke, 1993b](#)).

OTHER RESOURCES:

- "Aided communication intervention before assessment: A case study of a child with cerebral palsy" by [Carol Goossens' \(1989\)](#) is a case study of a six-year-old taught how to use eye gaze communication through aided language stimulation (i.e. simultaneous communication).

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)



Milieu teaching

Milieu teaching techniques are thus called because they are used in the midst of regular activities during the day. The most prominent are incidental teaching, mand-model and time delay. Milieu procedures are typically used to increase the frequency of a child's communicating a specific request, although they may be used to teach new communicative forms or vocabulary. Milieu techniques necessitate that the environment be arranged in such a way that the child is encouraged to initiate interactions. This ensures the child's motivation, increasing the likelihood of success.



Milieu teaching methods are based on principles of behaviorism, including rewarding a child for successfully communicating a target message. However, because teaching takes place in natural settings and activities, rewards are natural positive consequences (i.e. the child gets the item that he or she requested). This means that after the skill has been mastered and formal teaching is discontinued, the child will still get the same natural rewards for communicating a request. This eliminates the need to fade out artificial reinforcers. (See [Fading prompts](#).)

The three most well-known milieu teaching procedures are incidental teaching, mand-model teaching and time delay. They are very similar and, with slight variations, consist of the following steps ([Beukelman & Mirenda, 1992](#); [Kaiser, Ostrosky, & Alpert, 1993](#); [Kozleski, 1991](#); [Reichle, York, & Sigafos, 1991](#); [Westling & Fox, 1995](#)).

- A target skill is chosen, usually a request. Typically it is one that the child is familiar with, but is still learning to master.
- The environment is arranged or an activity organized in a way that encourages the child to make requests. This might be placing favorite toys visible but out of reach, presenting the child with a new activity, or "forgetting" to provide a key component of a familiar activity.
- When the child appears to want the item, the adult makes eye contact with the child. The adult may simply look expectant, anticipating the child's asking for the item. If the child makes the request (i.e. is able to produce the target skill), then he or she is praised by the adult and receives the item along with social praise. If he or she does not respond appropriately, then the adult may try one or more of a variety of prompts, usually starting with the least intrusive. These include: providing the child with a natural prompt ("What do you want?"), explicitly asking the child to make the request ("Make the sign" or "Point to the picture"), modeling the request for the child (adult uses the child's AAC to make the request), or physically guiding the child in making the request (adult physically assists the child in using AAC to make the request). (Note that physical guidance can not be used with speech, or if the child dislikes being touched. See [Teaching different modes of AAC](#).)

When the child has produced the target skill using whatever assistance was necessary, he or she receives the item along with social praise. It is usually not a good idea to use too many prompts because this can confuse the child, or make the child prompt-dependent. (See [Prompting and prompt-free strategies](#).) Milieu techniques are often referred to as errorless teaching methods because the child successfully performs the skill at every session, albeit sometimes with assistance.

- The main difference between incidental and mand-model procedures is that, with incidental teaching, the adult's first reaction is to simply look expectantly at the child, while, with mand-model teaching, the adult begins by specifically asking (i.e. manding) the child to make the request: "What do you want?"
- Time delay utilizes predetermined periods of waiting for the child to respond. Time delay also starts

with the adult looking expectantly, however, the ensuing waiting period is carefully chosen. Prompts may be used if the child does not respond correctly after the designated time, and the time delay used at the next session may be increased. For example, the adult may start with a waiting period of 10 seconds. If the child requires prompting, at the next session the adult may add two seconds so that the waiting period is now 12 seconds long. At each session following one in which the child did not respond correctly, the waiting period may be lengthened, or kept the same, depending on the schedule determined in advance.

If the child seems to be getting overly frustrated (i.e. frustration is beginning to interfere with learning), the wait period can be reduced, before starting the progressive increases again. Correct responses are dealt with by praising and giving the child the desired item. Incorrect responses usually are followed by a single physical guidance prompt before the child is offered the item, although additional prompts may be given. Even though the wait period may seem to be growing very long if the child does not respond correctly over many trials, once the child "gets it," the delay often dramatically shortens. When only a single physical prompt is used as needed, time delay is an excellent way to prevent a child from becoming dependent on prompting, or to wean one who has already become overly prompt-dependent. (See [Prompt-free and verbal prompt-free strategies](#).)

- If the child is not making progress, it may be because the items are not sufficiently motivating, the skill is too difficult, or too many prompts are used making the child give up or become too frustrated.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:Ruth.Ballinger@yaack.iname.com)

The following is an example of an incidental teaching procedure. A toy train is placed so that it is visible but on a high shelf. The child begins reaching for it. The adult looks at the child expectantly. The child, however, continues to reach. The adult then asks, "What do you want?" The child simply continues to reach. Finally, the adult physically takes the child's hand and guides the child in pressing the button on the VOCA that says "Train." Then the adult smiles and says, "You said 'train.' Okay, here it is," and gives the train to the child.

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Teaching](#)
 - [Specific teaching techniques](#)
 - [Naturalistic teaching methods](#)

Activities and routines as teaching tools

Activities and routines figure prominently in children's lives, whether they are a part of life's daily necessities or games enjoyed with a partner. Routines are excellent teaching devices because, as their components become more and more familiar, the child can devote less and less attention to the actions that comprise them, and focus more on communicating within the routine ([Yoder & Davies, 1992a](#)). Thus, routines should occur on a regular basis and be performed in a highly consistent manner. Once the child is well-versed in a routine, variations can occur, adding an element of interest and surprise.



Suitable routines can be games and fun activities that involve repetition, such as peek-a-boo or "Simon Says," or activities that occur on a daily basis, for example, mealtime, bath time, bedtime, story time, etc.

OTHER RESOURCES:

- For a detailed description of objectives and techniques that can be used during mealtime, see [Morris, S. E. \(1981\)](#), "Communication/interaction development at mealtimes for the multiply handicapped child: Implications for the use of augmentative communication systems."

[Table of Contents for YaacK: AAC Connecting Young Kids](#)
[Teaching](#)
[Specific teaching techniques](#)
[Naturalistic teaching methods](#)
[Activities and routines as teaching tools](#)

Teaching intentionality with routines

The scripted routine is a method of teaching intentional communication to a developmentally young child. (See [Assessing intentionality, and the understanding of means-end, causality, and symbols](#) and [The scripted routine](#).)



[Table of Contents for YaacK: AAC Connecting Young Kids](#)
[Teaching](#)
[Specific teaching techniques](#)
[Naturalistic teaching methods](#)
[Activities and routines as teaching tools](#)

Interrupted behavior chains

An interrupted behavior chain is a teaching technique based on the interruption of a routine, such as when the adult intentionally leaves out a step or a necessary item, or somehow prevents the child from continuing a familiar routine. The child’s motivation to communicate comes from his or her own desire to finish the activity or routine. This is an excellent way of encouraging initiation since the child will often spontaneously protest or make a request in order to remedy the situation. The following steps are involved ([Beukelman & Mirenda, 1992](#); [Mirenda & Iacono, 1990](#)):



- An activity or routine that the child is familiar with and enjoys is chosen. This activity is broken down into component steps and one or more steps which, if withheld, would be likely to elicit a response from the child identified. It is important, however, that the child not become overly frustrated so that he or she is unable to learn.
- An appropriate communication skills is targeted. Often oen is selected that the child already knows how to produce and is being encouraged to use; however, it is possible to teach the child a new skill using this procedure.
- The routine or activity is interrupted at the previously determined steps. Examples of ways interrupting include failing to provide a necessary object (the object may be left in or out of view), physically

obstructing the child from continuing, or allowing an external interruption to occur.

- The adult then waits expectantly for the child to communicate a protest or request. If the child responds appropriately, the problem can be remedied and the routine continue. If not, then one or more prompts may be used, such as providing the child with a natural prompt ("What do you want?"), explicitly asking the child to make the request ("Make the sign" or "Point to the picture"), modeling the request for the child (adult uses the child's AAC to make the request), or physically guiding the child in making the request (adult physically assists child in using AAC to make the request). If the child still does not respond correctly, the routine may be terminated and a new activity begun, or physical guidance may be used so that the child successfully produces the target communication and the routine can be continued.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

- Table of Contents for YaacK: AAC Connecting Young Kids
 - Teaching
 - Specific teaching techniques
 - Naturalistic teaching methods
 - Activities and routines as teaching tools



Using simple AAC devices in routines

Because routines are based on repetition, simple, homemade AAC devices are ideal for use with them. Loop tape cassettes, in which the tape plays a single message over and over again, are simple to use and can easily fit into a routine.

For example, during circle time at school, the child can greet others, or play the daily song as the rest of the class sings along. At home, the child can lead the rest of the family in a mealtime prayer or help read a favorite story ([Beukelman & Mirenda, 1992](#)).

Calendar boxes are used in the Van Dijk method with children who have not yet developed intentionality. (See [The Van Dijk method: Nurturance and movement](#).) Calendar boxes assist a child in learning to anticipate the activities and routines that make up his or her day. Essentially, objects that represent the day's activities are placed inside a series of boxes.

Prior to the commencement of an activity, the child removes the object that represents that activity and places it into another box (with or without prompting and/or assistance). If the child reacts in any way, either positively or negatively, this indicates the child may be mentally connecting the object with the upcoming activity, an indication that the child is beginning to understand symbols. The adult should acknowledge the child's reaction. (Note that if the child exhibits a negative reaction, the adult may decide to honor it by terminating the activity, or simply wait a little and then continue with the activity.) Calendar boxes can also be used to allow a child to choose an upcoming activity. For more advanced children, pictures or other symbols can be used instead of objects ([Beukelman & Mirenda, 1992](#)).

OTHER RESOURCES:

- "Packing your simple technology survival kit" by Mollie Wise offers suggestions on how to use simple gadgets and devices to facilitate communication at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1051&b=5&c=1.
- "Adaptation of Radio Shack Talking Photo Frame" by Linda J. Burkhardt at www.lburkhart.com/pframe.htm.
- "Visual schedule systems" at www.setbc.org/projects/vss/default.html.
- "Communication Devices" at www.enablingdevices.com/comm/index.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Specific teaching techniques](#)



Prompting and prompt-free strategies

Prompts (sometimes called instructional prompts) and cues help a child remember what to do in a given situation. (In technical terms, prompts are when an adult directly helps a child to make the correct response, such as physically assisting a child to touch the correct picture, whereas cues are signals used to indirectly help the child, for example redirecting the child's attention to the juice so that the child will ask for some.) In general, prompts and cues are important to the teaching process and used frequently. (See [Milieu teaching](#).) However, care must be taken since prompts can be detrimental when a child becomes too dependent on them. (See [Prompt-free and verbal prompt-free strategies](#).)

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Specific teaching techniques](#)
- [Prompting and prompt-free strategies](#)



Prompts given by another person

A prompt may be given by the child's partner when it is obvious that the child needs assistance in remembering what to do. For example, if the child wants a toy that is out of reach, the adult might wait expectantly for the child to make an overture, and, if nothing happens, prompt the child to ask for it.

The following list includes different types of prompts given by an adult in the order of least to most intrusive.

- Natural verbal prompts (e.g. The adult says "What do you want?")
- Verbal mands (e.g. The adult says "You want the doll. Push the 'doll' button on your talker.")

- Modeling (e.g. The adult makes the sign "want baby" so that the child can repeat it. Modeling requires that a child be able to imitate.)
- Gestural (e.g. The adult points to the button that the child is supposed to push.)
- Physical assistance (e.g. The adult gently nudges the child's hands toward the symbol that the child needs to touch. Physical assistance cannot be used in teaching speech, nor can it be used with children who dislike being touched.)
- Physical guidance (e.g. The adult physically assists the child to make the sign or push the button on the VOCA. Physical guidance is an error-free approach because the child always produces the target skill, although not independently, guaranteeing the child's success. However, it cannot be used in teaching speech, nor can it be used with children who dislike being touched.)

- Table of Contents for YaacK: AAC Connecting Young Kids
- Teaching
- Specific teaching techniques
- Prompting and prompt-free strategies



Prompts designed into the AAC

Sometimes it is helpful to highlight specific symbols in order to focus the child's attention on them. In order to do this, the size, shape or color of visual symbols, or the pitch, speed or loudness of auditory symbols can be altered in order to emphasize them. For example, in teaching a child to touch the "no" symbol, that symbol might initially be twice as large as the "yes" symbol, and drawn in bolder colors. In reciting a list of choices (called auditory scanning), the correct choice may be said in a louder and slower voice ([Reichle, York & Sigafoos, 1991](#)).

- Table of Contents for YaacK: AAC Connecting Young Kids
- Teaching
- Specific teaching techniques
- Prompting and prompt-free strategies



Fading prompts

When prompting is used, the goal is always that the child will master the skill and no longer require the prompting. In order to accomplish this, prompts often must be methodically faded so that they become less and less obvious, until they are no longer used.





One way to systematically fade prompts is to use the least invasive prompt first, and moving on to more intrusive prompts only if necessary. This is called using a "least-to-most prompt heirarchy." Essentially, the adult starts with the least intrusive prompt and then pauses to let the child respond. If there is no or an incorrenct response from the child, a slightly more intrusive one can be used. For example, a child may be given a verbal prompt, "Touch the 'more' symbol." If this doesn't work, the teacher may tap the communication board and repeat the statement. Finally, the teacher may take the child's hand and physically assist in pointing to the correct symbol stating, "You are saying 'I want more.' OK, here is some more." The idea is that the child will respond with prompts that are less and less intrusive, and, eventually, no longer need prompting at all. (For a list of different types of prompts, see [Prompts given by another person](#).)

Some children may become frustrated or have too limited an attention span to tolerate more than one prompt. In these situations, the "most-to-least" prompt hierarchy can be used. This means starting with the least intrusive prompt that seems guaranteed to get the child to respond correctly. Physical guidance, of course, is the most dependable, and the most intrusive. As the child begins to master the skill, a less intrusive prompt that still ensures the child's success can be used. The difficulty encountered with this method is deciding when the child is capable of responding to a less invasive prompt.

AAC-based prompts, that is those designed into the AAC system itself, are easily faded by reducing the intensity of the characteristic of the symbol that is being exaggerated. For example, an extra large symbol can be gradually reduced in size. A louder auditory symbol can be made softer.

Similar to the concept of fading AAC-based prompts is the idea of gradually transforming the message form. This is one way to help a child advance to a more sophisticated symbol type. For example, the transition from pictures to line drawings can be accomplished by gradually altering the pictures, for example, first fading the colors until the pictures are black and white, then reducing the number of lines until a simple line drawing remains. This method can also be used to transition a child from real objects to symbols ([Reichle, York & Sigafos, 1991](#)).



-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
-  [Teaching](#)
-  [Specific teaching techniques](#)
-  [Prompting and prompt-free strategies](#)

Prompt-free and verbal prompt-free strategies

Some children have a tendency to become "prompt-dependent," that is they always wait for a prompt or cue from an adult before attempting the target skill even when they have already mastered the skill. Prompt-free, or verbal prompt-free strategies (strategies in which verbal prompts are not used, but physical prompts are), may be used in these situations.



Prompt-free interactions are typically child-initiated since prompts are not used to begin the encounter. For this reason, prompt-free techniques are often a teaching strategy of choice because of their tendency to encourage initiating communication. The environment may be organized or activities and objects of interest presented so as to encourage the child to initiate an interaction. The child's partner must pay close attention so that whenever the child spontaneously communicates, whether purposefully or inadvertently, the child can be responded to immediately. For example, if a child touches the toy car picture on his or her communication board, even if by accident, he or she would immediately be given the toy car, along with the explanation, "You touched the picture of the car. Here is the car." In addition, the communication board should be positioned so as to optimize the child's seeing it when he or she touches it so that the child can begin to understand that touching the picture of the car gets him or her the car. This is particularly important if the child is touching the picture by accident. One potential problem with this method is if the child incorrectly associates a coincidental behavior with getting the item. For example, the child may think that banging the communication board is what resulted in getting the car. The child may begin banging it in order to get the car. In this case, the entire set-up should be changed so that the mistaken connection can no longer be made ([Miranda & Santogrossi, 1985](#)).




If a child is not an initiator, then it may be necessary to use physical guidance to help the child in initiating an interaction. (This would be considered a verbal prompt-free approach.) For example, the child's hand may be physically assisted

Help me—and everyone who

in touching the picture of the car. Then the car can be given to the child along with an explanation that he or she gets the car because he or she touched the picture. After a few trials, the child may have learned to independently touch the picture in order to get the car ([Mirenda & Dattilo, 1987](#); [Mirenda & Iacono, 1990](#); [Reichle, York, & Sigafos, 1991](#)).

Time delay procedures are another excellent method for teaching a child using only nonverbal prompts ([Berkowitz, 1990](#)). (See [Milieu teaching](#).)

**reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Specific teaching techniques](#)

Direct instruction

There is no hard line between what constitutes naturalistic teaching versus direct instructional techniques. The more the environment and activity deviates from where and what a child would normally be doing, and the more artificial prompts and rewards are used, the further along the continuum towards direct instruction the teaching is.



Although naturalistic teaching techniques are considered best practice, in some situations, they may not be sufficient. This may occur when:

- What is being taught cannot be taught in daily settings and activities. For example, communication regarding a community event or a doctor's visit may have to be taught prior to the event itself.
- The child does not initiate communication frequently enough to provide a sufficient number of teaching opportunities.
- The child does not seem to be progressing quickly enough using naturalistic methods.

Direct instruction has traditionally meant setting up a one-on-one teacher-child situation in which a single teaching objective is the focus. Usually the child is presented with a question or situation, taught the appropriate response, and rewarded in some way for responding correctly. A child who is able to understand abstract explanations and is highly motivated may be able to transfer skills learned in this manner to real life settings. (This is referred to as generalizing the skill, that is when a child learns a skill under certain circumstances and, without additional teaching or assistance, is able to use the skill in a different situation.) Unfortunately, a child who is taught in this manner is not always able to generalize the skill in a real-world situation.

In order to optimize a child's ability to generalize a skill learned through direct instruction, it is important to utilize as many naturally-occurring events and prompts as possible.




- Make the direct instruction situation as natural and lifelike as possible.
- As much as possible, use the settings where, and the people with whom, the skill would naturally be used anyway.
- Start off by teaching the child a skill using direct instruction, and then

Help me—and

continue instruction using increasingly naturalistic methods.

- Use a natural reward in addition to artificial reinforcers. For example, in addition to a tangible object such as a toy or food, learning to say hello can be rewarded by a great big smile and lots of attention, which is a natural consequence to greeting a friend. Over time, the artificial reinforcer (i.e. the food or toy) can be faded, (i.e. progressively smaller amounts can be used until they are not being used at all), whereas the smile and attention will always be there ([Noonan & McCormick, 1993](#); [Reichle, 1997](#)).

**everyone who
reads this site—by
mailing your
suggestions,
criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Specific teaching techniques](#)



Using peers in interventions

A child's peers can be a very powerful part of an AAC intervention. To be included among peers is frequently highly motivating to a child—and communication is the foundation for fostering relationships with peers. Here are some suggestions for developing a program to facilitate interactions between a child and peers.

- Explain to both the child and his or her peers what and why you are trying to accomplish. It may make sense to target a few peers initially, those who would seem likely candidates for making friends with the AAC user. For example, talk about the importance of friendship, and the fact that some people are different and may have more difficulty making friends.
- Make the AAC user less of a mystery by describing how the child communicates, and how his or her AAC works. It may make sense to let the other children experience the AAC by trying it out.
- Describe in detail what the children are expected to do in specific situations (e.g. when approached by the AAC user, or upon seeing the user alone on the playground). Role playing, prior to actual use, is a good way to get children to practice these skills. When teaching and role playing the new skills, include examples of inappropriate behaviors and unacceptable interactions that might occur, how they would make a person feel, and what should be done instead ([Haring & Lovinger, 1989](#)).
- Prompts may be used to facilitate these interactions. At suitable moments, adults may prompt peers to interact with the child, and, vice versa, the child may be prompted to interact with peers. A suitable moment might be when a peer is looking for another child to play with, or when there is an open position in a game. If the AAC user interacts with an adult, the adult can also redirect the child to a peer. (For example, "Show that to Sarah. She would be interested in it.") ([Haring & Lovinger, 1989](#); [Schuele, Rice, & Wilcox, 1995](#)).
- The children can be rewarded for interacting with each other. A reward may be verbal praise or a positive statement like "Look how much Joanna [the AAC user] is enjoying herself," or it may be an

object or free time.

- Arrange the environment and offer activities that facilitate interaction among children. Provide toys and materials, and organize games that are interactive and can be adapted so that the child with disabilities can participate in a meaningful way. For example, the child with disabilities may be score keeper, or games with partners can be played.
- Be prepared to continue prompting and positively reinforcing the children over time as necessary. Put up posters as reminders of the behaviors that are being elicited. Also plan periodic "pep talks" to encourage the children to continue. Support and reinforce the relationships that do develop ([Goldstein, English, Shafer, & Kaczmarek, 1995](#); [Goldstein, H., & Ferrell, D. R. \(1987\)](#)).

OTHER RESOURCES:

- "Encouraging Friendships Among Children With Disabilities: Circle of Friends" at www.cesa5.k12.wi.us/skip/CIRCLE.HTM.
- Cynthia Cress' Dec. 10, 1997 e-mail posting under "SLP seeks info on opinions" discusses ways to increase peer interactions on the [ACOLUG listserv](#) archives at listserv.temple.edu/cgi-bin/wa?A2=ind9712&L=acolug&F=&S=&P=8495.
- Beth Sinteff's Dec. 10, 1997 e-mail posting under "SLP seeks info on opinions" gives tips on how to deal with peers who are curious or insensitive on the [ACOLUG listserv](#) archives at listserv.temple.edu/cgi-bin/wa?A2=ind9712&L=acolug&F=&S=&P=8709.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com



Children with specific disabilities

For a book with detailed descriptions of specific teaching techniques for children of different ages, skill levels and impairments, see Blackstone, S. W., Cassatt-James, E. L., & Bruskin, D. M. (Eds.). (1988). *Augmentative communication: Implementation strategies*. Rockville, MD: American Speech-Language-Hearing Association.



Children with motor impairments

Here are a few issues to keep in mind regarding children with motor impairments.



- Early communication by children with motor impairments may be subtle and unconventional, causing adults to overlook or misread these attempts. Adults, especially family members, may need to be taught how to become sensitive to and foster the child's early communicative attempts. (See [Normal speech and language development](#).)
- Children with motor impairments sometimes also have visual problems, such as certain types of perceptual difficulties, which may be hard to identify and diagnose. Nevertheless, such difficulties impact the choice of symbol system, as well as the size and arrangement of the symbols. Sometimes the only way to determine the best type of symbols is by trial and error.
- Children with motor impairments are at risk for learned helplessness because they are unable to effectively control their environment either directly or indirectly through communication with others. Communication is one way of providing the child with a powerful means of influencing others and the environment. Early intervention is, therefore, extremely important. (See [Learned helplessness](#) and [Contacting an organization for services and support](#).)
- It is important to offer many and varied early literacy experiences and to provide adapted writing devices such as computers as early as the first grade. This allows them to keep up academically with their peers. (See [Literacy](#).)
- Encourage the development of some unaided modes of communication, such as speech, vocalization, facial expressions and gestures. These are often the most efficient means of communicating since they do not depend on an external device. (See [Aided vs. unaided AAC systems](#).)
- Expect the best from the child. Expect the child to learn to read and write. Try an AAC system that is motorically challenging but allows greater flexibility, speed or growth for the future. (Note, however,

that it is important that the child be able to communicate with it almost immediately.)

- Positioning is extremely important. Poor positioning results in unwanted reflexes, pain, fatigue, lack of adequate visibility, poorer motor control, and potentially permanent physical damage. Take the time to position the child so that the child can use his or her hands, eyes, ears, etc. to full advantage.

OTHER RESOURCES:

- "Cerebral palsy and visual impairment: An access challenge" by Cynthia Brown and Tracy Shepherd discusses direct selection and scanning at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1013&b=8.
- "Connections for success: Young children, computers and software" by Linda Benton describes the role of computers in developing motor and cognitive skills at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1033&b=1.
- "Optimising access to communication boards and devices: The contribution of the Occupational Therapist" by Desleigh de Jonge at curriculum.qed.qld.gov.au/lisc/articles/therapy/thart1.htm.
- Cynthia Cress' Sept. 29, 1997 e-mail response under "single switch info request" offers tips on teaching eye blink switches on the [ACOLUG listserv](http://ACOLUG.listserv.listserv.temple.edu/cgi-bin/wa?A2=ind9709&L=acolug&F=&S=&P=26678) archives at listserv.temple.edu/cgi-bin/wa?A2=ind9709&L=acolug&F=&S=&P=26678.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

-
- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 - [Teaching](#)
 - [Children with specific disabilities](#)
 - [Children with motor impairments](#)



Eye gaze techniques

An eye gaze system, in which the partner ascertains what the child is looking at is often an excellent method of communication for a young child with motor impairments. (Note that this differs from an eye blink switch which is a type of switch and does not depend on where the child is looking.) Gazing at an object of interest is a very intuitive manner of communication that often develops very naturally in children. Its main advantage is speed and effortlessness, both of which normalize conversations, accelerate learning and increase motivation.

Eye gaze communication systems may start with the child looking at objects in the environment, and then move onto symbols on a communication board. More advanced systems may include electronic eye gaze devices in which a computerized device identifies what the child is looking at and produces the message, eliminating the need for a partner to do so.

One of the main disadvantages of eye gaze techniques are their dependence on the sensitivity and diligence of the partner to constantly attend to what the child is looking at, as well as the inability of the child to signal

someone who is not paying attention.

If symbols are used, their spacing and organization becomes very important in facilitating accurate interpretation by a partner. For example, it is helpful to separate words that are used in similar contexts, such as spoon and fork, so that they are not readily confused with each other.

OTHER RESOURCES:

- Goossens', C., (1989). Aided communication intervention before assessment: A case study of a child with cerebral palsy. *Augmentative and Alternative Communication*, 5, 14-26.
- Goossens', C. A., & Crain, S. S. (1987). Overview of nonelectronic eye gaze communication techniques. *Augmentative and Alternative Communication*, 3, 77-89.



Children with cognitive disabilities

- When teaching a child with a cognitive disability, it is important to know the communicative/cognitive level at what the child is so that an appropriate intervention program can be developed. (See [Cognitive abilities](#), [Assessing intentionality, and the understanding of means-end, causality and symbols](#), and [Normal speech and language development](#).) If the child is at a pre-intentional and/or pre-symbolic communication stage, it is very important to begin with real objects. A common mistake is to assume the child will be able to communicate with pictures or some other symbol-based AAC system. (See [The first goal: Intentional communication](#) and [Teaching symbols](#).)
- Children with cognitive disabilities are highly individualistic; no single intervention plan, symbol system, AAC device or teaching program will work for all ([Beukelman & Mirenda, 1992](#)). Traditionally, sign language has been the AAC mode of choice with children who have sufficient motor control. However, research has shown that, at least for some children, a voice output communication aid (VOCA) may be better at facilitating language development, especially beyond the single-word stage. Although it is not clear why this appears to be the case, there is speculation that VOCAs, which utilize recognition memory (i.e. the child just has to remember what the available symbols mean), are easier to learn than sign language, which uses recall memory (i.e. the child has to bring the signs to mind independently). ([Iacono & Duncum, 1995](#); [Iacono, Mirenda, & Beukelman, 1993](#); [Romski, Sevcik, Robinson, & Bakeman, 1994](#)). (See [Aided vs. unaided AAC](#).)
- Children with cognitive disabilities benefit from a variety of cognitive- and communication-related activities. These include playing with regular and switch toys to learn causality and other cognitive skills, imitating simple song-based fingerplay and movement activities, and participating in group activities by using simple AAC devices such as loop cassette tapes. (See [Using simple AAC devices in routines](#).)

OTHER RESOURCES:

Help me—and everyone who reads this site—by mailing your suggestions,

- "Total Communication Options for Children with Down Syndrome in the Context of Hanen Programs for Parents" by Claire Watson, Senior S-LP, at www.hanen.org/downsynd.htm.
- "Down Syndrome" by Dr. James MacDonald at www.oberlin.edu/~bmislin/cp/down.htm.

**criticisms and
personal
experiences to
Ruth Ballinger at
yaack@iname.com**

- [Table of Contents for YaacK: AAC Connecting Young Kids](#)
- [Teaching](#)
- [Children with specific disabilities](#)



Children with autism or autistic-like behaviors

- Research has revealed that children with autistic-like behaviors may often be processing information differently than do other children. They tend to learn information as a gestalt or whole, and may not understand language as made up of individual words and meanings. This may explain why some children with autism are able to repeat entire passages from videos or television, and yet still not be able to use speech in a functional manner ([Beukelman & Mirenda, 1992](#)).
- Some children with autistic-like behaviors do not enjoy attention from other people and need to be taught how to take pleasure in social engagement. (See [Teaching a child to enjoy social encounters](#).)
- It is often assumed that the child understands language, and is simply having difficulty with speech output. In fact, evidence suggests that the child's internal understanding and processing of language, along with social awareness, may be impaired. A common mistake is to focus on teaching the child the technical skills necessary to use an AAC system when the child may not understand intentional communication, or basic communicative behaviors such as taking turns, paying attention to the same object or event as one's partner (called joint attending), or making eye contact with one's partner. (See [The first goal: Intentional communication](#) and [Visually Cued Instruction](#).) On the other hand, it is not fair to focus only on these behavioral accompaniments to communication to the exclusion of practical communication. The trick is to make functional communication the main goal, and work on these accompanying behaviors to the extent that they further this objective ([Beukelman & Mirenda, 1992](#)).
- Early intervention is crucial since there is evidence that tremendous progress can be made in communication and social abilities during the early years. It is frequently recommended that the partner initially follow the child's lead and respond to the child's own natural gestures and vocalizations. (See [Naturalistic teaching methods](#).)
- Children with autistic-like behaviors sometimes have difficulty processing communication modes that are transient in time. A spoken word, for example, is very transient, lasting only as long as it takes to be said. Sign language is less transient, but disappears as soon as the next sign is produced. Messages on communication boards and voice output communication devices (VOCAs) can be looked at for as long as necessary and, thus, are the most permanent. Because of their need for more concrete symbols, some children may have greater success with sign language than speech, and some may require communication boards or VOCAs ([Beukelman & Mirenda, 1992](#); [Mirenda & Mathy-Laikko, 1989](#)).

This preference for nontransient modes of communication extends to receptive language. Some children may be significantly better at understanding and processing the communication of others with sign, gesture or picture-based communication than when speech is used ([Peterson, Bondy, Vincent, & Finnegan, 1995](#); [Reichle, York, & Sigafos, 1991](#); [Vaughn & Horner, 1995](#)).




- Currently, [simultaneous communication](#) (i.e. the adult speaks and simultaneously uses AAC to produce key words of the message) is a frequently used teaching method. However, there is evidence that, when simultaneous communication is used, some children attend only to the AAC part of the message and disregard the speech. In general, the child still learns the AAC, but is not learning to understand speech (i.e. is not learning receptive language). These children may have to be explicitly taught to understand speech in addition to AAC ([Beukelman & Mirenda, 1992](#)).
- Some children with autistic-like behaviors are hyperlexic, that is they display an unusually strong attraction to the written word. If taught, many will learn to read quickly and early. These children may be excellent candidates for a VOCA that uses letters on a keyboard and printed text in addition to voice output ([Beukelman & Mirenda, 1992](#)).
- Because children with autistic-like behaviors often have excellent motor skills, they can be very hard on external AAC devices. Their AAC need to be extremely tough and durable.
- Some children easily become dependent on prompts. Even after they have learned a communication skill, they wait until an adult prompts them before initiating communication or responding. In these situations, [prompt-free and verbal prompt-free strategies](#) can be used. Also, since many children prefer very regular schedules and activities, [interrupted behavior chains](#) and other [routine-based teaching methods](#) often work well ([Beukelman & Mirenda, 1992](#); [Mirenda & Schuler, 1988](#)).
- [Visually cued instruction](#) is a structured program based on a verbal prompt-free system that has had excellent results with children who are lacking in many of the social concomitants of speech, such as eye contact and joint attention. The child does not have to be an intentional communicator or have an understanding of symbols.

OTHER RESOURCES:

- Temple Grandin, a successful academic, designer and author who has autism, describes very lucidly what it is like to have this diagnosis, its impact on communication, what kinds of interventions are most likely to be successful, and the importance of early intervention. Her writings can be found at the Center for the Study of Autism at www.autism.org.
- "My Experiences with Visual Thinking Sensory Problems and Communication Difficulties" by Temple Grandin, Ph.D. at www.autism.org/temple/visual.html.
- "Learning Styles and Autism" by Stephen M. Edelson, Ph.D. at www.autism.org/styles.html.
- "Social Behavior in Autism" by Stephen M. Edelson, Ph.D. at www.autism.org/social.html.
- "Music Therapy and Language for the Autistic Child" by Myra J. Staum, Ph.D., RMT-BC at www.autism.org/music.html.
- "Conclusions from 26 Years Studying Autistic Children" by Dr. James MacDonald at www.oberlin.edu/~bmislin/cp/autism1.htm#AUTISM.
- "The Hanen Program for Families of Children with PDD" by Elaine Weitzman and Fern Sussman, at

- "1993 International Conference on Autism: Methods to Enhance Learning" Conference Notes by Lisa Ruble at www.autism-society.org/packages/edkids_conference.html.
- "Interventions: Approaches and Methodologies" does not focus on communication, but provides excellent descriptions of several different teaching approaches at www.sna.com/msm/cabp/appendix.htm.
- "Language Acquisition in Autistic Children: What Does it Tell Us?" by James R. Cash at www.lifestories.com/papers/autism.htm.
- "Hyperlexia Resources" at www.esmerel.org/specific/hyperlex.htm.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Children with specific disabilities](#)



Children with sensory disabilities

Children with sensory impairments, especially vision or combined vision and hearing impairments, are at a disadvantage when it comes to manipulating objects and exploring the world. This places them at risk for cognitive delays and [learned helplessness](#), both of which can negatively affect a child's social, academic and communication development. Early intervention, therefore, is very important in defending against learned helplessness. Not only can it accelerate the child's development, but it also assists family members in learning ways of interacting effectively with their child. (See [Contacting an organization for services and support](#).)

Assessing a child with a dual sensory impairment is difficult since, determining what the child is capable of depends on the ability of the child to both comprehend and express what is being asked (i.e. his or her receptive and expressive language capabilities); and, yet, the reason for the assessment is the fact that the child's communication is delayed. It may be necessary, therefore, to teach the child some AAC first, and then conduct a more comprehensive assessment later in order to fine tune the communication program. (See [General tips in assessing strengths and abilities](#).)

In addition, children with dual sensory impairments often take longer, and may need assistance, in progressing from unintentional to intentional communication. (See [Normal speech and language development](#) and [The first goal: Intentional communication](#).) Choices of AAC are dependent on whatever residual vision or hearing is present. On graphic AAC (e.g. communication boards or voice output communication aids) symbols may have to be larger and more prominent. In other cases auditory and/or tactile-based symbols may have work best, such as the use of real, miniature or parts of objects, textures, or touch-based sign language ([Beukelman & Mirenda, 1992](#); [Mar & Sall, 1994](#); [Mathy-Laikko, Iacono, Ratcliff, Villarruel, Yoder, & Vanderheiden, 1989](#); [Schweigert & Rowland, 1992](#)).

OTHER RESOURCES:

- "AAC Strategies for Young Children with Vision Impairment and Multiple Disabilities" by Marjorie Goldware. M.A., SLP and Marsha Silver, M.S., SLP at www.dinf.org/csun_98/csun98_135.htm.
- "Teaching Language Concepts to Multihandicapped Deaf Students" by Marilyn Brasch. M.A. SLP/CCC and Pam Boespflug, M.Ed. at www.dinf.org/csun_98/csun98_006.htm.
- The National Information Clearinghouse On Children Who Are Deaf-Blind offers several fact sheets on communication for persons who are deafblind at www.tr.wou.edu/dblink/products.htm.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

[Table of Contents for YaackK: AAC Connecting Young Kids](#)
[Teaching](#)
[Children with specific disabilities](#)

Children with severe behavioral issues

All children exhibit undesirable behaviors at times. However, when unwanted behaviors become so frequent or intense that they interfere with the child's safety or ability to learn, or the safety of others, it is essential that they be addressed. Challenging behaviors can include tantrums, throwing objects, or hitting, kicking, scratching, biting self or others. Self-stimulation (e.g. finger waving or eye poking) can also constitute a challenging behavior. In the past, a variety of techniques have been used in trying to deal with inappropriate behaviors. One of the most recent—and successful—is a comprehensive method called "functional behavior analysis" or "positive behavioral supports" ([Carr, Levin, McConnachie, Carlson, Kemp, & Smith, 1994](#); [Durand, 1993](#); [Danquah, Mate-Kole, & Zehr, 1996](#); [Reichle, York, & Sigafos, 1991](#)). The foundation upon which this technique is based is the belief that every behavior is actually communicating something, either intentionally or unintentionally. For example, parents are frequently heard to say "Oh, she is just doing that for attention." In other words, her behavior is communicating to the parents the child's desire for attention.

Understanding what a child is expressing through his or her inappropriate behavior does not mean that whatever is being asked for must be given to the child. It does mean, however, that, unless we address the underlying demand, the child will continue to act out in some way to try to get it. We may be able to extinguish an unwanted behavior through behavioral or other means; however, the child will likely simply find another means of communicating his or her desire.

In their very lucid and practical book, *Communication-based intervention for problem behavior*, [Carr, Levin, McConnachie, Carlson, Kemp, & Smith \(1994\)](#) recommend the following procedures when dealing with severe behavioral issues. These briefly outline the steps involved in a functional behavior assessment with their aim being first to determine what the underlying purposes of a set of behaviors are, and then to identify ways in which those behaviors can be changed or replaced.



The first step in a functional behavior assessment is to determine what it is the child wants when he or she is acting out. This is done by interviewing persons who are witnesses to the behavioral displays, and observing the child in settings where the behaviors are likely to occur. In particular, attention must be paid to the people who are present, their actions prior to the acting out, and, very importantly, their reactions to the behaviors themselves. This is because, typically, acting out is aimed at the people who are present, who then react in ways which inadvertently reinforce the undesirable behaviors. At this stage it is important to focus on exactly what happens during these episodes as opposed to why they happen, and to emphasize fact and not opinion.

The next step is to examine the information gathered, formulate hypotheses regarding why the behavior occurred, and then test the hypotheses to see if they are correct. In a small percentage of cases the behavior may be occurring due to organic reasons (i.e. neurological or other physical problems that suggest the child does not have control over the behavior). If the child exhibits the behaviors outside of the presence of people, they may have an organic source. These behaviors may require other remedies such as medication or environmental changes. In general, few behaviors are due strictly to organic issues.

Challenging behaviors whose purpose is to communicate typically occur for one or more of three basic reasons: the child wants attention, the child wants a tangible item or to participate in an activity, or the child does not want an item or to participate in an activity. Often the reactions of people to the child's behavior provide clues as to why the behaviors are occurring. Frequently, the child does wind up getting what he or she wants by acting out. For example, a child who throws a tantrum every time he or she is about to be placed in a bathtub may often get out of taking a bath.

To test the hypotheses, situations that mimic the circumstances under which the behavior is likely to occur must be set up. Half of the time the situation is allowed to continue unchanged (i.e. the child goes on to misbehave). At this point, the child should be given whatever it is that he or she is thought to be wanting. If the behavior then terminates, this indicates the hypothesis was correct, that is the child stopped behaving inappropriately because he or she was successful in obtaining what was being demanded.

The other half of the time, the child should be given what it is that he or she seems to be wanting prior to the behavior occurring. If this prevents the onset of the behavior, then, again, this is an indication that the hypothesis was correct. In other words, the child did not need to communicate his or her need because he or she was already given what was wanted. It is often necessary to modify and retest hypotheses until what the child is communicating with the inappropriate behaviors becomes clear. If the child's behavior presents an ethical issue, that is if it is injurious to the child or to others, then only the behavior prevention part of the hypotheses testing may be able to be used.

Once the reasons for the behaviors has been identified, it is possible to address them as well as the behaviors. Suggestions for dealing with them include the following.

- Teach the child a more appropriate way of communicating what he or she wants. This new method must be as efficient (i.e. as easy to produce) and as effective (i.e. it gives the child as much, or more, of what he or she wants) as the old behavior. For example, it may not be reasonable to expect a child to replace quickly picking up and throwing an object with forming a complicated manual sign or locating and pressing a button on a voice output communication aid (VOCA). However, teaching a child a vocalization or shake of the head may be efficient alternatives.

This also implies that partners must be aware of and sensitive to the child's new communication so that they can respond immediately and reinforce it. Naturally, the child may begin using this new communication technique all the time to get what he or she wants. (This, in fact, indicates that the child has really grasped the new method of communicating.) Initially, adults should try to honor it in order to solidify its usage by the child, and to prevent the child from slipping back into the old behaviors. After

the child has mastered the new communication techniques, he or she can learn to delay gratification. For example, the child may be told that his or her request will be honored only after he or she continues with the present task for a few more seconds or minutes. (This can be stated in terms that the child can understand, for example "You will get [what you want] after doing this", or "after the timer bell rings.") This delay of gratification can be increased slowly, and/or the reward (i.e. receiving what is being requested) can be increased or decreased as necessary.




- On a larger level, it is important to examine the child's life as a whole. A life that is inherently unpleasant, boring, frustrating or lacking in the opportunity to make choices will often result in challenging behaviors as the child protests an unhappy existence. This part of the functional assessment is sometimes neglected since it requires that adults make substantial changes that usually result in more time and effort being spent on behalf of the child.

For example, a child who is acting out to get attention may be doing so out of sheer boredom. In this case, in addition to teaching the child a more appropriate communication method, the adults involved should institute widespread changes in the child's life. Solutions might be to include the child in a regular classroom, go on more outings, provide the child with more opportunities to be with other peers and adults, and allow him or her to make choices about food, clothing and activities. Making extensive changes like these can be very difficult, and care must be taken not to demand too much of family members, teachers and others, while at the same time respecting the child's needs. Change does not have to occur overnight, and slow but steady changes are often the most effective since they are not too disruptive, and more likely to be permanent. (See [Forging an effective AAC team](#) and [Using peers in interventions](#).)

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to Ruth Ballinger at yaack@iname.com

OTHER RESOURCES:

- "What is a Functional Assessment?" at www.pacer.org/_parent/function.htm

 [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 [Teaching](#)
 [Children with specific disabilities](#)

Children with apraxia

It may be difficult to decide whether or not a child diagnosed with apraxia needs AAC. One obstacle in introducing AAC is the fear that it will hinder the development of speech. Yet studies have shown that the introduction of AAC is not linked with a slow-down in speech development, and is sometimes associated with faster progress. (See [Does AAC impede natural speech?—and other fears](#).) AAC is typically viewed as a temporary secondary strategy, with speech continuing to be the main focus.

A good rule of thumb is that if the child is becoming overly frustrated or is having substantial difficulty in academic or social situations, AAC should be considered. (See [When does a child need AAC?](#)) Children whose fine motor skills are not compromised are often good candidates for sign language; however, a



different type of AAC may work better depending on other characteristics of the child such as learning style or other disabilities that may be present.

Other important issues regarding the choice of AAC are portability and durability since a child with apraxia is typically able to walk and, in general, has good motor skills ([Culp, 1989](#)).

OTHER RESOURCES:

Apraxia-Kids: Speech & Language Topics at www.apraxia-kids.org/index.html

YAACK: AAC Connecting Young Kids
[Back to Top](#) ■ [YAACK Home Page](#) ■ [Next](#)
© YAACK 1999



Teaching different modes of AAC

There are three basic AAC modalities: vocalization and speech, graphic-based communication aids (e.g. communication boards and voice output communication aids), and gestural and sign languages. (See [The main categories of AAC](#) and [Aided vs. unaided systems](#).) In general, different teaching techniques will work with any type of AAC. There are, however, a few issues that are specific to the mode of AAC.



Speech and vocalization

The main issue in teaching speech and vocalization is that a child has to be able to imitate, since it is not possible to use physical guidance to assist the child. (See [Prompts given by another person](#).) While this makes teaching more difficult, vocalization and speech are such efficient methods of communication, that is worthwhile putting in time and effort if these skills can be advanced.



Indeed, it is possible to teach a currently non-vocal child how to begin to imitate sounds ([Reichle, York, & Sigafos, 1991](#)). This is done by first increasing the frequency with which a child vocalizes, and then teaching the child to imitate sounds made by an adult. To increase the frequency of vocalization the child can be reinforced (ideally with attention) every time he or she produces any sound.

Once the child is vocalizing on a regular basis, he or she can be taught to imitate. At first the adult starts by imitating sounds produced by the child. This encourages the child to repeat the sound, which the adult can, then, repeat again. The adult continues this sequence of imitating the child's sounds, and eventually begins to lengthen the time between the child's output and the adult's repetition. When this delay is very long, and if the child is continuing to take his or her turn relatively quickly after the adult's turn, it can seem as if the adult is initiating the sound with the child imitating the adult.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to [Ruth Ballinger at yaack@iname.com](mailto:yaack@iname.com)

Communication boards and VOCAs

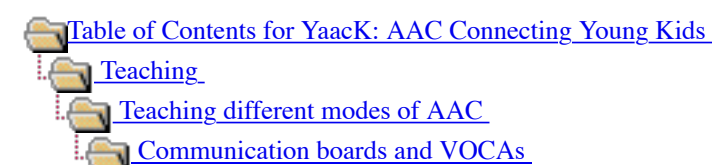
In teaching a beginner how to use a communication board or voice output communication device (VOCA), initially the simplest setup—a single picture or symbol—may be used ([Reichle, York, & Sigafoos, 1991](#)). It is, however, often useful to add a "distractor," that is another choice, but one which is blank and does not result in anything. This prevents the child from thinking that the objective is simply to indicate any symbol on the board, or to indicate the board itself. In addition, it helps to periodically change the position of the two choices so that the child is not always indicating the same location on the board. This can be more critical with communication boards which lack the verbal feedback of voice output communication aids (VOCAs).



Other issues with graphical AAC is that, in addition to understanding what the message symbols mean, the child must learn how the messages are organized, and how to locate them, and the child will have to learn either direct selection or scanning techniques ([Reichle, York, & Sigafoos, 1991](#)).

OTHER RESOURCES:

- Mike Gregory 's Nov. 6, 1997 e-mail posting under "Communication Boards" describes issues in conversing with a communication board on the [ACOLUG listserv](#) archives at listserv.temple.edu/cgi-bin/wa?A2=ind9711&L=acolug&F=&S=&P=5764.



- [Teaching](#)
- [Teaching different modes of AAC](#)
- [Communication boards and VOCAs](#)

Vocabulary selection strategies

Graphic AAC users (e.g. communication board or VOCA users) have vocabulary selection issues because what they are able to communicate depends on the vocabulary that is available to them on their device. Vocabulary has a tremendous impact on whether an AAC device is used or not. If the vocabulary on a device is not motivating or useful to the child, he or she will most likely seldom use it. Therefore, what the child wants to say should rank as the most important factor in determining what messages to put on a device.



It is easy to fall into the trap of emphasizing only vocabulary that adults would like the child to say in order to increase the child's independence, cognitive or academic standing or self-help abilities, or to foster other well-meaning skills. Nevertheless, if the vocabulary does not at least partially encompass what the child wants to say, the AAC device may simply not be used, and the adults may never know why ([Miranda, & Iacono, 1990](#)).

Here are some rules of thumb in vocabulary selection:

- Use vocabulary that is age-appropriate. For example, include phrases like "Cool," or "Gross."

- Include greetings and a self-introduction that feels comfortable to the child. Being able to initiate a greeting appears to make a noticeable difference in generating positive attitudes towards the user, particularly among persons unfamiliar with AAC.
- Keep the vocabulary up-to-date. This can be very time-consuming but is extremely important. It allows the child to participate in new activities or curriculum and to talk about the latest events, all of which are important to the child's academic and social status.
- Vocabulary that others use may be programmed into the child's device as well so that partners may also be able to use the device. When others use the child's AAC, the child is able to learn through imitation. (See [Simultaneous communication](#).)
- Provide a wide variety of types of words to assist the child in progressing towards increasingly sophisticated sentences. For example, a child may initially use single words, mostly nouns. Later verbs may be added, and then pronouns, etc. as the child is able to string more words together and to produce more complex sentences. (See [Teaching sentence structure](#).)





There are several methods used in deciding what vocabulary to put onto a device. Frequently more than one strategy is used ([Beukelman, & Mirenda, 1992](#); [Fried-Oken, & More, 1992](#); [Goossens', 1989](#); [Goossens' & Crain, 1987](#); [Marvin, Beukelman, & Bilyeu, 1994](#); [Marvin, Beukelman, Brockhaus, & Kast, 1994](#)).

- Vocabulary based on the routines and activities in which the child is or will be involved. (See [The ecological approach: Focusing on participation](#).) This is one of the most recommended approaches. Essentially, it involves analyzing the vocabulary that the child needs in order to participate more fully in the routines and activities that make up his or her day. For example, the child needs certain messages during mealtimes, other messages while playing with siblings, others during school activities, etc. Often these messages are organized so that all the vocabulary that the child needs for a specific activity is located on a single page. This means that words used in a variety of activities will be duplicated. However, it offers tremendous advantages in terms of speed, which is considered extremely important in normalizing conversation among AAC users. (See [Organizing vocabulary for speed](#) and [Conversational control vs. conversational efficiency](#).)
- Preselected vocabulary already available on commercial AAC devices or symbol sets.
- Word lists based on research in child language usage among children with and/or without disabilities.
- Categories based on grammatical usage, such as nouns, verbs, adjectives, etc.

OTHER RESOURCES:

- "Functional Language Instruction for Linguistically Different Students with Moderate to Severe Disabilities" by Elva Duran at www.cec.sped.org/digests/e501.htm. Although this focuses on children who are culturally and linguistically different, much of it pertains to AAC users who can, in effect, be considered culturally and linguistically different.
- "AAC Messaging and Vocabulary" lists vocabulary words and phrases used by preschool and school-aged children at home and at school at aac.unl.edu/vbstudy.html.
- "Augmentative and Alternative Communication Messaging: Vocabulary,

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to

-
-  [Table of Contents for YaacK: AAC Connecting Young Kids](#)
 -  [Teaching](#)
 -  [Teaching different modes of AAC](#)
 -  [Communication boards and VOCAs](#)



Organizing vocabulary for speed

Organizing vocabulary is necessary only on communication boards, voice output communication aids (VOCAs), and other graphical AAC systems. The main purpose of organizing vocabulary is to increase the speed at which communication can take place. Speed is one of the main factors in normalizing the conversation between an AAC user and his or her partner. (See [Conversational control vs. conversational efficiency](#).)

The following are techniques used to organize vocabulary ([Beukelman, & Mirenda, 1992](#); [Goossens', 1989](#); [Goossens' & Crain, 1987](#)).

- One symbol can be used to represent a complete concept. For example, a picture of a cup can mean "I want a drink."
- A highly recommended method of organizing vocabulary is the thematic approach in which vocabulary is grouped by activity. Every page or overlay of vocabulary contains words used in a single activity. When a new activity is begun, a new page or overlay is used, complete with the vocabulary for that activity. Using this method, the child does not have to access different overlays to find vocabulary. This also means that commonly used vocabulary words, for example "I," "want," "yes" and "no," must be repeated on each overlay. (See [The ecological approach: Focusing on participation](#).)
- Two types of symbol organizational systems that are widely used on VOCAs today are Minspeak and Dynamic Display. (See [Minspeak vs. Dynamic Display](#).)

OTHER RESOURCES:

- "Creating communication boards and displays" by Patricia Dellacecca, Joyce Hignett, and Kerri-Lee Turcotte at www.closingthegap.com/cgi-bin/lib/libDsply.pl?a=1009&b=4 describes the issues in issues dealing with organizing a communication board display.
- "Minspeak Conference Proceedings" by Semantic Compaction Systems at www.lti.cs.cmu.edu/scs/procs.html.

Help me—and everyone who reads this site—by mailing your suggestions, criticisms and personal experiences to
Ruth Ballinger at
yaack@iname.com



Programming voice output communication systems (VOCAs)

When obtaining a device, whether by borrowing, rental or purchase, it is essential to get a complete set of operational manuals in order to be able to use it correctly and efficiently, and to be able to troubleshoot if problems occur.

Some companies also maintain telephone or e-mail help lines which can be extremely useful. In addition, contacting other users is another invaluable way to get help and support. (See [Finding answers to specific AAC questions](#).)

OTHER RESOURCES:

- "AAC Device Tutorials and Checkouts" offers several AAC tutorials at aac.unl.edu/AACU/tutoring.html.
- "Tutorials" under "Print Resources" are tutorials on how to use various AAC devices at www.aten.ocps.k12.fl.us/printres.html.

YAACK: AAC Connecting Young Kids

[Back to Top](#) ■ [YAACK Home Page](#)

© YAACK 1999





References

- (1999, March 10). Survey. *ACOLUG* [On-line listserv]. Available: listserv.temple.edu/cgi-bin/wa?A2=ind9903&L=acolug&F=&S=&P=10265
- Abrahamsen, A. A., Ronski, M. A., & Sevcik, R. A. (1989). Concomitants of success in acquiring an augmentative communication system: Changes in attention, communication, and sociability. *American Journal on Mental Retardation*, 93, 475-496.
- Allaire, J. H., Gressard, R. P., Blackman, J. A., & Hostler, S. L. (1991). Children with severe speech impairments: Caregiver survey of AAC use. *Augmentative and Alternative Communication*, 7, 248-255.
- Angelo, D. H., Jones, S. D., & Koskoska, S. M. (1995) Family perspective on augmentative and alternative communication: Families of young children. *Augmentative and Alternative Communication*, 11, 193-201.
- Ballinger, R. (1998). *Frustrations and concerns of caretakers, teachers and communication professionals regarding the design and implementation of AAC for young children*. Unpublished manuscript.
- Basil, C. (1992). Social interaction and learned helplessness in severely disabled children. *Augmentative and Alternative Communication*, 8, 188-199.
- Bates, E., Camaioni, L., & Volterra, V. (1975). The acquisition of performatives prior to speech. *Merrill-Palmer Quarterly*, 21, 205-226. (Reprinted in Ochs, E., & Schieffelin, B. (Eds.) (1979). *Developmental pragmatics*. New York: Academic Press, 1979, 111-128).
- Beck, A. R., & Dennis, M. (1996). Attitudes of children toward a similar-aged child who uses augmentative communication. *Augmentative and Alternative Communication*, 12, 78-87.
- Berkowitz, S. (1990). A comparison of two methods of prompting in training discrimination of communication book pictures by autistic students. *Journal of Autism and Developmental Disorders*, 20, 255-262.
- Berry, J. O. (1987). Strategies for involving parents in programs for young children using augmentative and alternative communication. *Augmentative and Alternative Communication*, 3, 90-93.
- Beukelman, D. (1987). When you have a hammer, everything looks like a nail. *Augmentative and Alternative Communication*, 3, 94-96.
- Beukelman, D. R., & Ansel, B. M. (1995). Research priorities in augmentative and alternative communication. *Augmentative and Alternative Communication*, 11, 131-134.
- Beukelman, D. R., McGinnis, J., & Morrow, D. (1991). Vocabulary selection in augmentative and alternative communication. *Augmentative and Alternative Communication*, 7, 171-185.
- Beukelman, D. R., & Mirenda, P. (1992). *Augmentative and alternative communication management of severe communication disorders in children and adults*. Baltimore, MD: Paul H. Brookes.

Bizot, E. (1998, May 12). To augment or not augment. *ACOLUG* [On-line listserv]. Available: listserv.temple.edu/cgi-bin/wa?A2=ind9805&L=acolug&F=&S=&P=6556

Black, B., & Hazen, N. L. (1990). Social status and patterns of communication in acquainted and unacquainted preschool children. *Developmental Psychology*, 26, 379-387.

Blackstone, S. W. (1989). Augmentative communication services in the schools. *American Speech-Language-Hearing Association*, 31, 61-64.

Blackstone, S. W., Cassatt-James, E. L., & Bruskin, D. M. (Eds.). (1988). *Augmentative communication: Implementation strategies*. Rockville, MD: American Speech-Language-Hearing Association.

Blischak, D. M. (1995). Thomas the writer: Case study of a child with severe physical, speech, and visual impairments. *Language, Speech, and Hearing Services in Schools*, 26, 11-20.

Blockberger, S., Armstrong, R. W., O'Connor, A., & Freeman, R. (1993). Children's attitudes toward a nonspeaking child using various augmentative and alternative communication techniques. *Augmentative and Alternative Communication*, 9, 243-250.

Bodine, C. & Beukelman, D. R. (1991). Prediction of future speech performance among potential users of AAC systems: A survey. *Augmentative and Alternative Communication*, 7, 100-111.

Brady, N. C., & Saunders, K. J. (1991). Considerations in the effective teaching of object-to-symbol matching. *Augmentative and Alternative Communication*, 7, 112-116.

Brown, L., Branson-McLean, M. B., Baumgart, D., Vincent, L., Falvey M., & Schroeder, J. (1979). Using the characteristics of current and subsequent least restrictive environments in the development of curricular content for severely handicapped students. *AAESPH Review*, 4, 407-24.

Bruno, J. (1989). Customizing a Minspeak system for a preliterate child: A case example. *Augmentative and Alternative Communication*, 5, 89-100.

Buzolich, M. J., & Lunger, J. (1995). Empowering system users in peer training. *Augmentative and Alternative Communication*, 11, 37-45.

Calculator, S N. (1988a). Evaluating the effectiveness of AAC programs for persons with severe handicaps. *Augmentative and Alternative Communication*, 4, 177-179.

Calculator, S. N. (1988b). Promoting the acquisition and generalization of conversational skills by individuals with severe disabilities. *Augmentative and Alternative Communication*, 4, 94-103.

Calculator, S. N. (1991). Integrating AAC instruction into regular education settings: Expounding on best practices. *Augmentative and Alternative Communication*, 7, 204-214.

Calculator, S. N. (1997). Fostering early language acquisition and AAC use: Exploring reciprocal influences between children and their environments. *Augmentative and Alternative Communication*, 13, 149-157.

Carey, D. M., & Sale, P. (1994). Notebook computers increase communication. *Teaching Exceptional Children*, 27, 62-69.

Carr, E. G., Levin, L., McConnachie, G., Carlson, J. I., Kemp, D. C., & Smith, C. E. (1994). *Communication-based intervention for problem behavior*. Baltimore, MD: Paul H. Brookes.

- Cress, C. (1997, Sept. 22). 2 years old & best early AAC systems. *ACOLUG* [On-line listserv]. Available: listserv.temple.edu/cgi-bin/wa?A2=ind9709&L=acolug&F=&S=&P=20234.
- Cress, C. (1998, Nov. 18). Standardized testing and AAC evals. *RESNA* [On-line listserv]. Available: maelstrom.stjohns.edu/CGI/wa.exe?A1=ind9811&L=resna#38
- Culp, D. M. (1989). Developmental apraxia and augmentative or alternative communication-A case example. *Augmentative and Alternative Communication*, 5, 27-34.
- Daniels, M. (1994). The effect of sign on hearing children's language. *Communication Education*, 43, 291-298.
- Danquah, S. A., Mate-Kole, C. C., & Zehr, R. T. (1996). The effect of Danquah Communication System (DanCS) boards on maladaptive behaviors among individuals with severe intellectual impairment and non-verbal communication skills. *International Journal of Rehabilitation Research*, 19, 143-156.
- Dattilo, J. & Camarata, S. (1991). Facilitating conversation through self-initiated augmentative communication treatment. *Journal of Applied Behavior Analysis*, 24, 369-378.
- Dattilo, J., Light, J., St. Peter, S., & Sheldon, K. (1995). Parents' perspectives on leisure patterns of youth using augmentative and alternative communication systems. *Therapeutic Recreation Journal*, 29, 8-17.
- Drasgow, E., & Halle, J. W. (1995). Teaching social communication to young children with severe disabilities. *Teaching Communication*, 15, 164-186.
- Durand, V. M. (1993). Functional communication training using assistive devices: Effects on challenging behavior and affect. *Augmentative and Alternative Communication*, 9, 168-176.
- Eckerman, C. O., & Stein, M. R. (1990). How imitation begets imitation and toddlers' generation of games. *Developmental Psychology*, 26, 370-378.
- Farrier, L. D., Yorkston, K. M., Marriner, N. A., & Beukelman, D. R. (1985). Conversational control in nonimpaired speakers using an augmentative communication system. *Augmentative and Alternative Communication*, 1, 65-73.
- Ferguson, D.L., & Horner, R. H. (1994). Negotiating the facilitated communication maze. *Mental Retardation*, 32, 305-307.
- Fishman, S., Timier, G., & Yoder, D. E. (1985). Strategies for the prevention and repair of communication breakdown in interactions with communication board users. *Augmentative and Alternative Communication*, 1, 38-51.
- Forest, M., & Lusthaus, E. (1990). Everyone Belongs with the MAPS Action Planning System. *Teaching Exceptional Children*, 22, 32-35.
- Franklin, K., Mirenda, P., & Phillips, G. (1996). Comparisons of five symbol assessment protocols with nondisabled preschoolers and learners with severe intellectual disabilities. *Augmentative and Alternative Communication*, 12, 63-77.
- Fried-Oken, M., & More, L. (1992). An initial vocabulary for nonspeaking preschool children based on developmental and environmental language sources. *Augmentative and Alternative Communication*, 8, 41-56.

- Gerber, S., & Kraat, A. (1992). Use of a developmental model of language acquisition: Applications to children using AAC systems. *Augmentative and Alternative Communication*, 8, 19-31.
- Giangreco, M.F., Cloninger, C., & Iverson, V. (1993). *Choosing options and accommodations for children: A guide to planning inclusive education*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Giangreco, M.F., Cloninger, C.J., & Iverson, V.S. (1998). *Choosing outcomes and accommodations for children (COACH): A guide to educational planning for students with disabilities (2nd edition)*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Glennen, S. L., & Calculator, S. N. (1985). Training functional communication board use: A pragmatic approach. *Augmentative and Alternative Communication*, 1, 134-142.
- Goetz, L., Guess, D., & Stremel-Campbell, K. (1987). (Eds.) *Innovative program design for individuals with dual sensory impairments*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Goldstein, H., & Brown, W. H. (1989). Observational learning of receptive and expressive language by handicapped children. *Education and Treatment of Children*, 12, 5-37.
- Goldstein, H., English, K., Shafer, K., & Kaczmarek, L. (1995). Use of peers as change agents in communicative interactions with preschoolers with disabilities. *Preventing School Failure*, 39, 16-20.
- Goldstein, H., & Ferrell, D. R. (1987). Augmenting communicative interaction between handicapped and nonhandicapped preschool children. *Journal of Speech and Hearing Disorders*, 52, 200-211.
- Goldstein, H., Strain, P. S. (1988). Peers as communication intervention agents: Some new strategies and research findings. *Topics in Language Disorders*, 9, 44-57.
- Goldstein, H. & Wickstrom, S. (1986). Peer intervention effects on communicative interaction among handicapped and nonhandicapped preschoolers. *Journal of Applied Behavior Analysis*, 19, 209-214.
- Goode, D. (1994). Defining facilitated communication in and out of existence: Role of science in the facilitated communication controversy. *Mental Retardation*, 32, 307-311.
- Goodman, J., & Remington, B. (1993). Acquisition of expressive signing: Comparison of reinforcement strategies. *Augmentative and Alternative Communication*, 9, 26-35.
- Goossens', C., (1989). Aided communication intervention before assessment: A case study of a child with cerebral palsy. *Augmentative and Alternative Communication*, 5, 14-26.
- Gorenflo, C. W., & Gorenflo, D. W. (1991). Effects of information and augmentative communication technique on attitudes toward nonspeaking individuals. *American Speech-Language-Hearing Association*, 34, 19-26.
- Gorenflo, C. W., Gorenflo, D. W., & Santer, S. A. (1994). Effects of synthetic voice output on attitudes toward the augmented communicator. *Journal of Speech and Hearing Research*, 37, 64-68.
- Grove, N., & Walker, M. (1990). The Makaton vocabulary: Using signs and graphic symbols to develop interpersonal communication. *Augmentative and Alternative Communication*, 6, 15-28.
- Guralnick, M. J., Connor, R. T., Hammond, M. A., Gottman, J. M., & Kinnish, K. (1996). The peer relations of preschool children with communication disorders. *Child Development*, 67, 471-489.

- Hadley, P. A., & Rice, M. L., (1991). Conversational responsiveness of speech- and language-impaired preschoolers. *Journal of Speech and Hearing Research*, 34, 1308-1317.
- Halle, J. W. (1994). A dispassionate (if that's possible) observer's perspective. *Mental Retardation*, 32, 311-314.
- Halle, J. W., Alpert, C. L., & Anderson, S. R. (1984). Natural environment language assessment and intervention with severely impaired preschoolers. *Topics in Early Childhood Special Education*, 4, 36-56.
- Haring, T. G., & Lovinger, L. (1989). Promoting social interaction through teaching generalized play initiation responses to preschool children with autism. *Jash*, 14, 58-67.
- Heller, K. W., Allgood, M. H., Ware, S., Arnold, S. E., & Castelle, M. D. (1996). Initiating requests during community-based vocational training by students with mental retardation and sensory impairments. *Research in Developmental Disabilities*, 3, 173-184.
- Heller, K. W., Allgood, M. H., Ware, S. P., & Castelle, M. D. (1996). Use of dual communication boards at vocational sites by students who are deaf-blind. *RE:view*, 27, 180-190.
- Heller, K. W., Ware, S., Allgood, M. H., & Castelle, M. (1994). Use of dual communication boards with students who are deaf-blind. *Journal of Visual Impairment and Blindness*, 88, 368-376.
- Hetzroni, O. E., & Harris, O. L. (1996) Cultural aspects in the development of AAC users. *Augmentative and Alternative Communication*, 12, 52-58.
- Hitzing, W. (1994). Reply to Levine et al.'s "Plea to professionals." *Mental Retardation*, 32, 314-317.
- Holmes, K. M., & Holmes, D. W. (1980). Signed and spoken language development in a hearing child of hearing parents. *Sign Language Studies*, 28, 239-254.
- Huer, M. B., & Lloyd, L. L. (1990). AAC users' perspectives on augmentative and alternative communication. *Augmentative and Alternative Communication*, 6, 242-249.
- Iacono, T. A., & Duncum, J. E. (1995). Comparison of sign alone and in combination with an electronic communication device in early language intervention: Case study. *Augmentative and Alternative Communication*, 11, 249-259.
- Iacono, T., Mirenda, P. & Beukelman, D. (1993). Comparison of Unimodal and Multimodal AAC techniques for children with intellectual disabilities. *Augmentative and Alternative Communication*, 9, 83-93.
- Jinks, A., & Sinteff, B. (1994). Consumer response to AAC devices: Acquisition, training, use, and satisfaction. *Augmentative and Alternative Communication*, 10, 184-190.
- Kaiser, A. P., & Gray, D. B. (Eds.). (1993). Enhancing children's communication. In Steven F. Warren, & Joe Reichle (Eds.), *Communication and language intervention series: Vol 2*. Baltimore, MD: Paul H. Brookes.
- Kaiser, A. P., Ostrosky, M. M., & Alpert, C. L. (1993) Training teachers to use environmental arrangement and milieu teaching with nonvocal preschool children. *Jash*, 18, 188-199.
- Kangas, K. A., & Lloyd, L. 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.

Konstantareas, M. M. (1984). Sign language as a communication prosthesis with language-impaired children. *Journal of Autism and Developmental Disorders*, 14, 9-25.

Koppenhaver, D. A., Evans, D. A., & Yoder, D. E. (1991). Childhood reading and writing experiences of literate adults with severe speech and motor impairments. *Augmentative and Alternative Communication*, 7, 20-33.

Kouri, T. A. (1988). Effects of simultaneous communication in a child-directed treatment approach with preschoolers with severe disabilities. *Augmentative and Alternative Communication*, 4, 222-232.

Kozleski, E. B. (1991). Expectant delay procedures for teaching requests. *Augmentative and Alternative Communication*, 7, 11-19.

Leister, C., Koonce, K., & Nisbet, S. (1993). Best practices for preschool programs: An update on inclusive settings. *Day Care and Early Education*, 21, 9-12.

Levine, K., Shane, H. C., & Wharton, R. H. (1994). What if...: A plea to professionals to consider the risk-benefit ratio of facilitated communication. *Mental Retardation*, 32, 300-304.

Levine, K., Shane, H. C., & Wharton, R. H. (1994). Response to commentaries on risks of facilitated communication. *Mental Retardation*, 32, 317-318.

Lewis, M. R. (1994). Discontinuity in the development of aided augmentative and alternative communication systems. *Augmentative and Alternative Communication*, 100, 14-26.

Light, J. (1988). Interaction involving individuals using augmentative and alternative communication systems: State of the art and future directions. *Augmentative and Alternative Communication*, 4, 66-82.

Light, J. (1989). Toward a definition of communicative competence for individuals using augmentative and alternative communication systems. *Augmentative and Alternative Communication*, 5, 137-144.

Light, J. (1993). Teaching automatic linear scanning for computer access: A case study of a preschooler with severe physical and communication disabilities. *Journal of Special Education Technology*, 12, 125-134.

Light, J., Binger, C., & Smith, A. K. (1994). Story reading interactions between preschoolers who use AAC and their mothers. *Augmentative and Alternative Communication*, 10, 255-268.

Light, J., Collier, B., & Parnes, P. (1985). Communicative interaction between young nonspeaking physically disabled children and their primary caregivers: Part I--discourse patterns. *Augmentative and Alternative Communication*, 1, 74-83.

Light, J., Collier, B., & Parnes, P. (1985). Communicative interaction between young nonspeaking physically disabled children and their primary caregivers: Part II--communicative function. *Augmentative and Alternative Communication*, 1, 98-133.

Light, J. & McNaughton, D. (1993). Literacy and augmentative and alternative communication (AAC): The expectations and priorities of parents and teachers. *Topics in Language Disorders*, 13, 33-46.

Light, J., & Smith, A. K., (1993) Home literacy experiences of preschoolers who use AAC systems and of their nondisabled peers. *Augmentative and Alternative Communication*, 9, 10-25.

Locke, P. A., & Mirenda, P. (1988). A computer-supported communication approach for a child with severe

communication, visual, and cognitive impairments: A case study. *Augmentative and Alternative Communication*, 4, 15-22.

Locke, P. A., & Mirenda, P. (1992). Roles and responsibilities of special education teachers serving on teams delivering AAC services. *Augmentative and Alternative Communication*, 8, 200-214.

Lowenthal, B. (1995). Naturalistic language intervention in inclusive environments. *Intervention in School and Clinic*, 31, 114-118.

Macdonald, J. D., & Carroll, J. Y. (1992). A social partnership model for assessing early communication development: An intervention model for preconversational children. *Language, Speech, and Hearing Services in Schools*, 23, 113-124.

Macfarland-Smith, J., Schuster, J. W., & Stevens K. B. (1993). Using simultaneous prompting to teach expressive object identification to preschoolers with developmental delays. *Journal of Early Intervention*, 17, 50-60.

Mar, H. H., & Sall, N. (1994). Programmatic approach to use of technology in communication instruction for children with dual sensory impairments. *Augmentative and Alternative Communication*, 10, 138-150.

Marvin, C. A., Beukelman, D. R., & Bilyeu, D. (1994). Vocabulary-use patterns in preschool children: Effects of context and time sampling. *Augmentative and Alternative Communication*, 10, 224-236.

Marvin, C. A., Beukelman, D. R., Brockhaus, J., & Kast, L. (1994). "What are you talking about?": Semantic analysis of preschool children's conversational topics in home and preschool settings. *Augmentative and Alternative Communication*, 10, 75-86.

Mathy-Laikko, P., Iacono, T., Ratcliff, Villarruel, F., Yoder, D., & Vanderheiden, G. (1989). Teaching a child with multiple disabilities to use a tactile augmentative communication device. *Augmentative and Alternative Communication*, 5, 249-256.

McDonald, L., & Pien, D. (1982). Mother conversational behavior as a function of interactional intent. *Journal of Child Language*, 9, 337-358.

McNaughton, S. (1993). Graphic representational systems and literacy learning. *Topics in Language Disorders*, 13, 58-75.

McNaughton, S., & Lindsay, P. (1995). Approaching literacy with AAC graphics. *Augmentative and Alternative Communication*, 11, 212-228.

McWilliam, R. A. and Bailey, Jr., D. B. (1995). Effects of classroom social structure and disability on engagement. *Topics in Early Childhood Special Education*, 15, 123-147.

Mirenda, P. (1985). Designing pictorial communication systems for physically able-bodied students with severe handicaps. *Augmentative and Alternative Communication*, 1, 58-64.

Mirenda, P., & Dattilo, J. (1987). Instructional techniques in alternative communication for students with severe intellectual handicaps. *Augmentative and Alternative Communication*, 3, 143-152.

Mirenda, P., & Iacono, T. (1990). Communication options for persons with severe and profound disabilities: State of the art and future directions. *Jash*, 15, 3-21.

- Mirenda, P., & Mathy-Laikko, P. (1989). Augmentative and alternative communication applications for persons with severe congenital communication disorders: An introduction. *Augmentative and Alternative Communication*, 5, 3-13.
- Mirenda, P., & Santogrossi, J. (1985). A prompt-free strategy to teach pictorial communication system use. *Augmentative and Alternative Communication*, 1, 143-150.
- Mirenda, P., & Schuler, A. L. (1988). Augmenting communication for persons with autism: Issues and strategies. *Topics in Language Disorders*, 9, 24-43.
- Mizuko, M. & Esser, J. (1991). The effect of direct selection and circular scanning on visual sequential recall. *Journal of Speech and Hearing Research*, 34, 43-48.
- Montgomery, J. K. (1986). Augmentative communication: Application from research in nonverbal studies. *Remedial and Special Education*, 7, 32-38.
- Mount, B., & Zwernik, K. (1988). *It's never too early, it's never too late. A booklet about persoanl futures planning*. St. Paul, MN: Metropolitan Council.
- Morris, S. E. (1981). Communication/interaction development at mealtimes for the multiply handicapped child: Implications for the use of augmentative communication systems. *Language, Speech, and Hearing Services in Schools*, 12, 216-232.
- Murphy, J., Markova, I., Collins, S., & Moodie, E. (1996). AAC systems: Obstacles to effective use. *European Journal of Communication*, 31, 31-44.
- Musselwhite, C. R., & St. Louis, K. W. (1988). *Communication programming for persons with severe handicaps: Vocal and sugmentative Strategies* (2nd ed.). Boston, MA: College-Hill Press.
- Ninio, A. (1983). Joint book reading as a multiple vocabulary acquisition device. *Developmental Psychology*, 19, 445-451.
- Noonan, M. J., & McCormick, L. (1993). *Early intervention in natural environments: Methods and procedures* Belmont, CA: Wadsworth, Inc.
- Ostrosky, M. M., & Kaiser, A. P. (1991) Preschool classroom environments that promote communication. *Teaching Exceptional Children*, 23, 6-10.
- Parette, H. P., & Angelo, D. H. (1996). Augmentative and alternative communication impact on families: Trends and future directions. *The Journal of Special Education*, 30, 77-98.
- Peterson, S. L., Bondy, A. S., Vincent, Y., & Finnegan, C. S. (1995). Effects of altering communicative input for students with autism and no speech: Two case studies. *Augmentative and Alternative Communication*, 11, 93-100.
- Pierce, P. L., & McWilliam, P. J. (1993). Emerging literacy and children with severe speech and physical impairments (SSPI): Issues and possible intervention strategies. *Topics in Language Disorders*, 13, 47-57.
- Ratcliff, A. (1994). Comparison of relative demands implicated in direct selection and scanning: Considerations from normal children. *Augmentative and Alternative Communication*, 10, 67-74.
- Reichle, J. (1997). Communication intervention with persons who have severe disabilities. *The Journal of*

- Reichle, J., & Karlan, G. (1985) The selection of an augmentative system in communication intervention: A critique of decision rules. *Jash*, 10, 146-156.
- Reichle, J., & Ward, M. (1985). Teaching discriminative use of an encoding electronic communication device and signing exact English to a moderately handicapped child. *Language, Speech, and Hearing in Schools*, 16, 58-63.
- Reichle, J., York, J., & Sigafoos, J. (1991). *Implementing augmentative and alternative communication*. Baltimore, MD: Paul H. Brookes.
- Remington, B., & Clarke, S. (1993a). Simultaneous communication and speech comprehension. Part I: Comparison of two methods of teaching expressive signing and speech comprehension skills. *Augmentative and Alternative Communication*, 9, 36-48.
- Remington, B., & Clarke, S. (1993b). Simultaneous communication and speech comprehension. Part II: Comparison of two methods of overcoming selective attention during expressive sign training. *Augmentative and Alternative Communication*, 9, 49-60.
- Rice, M. L. (1993). "Don't talk to him; he's wierd:" A social consequences account of language and social interactions. In Steven F. Warren, & Joe Reichle (Eds.), *Enhancing children's communication: Vol 2. Communication and language intervention series*. Baltimore, MD: Paul H. Brookes.
- Robinson, L. A., & Owens, Jr., R. E. (1995) Clinical notes: Functional augmentative communication and positive behavior change. *Augmentative and Alternative Communication*, 11, 207-211.
- Romich, B. A., & Zangari, C. (1989). Augmentative and alternative communication: Ethics and authenticity in clinical practice., *Augmentative and Alternative Communication* 5, 199-202.
- Romski, M. A., Mirenda, P., & Schuler, A. L. (1988). Augmenting communication for persons with autism: Issues and strategies. *Topics in Language Disorders*, 9, 24-43.
- Romski, M. A., & Sevcik, R. A. (1993). Language learning through augmented means: The process and its products. In Steven F. Warren, & Joe Reichle (Eds.), *Enhancing children's communication: Vol 2. Communication and language intervention series*. Baltimore, MD: Paul H. Brookes.
- Romski, M. A., Sevcik, R. A., Robinson, B., & Bakeman, R. (1994). Adult-directed communications of youth with mental retardation using the system of augmenting language. *Journal of Speech and Hearing Research*, 37, 617-628.
- Romski, M. A., Sevcik, R. A., & Wilkinson, K. M. (1994). Peer-directed communicative interactions of augmented language learners with mental retardation. *American Journal on Mental Retardation*, 98, 527-538.
- Rowland, C. (1990). Communication in the classroom for children with dual sensory impairments: Studies of teacher and child behavior. *Augmentative and Alternative Communication*, 6, 262-274.
- Rowland, C., & Schweigert, P. (1988). Tangible symbols: Symbolic communication for individuals with multisensory impairments. *Augmentative and Alternative Communication*, 4, 226-234.
- Russel, M. (1984). Assessment and intervention issues with the nonspeaking child. *Exceptional Children*, 51, 64-71.

- Salamo, G. J., & Jakobs, T. (1996). Laser pointers: Are they safe for use by children? *Augmentative and Alternative Communication*, 12, 47-51.
- Sandberg, A. D., & Hjelmquist, E. (1996). Phonological awareness and literacy abilities in nonspeaking preschool children with cerebral palsy. *Augmentative and Alternative Communication*, 12, 138-154.
- Schiefelsbusch, R. L. & Lloyd, L. L. (1988). *Language perspectives Acquisition, retardation, and intervention* (2nd ed.). Austin, TX: PRO-ED, Inc.
- Schlosser, R. W., & Belfiore, P. J. (1995) The effects of speech output technology in the learning of graphic symbols. *Journal of Applied Behavior Analysis*, 28, 537-549.
- Schlosser, R. W., & Braun, U. (1994). Efficacy of AAC interventions: Methodologic issues in evaluating behavior change, generalization, and effects. *Augmentative and Alternative Communication*, 10, 207-223.
- Schrum, L. (1995). Educators and the Internet: A case study of professional development. *Computers and Education*, 24, 221-227.
- Schuele, C. M., Rice, M. L., & Wilcox, K. A. (1995). Redirects: A strategy to increase peer initiations. *Journal of Speech and Hearing Research*, 38, 1319-1333.
- Schweigert, P. (1989). Use of microswitch technology to facilitate social contingency awareness as a basis for early communication skills. *Augmentative and Alternative Communication*, 5, 192-198.
- Schweigert, P., & Rowland, C. (1992). Early communication and microtechnology: Instructional sequence and case studies of children with severe multiple disabilities. *Augmentative and Alternative Communication*, 8, 273-286.
- Shepherd, T. A., & Haaf, R. G. (1995). Comparison of two training methods in the learning and generalization of Blissymbolics. *Augmentative and Alternative Communication*, 11, 154-164.
- Silverman, F. H. (1980). *Communication for the speechless* (3rd ed.). Needham Heights, MA: Allyn and Bacon.
- Sisson, L. A., & Barrett, R. P. (1984) An alternating treatments comparison of oral and total communication training with minimally verbal retarded children. *Journal of Applied Behavior Analysis*, 17, 559-566.
- Smith-Lewis, M. R., & Ford, A. (1987). A user's perspective on augmentative communication. *Augmentative and Alternative Communication*, 3, 12-18.
- Snow, C. E., & Goldfield, B. A. (1983). Turn the page please: Situation-specific language acquisition. *Journal of Child Language*, 10, 551-569.
- Soto, G., Belfiore, P. J., Schlosser, R. W., & Haynes, C. (1993). Teaching specific requests: A comparative analysis on skill acquisition and preference using two augmentative and alternative communication aids. *Education and Training in Mental Retardation*, 28, 169-178.
- Spiegel, B. B., Benjamin, B. J., & Spiegel, S. A. (1993). One method to increase spontaneous use of an assistive communication device: A case study. *Augmentative and Alternative Communication*, 9, 111-118.
- Thorley, B., Ward, J., Binopal, T., & Dolan, K. (1991). Communicating with printed words to augment signing: Case study of a severely disabled deaf-blind child. *Augmentative and Alternative Communication*, 7,

- Udwin, O. & Yule, W. (1987). Augmentative communication modes taught to cerebral palsied children: Findings from a longitudinal study. *International Journal of Rehabilitation Research*, 10, 202-206.
- Umbreit, J. (1996). Functional analysis of disruptive behavior in an inclusive classroom. *Journal of Early Intervention*, 20, 18-29.
- Van Tatenhove, G. M. (1997, October 27). Young children and AC devices. *ACOLUG* [On-line listserv]. Available: listserv.temple.edu/cgi-bin/wa?A2=ind9710&L=acolug&F=&S=&P=23220
- Van Tatenhove, G. M. (1987). Teaching power through augmentative communication: Guidelines for early intervention. *Journal of Childhood Communication Disorders*, 10, 185-199.
- Vandercook, T., York, J., & Forest, M. (1989). The McGill Action Planning System (MAPS): A strategy for building the vision. *The Journal of the Association for Persons with Severe Handicaps*, 14,.
- Vanderheiden, G. C. (1984). High and low technology approaches in the development of communication systems for severely physically handicapped persons. *Exceptional Education Quarterly*, 4, 40-56.
- Vaughn, B., & Horner, R. H. (1995). Effects of concrete versus verbal choice systems on problem behavior. *Augmentative and Alternative Communication*, 11, 89-92.
- Venkatagiri, H. S. (1995). Techniques for enhancing communication productivity in AAC: A review of research. *American Journal of Speech-Language Pathology*, 4, 36-45.
- Vollmer, T. R., Northup, J., Ringdahl, J. E., SeBlanc, L. A., & Charvin, T. M. (1996). Functional analysis of severe tantrums displayed by children with language delays. *Behavior Modification*, 20, 97-115.
- Warrick, A. (1988). Sociocommunicative considerations within augmentative and alternative communication. *Augmentative and Alternative Communication*, 4, 45-51.
- Warren, S. F. & Reichle, J. (Eds.) (1992). Causes and effects in communication and language intervention. In Steven F. Warren, & Joe Reichle (Eds.), *Communication and language intervention series: Vol 1*. Baltimore, MD: Paul H. Brookes.
- Westling, D. L. & Fox, L. (1995). *Teaching students with severe disabilities*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Woltosz, W., S. (1988). A proposed model for augmentative and alternative communication evaluation and system selection. *Augmentative and Alternative Communication*, 4, 233-235.
- Yinger, C. (1997, October 26). Young children and AC devices. *ACOLUG* [On-line listserv]. Available: listserv.temple.edu/cgi-bin/wa?A2=ind9710&L=acolug&F=&S=&P=23045
- Yoder, P. J., & Davies, B. (1990). Do parental questions and topic continuations elicit replies from developmentally delayed children?: A sequential analysis. *Journal of Speech and Hearing Research*, 33, 563-573.
- Yoder, P. J., & Davies, B. (1992a). Do children with developmental delays use more frequent and diverse language in verbal routines? *American Journal on Mental Retardation*, 97, 197-208.

Yoder, P. J., & Davies, B. (1992b) Greater intelligibility in verbal routines with young children with developmental routines. *Applied Psycholinguistics*, 13, 77-91.

Yoder, P. J., Warren, S. F., Kim, K., & Gazdag, G. E. (1994). Facilitating prelinguistic communication skills in young children with developmental delay II: Systematic replication and extension. *Journal of Speech and Hearing*, 37, 841-851.

Zangari, C., Kangas, K. A., & Lloyd, L. L. (1988). Augmentative and alternative communication: A field in transition. *Augmentative and Alternative Communication*, 4, 60-65.

Zangari, C., Lloyd, L. L., & Vicker, B. (1994). Augmentative and alternative communication: An historic perspective. *Augmentative and Alternative Communication*, 10, 27-59.

