AAC Basics and Implementation: How to Teach Students who "Talk with Technology"
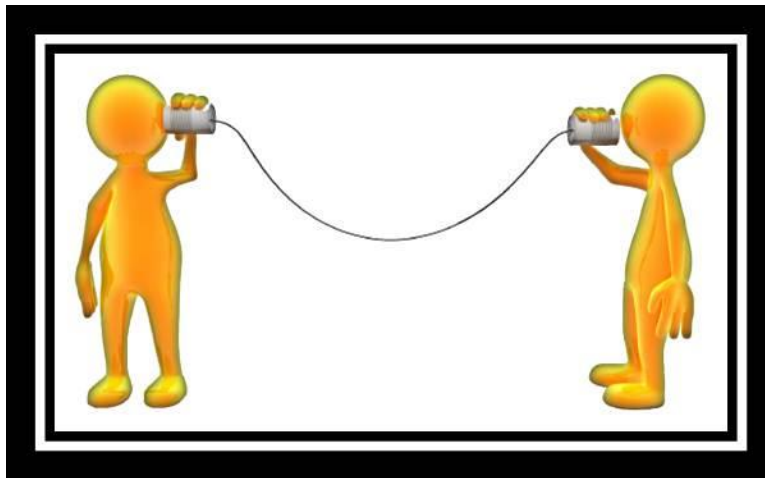
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AAC Basics and Implementation:

How to Teach Students who "Talk with Technology"

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Table of Contents

- Assistive technology & communication: Encouraging Your Students in the Classroom
- Augmentative and Alternative Communication (AAC): an Introduction
- Communication Bill of Rights

INTRODUCTION

Who We Are: The Colorado Department of Education's school-based SWAAAC (Statewide Assistive Technology, Augmentative and Alternative Communication) teams provide multidisciplinary assistive technology services in school districts around the state to enable students with disabilities to have equal access to the curriculum and full participation in their education and classroom. The Boulder Valley School District's SWAAAC team is known as the "Assistive Technology Team" (or AT Team) and consists of an occupational therapist, a special education teacher, and a speech/language pathologist, all with special training in the use of assistive technology and communication systems/devices. The goal of the AT Team is to provide resources and the student/staff training necessary so that students with disabilities can participate in appropriate educational experiences and communicate what they know.

AAC: *"Augmentative or Alternative Communication (AAC) is any device, system, or method that improves the ability of a child with a communication impairment to communicate effectively."*

Our BVSD Assistive Technology Team has been working with students with complex communication needs (and their school teams and families) since the team was formed in 1993, and we have gradually organized and systematized our approach and procedures. This book is meant to be a short yet practical introductory guide for school-based service providers and it follows a natural progression from background material on communication and AAC systems (the tools) through brief descriptions of the specific implementation procedures and strategies we have found useful, and finally, several Appendices containing an assortment of pertinent charts, lists, data sheets, and handouts. Readers seeking additional information and/or details may find the resources listed in the Bibliography to be valuable for an initial search of the literature.

Our team approach to working with AAC is based on a generalist and a "**multimodal**" approach to communication—encouraging and enhancing any and ALL signs of communicative intent and actual communicative acts. We do not favor a limited "either/or" approach (i.e., one solution fits all students or all situations); rather, we embrace a "both/and" vision. There are MANY possible "tools in the AAC toolbox," and the specific tool that may be most effective in one situation, may not work at all in another. Strategies also need to be changed, adjusted, nuanced--we have found that FLEXIBILITY and keeping an open mind are absolutely crucial! In addition, utilizing strategies generated from solid research and evidence-based practice (rather than anecdotal guesswork) is paramount.

Students become a part of our Assistive Technology Team caseload by being referred by the school team or family who might be wondering whether any type of technology exists that would be of some benefit to their student. Alternatively, they may have heard of some type of technology that they feel might be an excellent "fit." In either of these cases, we arrange for our AT Team to visit the school and carry out an AAC Evaluation (this is described in detail in our book BVSD Assistive Technology Communication Evaluation). An AAC Evaluation can provide crucial information about the student's abilities and challenges and furnish quantitative data and a solid evidence-based rationale for various assistive technology strategies to try--an excellent place to begin! Once the student becomes part of our AT Team caseload, s/he will be followed from grade to grade and school to school until s/he graduates from the system or else s/he no longer needs our services.

"If my possessions were taken from me with one exception, I would choose to keep the power of communication, for by it, I would soon regain all the rest." (Daniel Webster)

Communication may be defined as "the process of exchanging information and ideas. An active process, it involves encoding, transmitting, and decoding intended messages."[1] **Language** is a code in which we make specific symbols stand for something else. These symbols and the code are arbitrary and must be learned: there is no objective reason why the word "house" (or the specific sounds that comprise the word) should signify "a building in which people, especially members of a family, reside." The only requirement for a language is that the code is agreed-upon (and conventionalized) by members of the same community or language group. **Speech** is the actual behavior of producing this code by uttering the vocal sound patterns appropriate for the particular language. Receptive language refers to decoding the messages (language comprehension) that are being imparted, whereas expressive language refers to encoding and formulating the messages to a communication partner.

Speech and language are important for communication, but they are only a part of communication. Speech **prosody** (the "music" of speech) is also crucial for expression: an utterance may be delivered in a monotone, or carefully modulated in terms of intonation, stress, rate of delivery, and pause/hesitation. This aspect of communication is termed "paralinguistic." Also important is non-linguistic communication which includes things like gestures, posture, facial expression, eye gaze, and proxemics (physical distance between communicators). Metalinguistic communication pertains to talking about language, analyzing it, judging it for acceptability within the social context, monitoring it for errors, etc.

Learning Communication Skills

In typically developing children the process of language acquisition is usually smooth and seamless and different "stages" are barely noticeable and seem to come and go quickly. For individuals with more complex communication needs, stages may develop slowly, intermittently, and in an idiosyncratic fashion.

There are a number of developmental schemas for language acquisition, and these schemas vary in their details slightly from case to case; some overlap, some emphasize one skill over another, some are sequenced somewhat unevenly and to compare them or to reconcile them with each other is really "splitting hairs." The model that our BVSD Assistive Technology Team has found most useful and practical for the students we work with is based on three levels of communicative ability. (We have collapsed and blended several of the levels of the schema used by Charity Rowland and Philip Schweigert).[2] Our basic paradigm is that the individual progresses in some fashion from: pre-intentional and pre-symbolic communication through using symbols one at a time, and later, using multiple symbols with specific ordering (syntax).

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[1] This discussion is based on Owens, p. 40-41, and Reed, Chapter 1.
[2] This schema is outlined (and compared with ours) in Appendix A.

Three Levels of Communicative Abilities

We believe that it is important to address our students' needs at the appropriate level: not too high or too low (i.e., Vygotsky's "zone of proximal development" or ZPD). Too low would bore them and too high would bewilder them—either way it is dis-empowering and does not encourage students to communicate their unique vision of the world. In order to address this issue, and to more effectively serve our student population, we have found it useful to group our students according to the three generalized communicative profiles alluded to above: **emerging communicators**, **beginning symbolic communicators,** and **intermediate symbolic communicators**. Please keep in mind that these profiles are only approximate: many times students display "splinter skills," or appear to be functioning at a transitional stage between two different levels.

Level 1--Emerging Communicators These are pre-symbolic communicators who may display reflexive/reactive behavior (laughing, crying) which is interpreted **by the observer** as communicative, and this level extends on through individuals who exhibit intentional goal-directed behavior (not necessarily directed towards another person), and finally on through those who exhibit intentional **communicative** behavior (goal directed behavior directed towards another individual) using gesture or natural non-symbolic means.

Level 2--Beginning Symbolic Communicators might be using some symbols: manual sign or sign approximations, vocalizations, stylized gestures (including pointing), and verbalizations or verbal approximations (one through approximately 50[3]). They use the symbols one at a time and have not started combining them together much, if at all. They might use (or have tried) picture or object-based communications strategies, or a single or double-message speech generating device to indicate a simple greeting, the desire for reinstatement of a preferred activity or a choice between two activities.

Level 3--Intermediate Symbolic Communicators may be using a number of (about 25 or more) symbols: manual signs or sign approximations, vocalizations, verbalizations (or verbal approximations) one at a time—they may be combining the symbols (which would imply having close to 50 symbols in their repertoire) at least in a rudimentary syntax or word order, e.g., I want.... I like... I don't like... I go... etc.

Augmentative and Alternative Communication (AAC)

For students with complex communication needs (i.e., individuals who do not proceed smoothly along through the levels of communicative competence in a timely manner), speech-language therapy might be appropriate, as well as some form of assistive technology accommodation: *"Augmentative and Alternative Communication" (AAC) can be defined as any device, system, or method that improves the ability of a child with a communication impairment to communicate effectively.* It can include sophisticated devices and systems (sign language, communication boards, or speech-generating devices) as well as less sophisticated means (pictures or objects used as symbols, etc.) AAC is introduced when the student does not develop communication in the typical fashion, or experiences significant delays,

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[3] Research indicates that children begin to combine words after acquiring approximately 50 words in their repertoire. See for example Bates, Thal, Finlay, & Clancy, 2003.

and is used to AUGMENT (add to) whatever communication the student possesses, as part of a "multi-modal" system. Typical indicators for introducing some form of AAC might include (but are not limited to): a moderate to severe expressive speech/language disorder, an expressive/receptive language gap (the student understands more than s/he can say), limited speech or expressive language improvement with therapy, and/or the student's frustration at his/her inability to communicate messages effectively.

Learning to use AAC strategies can be deceptively difficult! Consider: a student presses a button and a clown pops up and music plays. The student presses another button (on a Speech Generating Device) and a voice utters "Hi, my name is Paul." What's the difference in these two scenarios? To the student, none! A toy is a toy is a toy. The student may have a basic sense of cause and effect (also known in the literature as "contingency awareness"), enough, say, to realize that when s/he hits the button something interesting or fun happens. Expanding that notion to have that student comprehend and "buy in" to the fact that the voice that is produced by the second button is now supposed to be HIS/HER own voice (and that the button is a tool for COMMUNICATING a message) is, or can be, a much more high-level abstraction. We, as teachers and caregivers, may understand this concept and take it for granted—our students, on the other hand, may not be able to grasp this immediately.

Consider for a moment how we learn to use tools in general. You pick up a hammer, and deliberately and consciously hit a nail. Try it again, and you realize that you can join two pieces of wood together. Do it enough times and it becomes second nature—an unconscious motor pattern that produces a certain result. Now consider driving a car: a much more sophisticated set of visual, motor, and cognitive patterns. When we first learn to drive, it takes a great deal of attention and cognitive "juice" to stay on top of having the car move intentionally and not crash. Do it enough times, however, and it also becomes second nature. We react unconsciously to various traffic patterns, putting just enough pressure on the gas pedal to get us up to the speed limit. In one sense, the car has become an extension of our bodies—and we "indwell" (in philosopher Michael Polanyi's terminology) the object/tool: sensing the environment through our gauges and the sound and response of the tires on rough or smooth pavement and modifying and adjusting our fine motor control and reacting appropriately to keep the car moving safely toward a destination.[4]

Introducing a specialized AAC "speech generating box" as a tool for communicating has similar implications. At first, the student is interested in simply making the interesting vocal sound effects by pressing the buttons. The box will likely remain a curiosity or a toy until WE as communication partners, by our responsiveness and interactions in a communicative context, can convince/teach the student that the box is actually a tool and has value as a means for affecting other people and their behavior. Using it many times and getting these kinds of results consistently can promote the student's ability to "indwell" the box and consider it an extension of his/her body—a "voice prosthesis" and tool for communicating. (Like becoming accustomed to having a prosthetic artificial limb, except this one speaks!)

That said, a student will naturally continue to use whatever modality is near at hand and easy and effective for the situation. Pointing to an apple when s/he is hungry. Crying when s/he is uncomfortable or sad. Waving when a good friend walks in the door. The sum total of a person's

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[4] There has been a lot published recently about neural plasticity and how the brain can incorporate tools into an expanded body image. See for example the recent Scientific American article, "You Are What You Touch: How Tool Use Changes the Brain's Representations of the Body" by Patrick Haggard and Matthew R. Longo (Sept. 7, 2010).

"multimodal communicative palette" may include speech (verbalizations), verbal approximations, vocalizations (and voice inflection), gestures (e.g., pointing), manual sign or sign approximations, facial expressions, eye gaze, body orientation or movement, and proxemics (approach/avoidance to a communication partner), etc. **Multimodal communication**[5] is our natural means of expression—all of us use different modes of expression constantly and are able to "read body language" when we are interacting with others. Much more additional information is conveyed in this manner than would be possible through single modes. In these contexts, using a complex, high-tech, speech-generating device might sometimes be cumbersome and ultimately less effective (it is unnatural to expect anyone to choose a more complicated method of communication over an easier and more efficient one). It is when students need to refer to something not present, not available, or not easily represented by less sophisticated means that more complex modes of AAC can become indispensable.

In terms of practicality, and fostering the most "robust" AAC system, it is important to promote flexibility and have alternative means available for when the primary mode of communication is unavailable for whatever reason: if the high tech device is broken or malfunctioning, for example. In addition, students might need to be able to use different communication modes in different social circumstances—what might seem appropriate with friends in an informal interaction would be totally out of place interacting with a teacher, or with new relatives at a wedding, for example. Similarly, a student who communicates with his/her paraprofessional with manual sign language would need to have the flexibility to communicate via a different mode in the community with individuals who do not understand sign.

AAC EVALUATION

An Assistive Technology Communication Evaluation can be conducted formally or informally, by school-based teams, private therapists, or clinics and ideally, includes input from ALL the relevant stakeholders ("It takes a village"): student, family, school, therapists, community members, etc. The evaluations that our Assistive Technology Team performs are multi-disciplinary (a speech-language pathologist, an occupational therapist, and a special education teacher) and are based on our four-part adaptation of the framework described in Nation & Aram (1991):

1. Information gathering,
2. Data collection and analysis,
3. Generating an action plan, and
4. Monitoring and following up (as needed).

Additional details of this process are described thoroughly in our book: **BVSD Assistive Technology Communication Evaluation**.

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[5] See the Loncke, et al. article, on Multimodality (see the Bibliography for the reference). Some of the above discussion is based on material available on the excellent YAACK website (see the Bibliography).

THE "AAC TOOLBOX" (A GENERAL DISCUSSION)[6]

When considering a student as a potential candidate for AAC, it is important to be aware of all of the possibilities that exist as far as appropriate technology is concerned—thoroughly understanding, and knowing how to use, all of the "tools in the AAC toolbox." There are several different AAC classification systems in use at the present time. The one that we have found most useful is adapted from the presentations and publications of Marilyn Buzolich, the founder and director of Augmentative Communication and Technology Services (ACTS) and co-founder of the Bridge School:

- **No Tech:** These are "**unaided**" systems an individual uses with no additional tools or technology such as motor behaviors, gestures, vocalizations, verbalizations (or verbal approximations), proxemics (approach, avoidance), eye gaze, and facial expressions.

- **Low Tech:** These are "**aided**" communication strategies (i.e., requires some type of external assistance for the symbols) which do not run from a power source--such as picture or object communication, PECS (Picture Exchange Communication System), partner assisted auditory scanning, etc.

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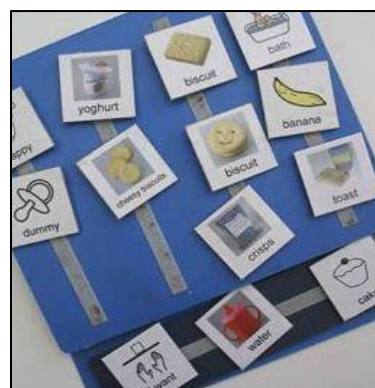
[6] Additional specifics about these categories will be covered in the next section (AAC Setup and Implementation) and in Appendix A (Specific Examples of Light Tech and High Tech AAC).

- **Light Tech:** voice output communication systems which are typically battery operated and have a **static** (non-changing) display such as the Big Mac, Rocker Plate Talker, Step by Step, Cheaptalk, Tech Talk, Go Talk, Supertalker, or 7-Level Communication Builder.

- **High Tech:** Systems typically requiring an electronic power source and having a **dynamic** (changing—i.e., computerized LCD screen) display such as a DynaVox Maestro, a Prentke Romich Accent, a Saltillo Nova-Chat or an iPad (with an appropriate AAC app).

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

AAC SETUP AND IMPLEMENTATION

Student Preferences

In order to communicate intentionally, two factors are absolutely crucial: 1. that the student has a clear awareness of the relationship between his/her behavior and the behavior of another person (social contingency awareness: "cause and effect" between people) and also, 2. that s/he has something specific to communicate about. The magic ingredient here is "communicative intent"—if the student has nothing to express, s/he will not communicate! For this reason, it is crucial to have some prior knowledge of the student's likes and dislikes, otherwise communication will be intermittent, non-intentional, or non-existent. Student preferences can be discussed during parent and staff interview sessions (information gathering) which are a crucial part of planning and preparing for the actual assessment time with the student. Alternatively, the student can be presented with a succession of possible types of sensory stimuli and careful note can be made of his/her reactions. The Every Move Counts Clicks & Chats sensory assessment can particularly effective in this regard (as can the Tangible Symbol Systems protocol). Eventually, it is ideal to generate a list of preferred, tolerated, and non-preferred items so that AAC implementation and teaching can proceed smoothly.

Communication Functions

Once we have an idea about what the student likes and dislikes, these items can be presented to the student and s/he can:

- Request reinstatement of a preferred activity/item
- Refuse a non-preferred activity/item
- Choose between two items (both preferred)
- Choose between two items (one preferred and one non-preferred) and more than two items
- Comment on the item and/or activity

When the preferred objects are present and available (or if the student is ambulatory and can retrieve the item on his/her own) there is no real need to use symbols or to go through the trouble to communicate with another person. It is when the item is NOT available for some reason—if it is being held by the communication partner or if it is out of the student's line of sight—that a request for reinstatement becomes important.

Prompting Patterns

Students may need to be prompted to engage in communication. If prompts are used, careful note should be made regarding whatever prompting patterns are employed (including the precise wording of a verbal prompt)—prompts can be integral factors in generating an intervention and AAC implementation protocol.

There is a distinction between "cues" and "prompts." Providing a cue is providing the antecedent stimulus just before a particular behavior takes place. e.g., the music stopping just before having the student hit the switch to play a radio. Frequently the student needs help in learning to respond to a cue. The prompt is a reminder that follows the cue to make sure the student responds to the cue. There are six common types of prompts:

- verbal (or signed) prompts (making sure to keep your words simple and consistent);
- pictorial or written prompts (photos, line drawings, words, etc.);
- gestural prompts (pointing);
- model prompts (demonstrating what the student is expected to do);
- partial physical prompts (a light touch or tap);
- full physical prompt (hand-over-hand)

A number of different prompting systems can be used and the one most often recommended for our students who use AAC is the "least-to-most" hierarchy. This is essentially providing the natural cue first, allowing for sufficient wait time, and then if there is no response, proceeding down the hierarchy sequentially (as needed) through verbal, gestural, modeling, partial and finally, full physical prompts.

Wait Time

Wait time or "latency of response" time is also a crucial thing to be aware of and to measure: it can vary tremendously from student to student, activity to activity, and session to session. It is ideal to allow unlimited or maximum latency time and note the average, minimum & maximum, and if it seems useful, to use a scatter plot graph to determine "optimal range" wait time—this is key to intervention & developing effective teaching strategies.

Attention Span

Attention span is another crucial thing to consider—how long the student can spend "on task" before his/her performance deteriorates, s/he gets tired, distracted, falls asleep, etc. This can obviously vary day to day and activity to activity, and should be measured over a series of sessions in order to develop a reliable sense of the student's "range of attentiveness."

Access Issues

The AAC tool needs to be positioned properly so that the student can access it consistently and intentionally. If it is out of reach, or not available, it is useless to anyone! **Direct selection** is a method of access in which the individual specifically indicates the desired item in the selection set without any intermediary steps. There are four types of direction selection methods used for AAC devices/strategies: a) pointing with physical contact and force; b) pointing without physical contact; c) pointing with contact and no force; and d) picking up and exchanging**.** For those individuals who are unable to motorically access an AAC system by means of "direct selection" (pointing, grasping, etc.), **indirect** selection or

switch access might be a possibility--i.e., pressing an electronic switch or multiple switches using specific part(s) of the body. As switch access progresses in complexity to include multiple choices, it sometimes introduces "scanning" which refers to a technique for making a selection (using a small number of switches) as a sequential display of a set of items is presented. (It can be a useful means of access when direct selection movements are limited, too fatiguing, or lack accuracy.)   It should be noted that scanning is commonly considered to be a much more difficult physical, cognitive, and sensory task for students than direct selection: it is slower and more laborious, involves substantial waiting, and requires the student to have the cognitive ability to comprehend or learn what a "sequence" of choices means.[7]

AAC IMPLEMENTATION: A SAMPLING OF POSSIBILITIES

SOME BASIC COMMENTS:

So we have determined the student's likes and dislikes, best means of access, wait time, etc. and now we are sitting down with the student with the AAC system, whatever it may be: pictures, a speech-generating device of some sort, whatever... How do we proceed? It may be tempting to simply ask him/her to "Point to red" or "Choose dog" but while that type of activity is great for learning vocabulary, symbol identification, and passively following directions—excellent educational goals in their own right—this is not really expressive communication.[8] This is passive responding to questions, not active initiation and it is not directly helping the student to communicate something s/he needs or wants to express. It's only when the student's **COMMUNICATIVE INTENT** is present that we are really using the system or device as an AAC tool—a tool to help expressive communication. We have to look at the student's likes and dislikes, motivators and distractors, and set up situations in which s/he WANTS to tell us something. This is bonafide communication.

There are quite a number of specific strategies or "established methods" for AAC implementation currently available—some of them can be quite effective (depending on circumstances), and most of them are based on solid research. A slight problem: **experts disagree** in interpretation and approach, sometimes quite dramatically! Some recommend starting off with pictures and/or low tech strategies, while others absolutely insist on introducing high tech speech generating devices as quickly as possible. So who to believe, and which approach to choose? The best answer that we have found is **"It all depends."** It all depends on your specific goals, it all depends on the student involved and his/her learning profile, it all depends on the setting and the communication partners. Are we looking at functional communication—communicating very basic wants and needs? Are we looking at generating complete grammatically-correct sentences or conversational turn-taking? Does the student need to give a class presentation where everything is pre-programmed into a device? **"It all depends"** means that we may want to look at one strategy or device in one set of circumstances and quite another strategy in another. Despite the absolute BEST of intentions on the part of device manufacturers and company representatives, theoreticians, authors, etc., etc., **ONE SIZE DOES NOT FIT ALL** and it behooves us, as

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[7] See the relevant discussion in Ratcliff, 1994. For more information on switch access, please refer to **Got Switch, What's Next?**, the **Switch Progression Road Map**, and **Every Move Counts, Clicks & Chats** (see Bibliography).
[8] Research has shown that symbol recognition/matching are different skills from using the symbols to communicate --if you want the student to COMMUNICATE, you have to set up "communication situations" and practice communicating. (see for example, Stephenson & Linfoot, 1996, and Beukelman & Mirenda, 2005, p. 196)

caregivers and teachers to customize the strategy to fit the student, NOT the other way around! Technology can be a godsend--but **APPROPRIATE** technology is what we really need and want for our students. Otherwise we may wind up with (as we have sometimes seen!) a device lying dusty on a shelf because of a mis-match with the student's true communicative needs, or a student hiding his/her device because s/he doesn't want to appear "different." Acceptance/adoption and abandonment are CRUCIAL to consider, ESPECIALLY when we are talking about devices that can cost many thousands of dollars.

As previously mentioned, specific AAC implementation strategies can include "no tech," "low tech," "light tech," and/or "high tech" approaches:

IMPLEMENTATION--NO TECH:

"No Tech" intervention strategies for working with, and teaching students with Complex Communication Needs generally fall under the purview of the attending Speech-Language Pathologist. Discerning and enhancing the student's communicative intent,[9] promoting joint attention and play skills, encouraging peer interactions, refining verbal and/or manual sign approximations—all of these are part and parcel of the SLP's daily work routine using unaided No Tech strategies. When these traditional methods are insufficient, additional "tools" (AAC) may become necessary or desirable. It is important to keep in mind that introducing these additional tools into the mix, whether they might be low or high tech aids, adds a level of complexity which necessitates some form of training—again, convincing the student that the tool is in fact not a plaything, but is a bonafide means of expression. Cynthia Cress' published work on "Communication Tools" is extremely useful in this regard: carefully considering how many "tools" or "hard things" the student must actively control to accomplish a communication goal. For example, spontaneous communication (reflexive) would simply entail using behavior (one hard thing/tool). Adding to this mix an object or person as communication partner (intentional behavior—cause/effect) would entail using two hard things or tools: the student's behavior plus the person/object. Symbolic communication can add up to five or more tools (behavior plus message plus person plus language plus object) and a device or picture would be in addition to that.[10]

Two possible unaided No Tech strategies that need to be mentioned: the use of Sign Language and the use of natural gestures (particularly Stephen Calculator's system of "Enhanced Natural Gestures"). Sign Language might be an ideal system for some of our students with Complex Communication Needs since their hands are always available for communication, some of the signs are "iconic" (they resemble the item or action they represent), and the "system" itself has unlimited potential (American Sign Language or ASL is a wonderfully rich and complex language). A disadvantage might be that not all communication partners in the student's environment will understand ASL. For those students who experience fine motor difficulties or have trouble learning sign language, learning and using some Enhanced Natural Gestures (ENGs) might be a possibility. ENGs are intentional motor behaviors that already exist in a student's repertoire or can be easily taught, and easily understood by the observer. The specific gestures might already be associated with a particular item or activity; for example, a student might lift a cup to his/her mouth to take a drink. Lifting his/her hands in the same way WITHOUT the cup present would constitute an Enhanced Natural Gesture.

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[9] See Rowland & Schweigert, 2004 and Reichle et al, 2002.
[10] See the excellent discussion in Cress, 2001.

IMPLEMENTATION--LOW TECH THROUGH HIGH TECH:

- **_Tangible Symbol Systems_** (Rowland & Schweigert, 2000) is a method of fostering communication for individuals with severe disabilities who are unable to understand the meaning of the abstract symbols used in formal language systems. The system uses concrete or "tangible" symbols-- objects or pictures that stand for (or represent) something about which a student needs to communicate. Tangible symbols may be whole objects, parts of objects, associated objects, textures or shapes, line drawings, or photographs. They are "permanent" (they exist in a permanent display and don't have to be recalled from memory), and may be manipulated by both the user and the communication partner. Most importantly, the relationship between a symbol and its referent is obvious to the individual user, since it is based on the user's own experience.

Tangible Symbol Systems quick points to consider:
- Consider this strategy when the student is a "Level 1" (Emerging) or possibly a "Level 2" (Beginning Symbolic) communicator according to our BVSD schema (see P. 5)
- Introducing symbols works best when the student already exhibits communicative intent. If s/he does not, that would likely be a crucial skill to target first. See the book "First Things First" listed in the Bibliography.
- Not all students can relate to pictures and/or photographs as symbols—you may want to try objects.
- Don't just rely on Boardmaker pictures because they are easy or convenient—the point is to find the symbol that is relevant to the STUDENT.
- Data sheets provided in the Tangible Symbol Systems manual are especially useful for determining student preferences and assessing symbol discrimination.
- Refer to the wealth of **free** information on the Design to Learn website: www.designtolearn.com especially the Educational Resources Page and the excellent Communication Matrix Assessment.

- **_Every Move Counts Clicks & Chats (EMC³)_**—The EMC³ system is a comprehensive sensory-based approach for assessment and intervention to use with individuals with Complex Communication Needs (functioning below the 18-month level) and severe multiple disabilities. The EMC³ protocol includes specific assessment strategies to identify what sensory experiences (e.g. auditory, visual, olfactory, tactile, gustatory, or vestibular) are having an effect on the child, and how to expand this and promote communication. The system synthesizes research in the areas of communication disorders, learning theory, sensory integration, and vision, and the emphasis is on assessment, copious data collection, promoting communication, and using switches (if this is appropriate). The manual includes all types of record keeping forms, activities, and carry over materials so that the student can engage at the appropriate level of difficulty (not too hard, not too easy).

EVERY MOVE COUNTS CLICKS & CHATS quick points to consider:
- Consider this strategy when the student is a "Level 1" (Emerging) or possibly a "Level 2" (Beginning Symbolic) communicator according to our BVSD schema (see P. 5)
- The assessment sections are EXCELLENT (especially the sensory assessment), if this information is unknown.
- This is a unified, comprehensive system for students, covering basic communicative intent, switch access, and the functional use of AAC.
- This system does NOT use prompting as a strategy (in order to avoid "prompt dependence").

- **_Picture communication_** strategies typically begin with teaching the student to associate a picture (photo, or line drawing) with a specific preferred activity or object. The student indicates in some way (by pointing, grasping and giving, using gesture or eye gaze, etc.) the desire for the object or activity, which is then provided. Once this general pattern has been learned, the student then learns to distinguish between the different pictures, usually by being presented with a preferred activity along with a "foil" or non-preferred activity. If the student chooses the preferred activity, s/he receives the reward. If the student chooses the foil, s/he is offered the non-preferred activity, and is thus given a powerful incentive to learn to distinguish between the pictures correctly. Having the facilitator randomly switch picture positions (right to left, left to right) helps to avoid position bias (e.g., always choosing the picture on the left side). Presented pictures choices can increase from a field of one or two on up to an entire "communication board" or "communication book" with dozens of possible choices, arranged (usually) in terms of category. Two examples of formalized picture communication systems are the popular "PECS" (Picture Exchange Communication) system of Frost and Bondy and Gayle Porter's "PODD" (Pragmatic Organization Dynamic Display).

Picture Communication quick points to consider:
- While this is sometimes considered synonymous with PECS, there are actually many different ways of using pictures for communication purposes—PECS is simply one of those ways and is a strict, systematic, and behavioristic approach to communication (see below)
- Consider experimenting with different types of images: photographs (color and black and white), line drawings, hand drawings, Boardmaker PCS symbols, product labels or restaurant logos, etc. The key is to choose the type of representation that is most relevant to the student.
- Consider various ways of displaying the pictures: on a communication board (cardboard or hardboard with pictures attached with Velcro), communication books, etc. Also consider different ways of arranging the pictures: via categories (lunch, recess, snack time, circle time), via parts of speech (subject-verb-object), or via "carrier phrases" ("I want..." "I like...")
- Pictures can be paired with words to foster word recognition.

- **_The Picture Exchange Communication System (PECS)_**--PECS is a behaviorally-based picture communication system designed for children with social-communicative deficits. Using PECS, expressive communication skills are targeted through the training of requests and, later, comments. PECS begins with teaching the student to exchange a picture of a desired item with a facilitator, who immediately honors the request. If the student wants food, s/he gives a picture of food to the facilitator who gives them the food. In order to encourage a student's spontaneous communicative intent and avoid prompt dependency, verbal prompts are not used during the first stages of the training process.   The PECS system progresses through six phases, step-by-step, through the initial stage of requesting (one picture, one object or activity) through choice-making (multiple pictures, multiple objects or activities), and eventually to stringing together several pictures into a rudimentary syntax ("I want cookie please") and making responsive and spontaneous comments. The PECS system is intricate and formal (facilitators attend multiple-day workshops and are guided by a 400 page manual) and it is ideally suited to foster communication in individuals with autism, and others who have challenges with communicative intent.

- PECS was originally designed for students on the Autism spectrum to help with initiating communication, but may be applicable for others as well (especially if communicative intent is an issue).
- The initial stage of PECS is crucial and is ideally performed with TWO trainers, one to interact with the student face-to-face, and one to stand behind and guide the student's hand to the picture
- Be flexible: if the "typical" Boardmaker pictures do not work, try photographs and/or objects.
- Use the error correction procedures described in the PECS manual closely for best results.
- Consider transitioning to voice output devices when the student has mastered Phase IV of the PECS protocol and has a large vocabulary and a sense of sentence structure (see Frost & McGowan in the Bibliography).

- ***Aided Language Stimulation***--Aided Language Stimulation is a useful strategy for successful augmentative communication use that involves having the communication partner point out symbols on the communication display as s/he interacts and communicates verbally with the student. This **modeling** of the communication system assists the student to establish a visual and auditory understanding of how symbols can be combined and recombined generatively to communicate during routine activities. Aided Language Stimulation is useful for non-verbal students as well as for students who are language delayed. In a typical situation, the printed word accompanies each symbol on the display, and so Aided Language Stimulation also may assist some children in the development of reading skills.   When providing aided language stimulation for children, Carol Goossens recommends the following verbal language stimulation guidelines:
  - use primarily single words (symbols) and short grammatically correct phrases (symbol phrases) to talk about what the child is hearing, seeing, doing and feeling
  - use lots of repetition as you describe ongoing events
  - speak slowly, inserting numerous pauses into the conversational flow
  - whenever the child indicates something with a single word (symbol), expand that message into a semantically equivalent two-word (symbol) combination.

AIDED LANGUAGE STIMULATION quick points to consider:
- Consider this strategy for students at ANY level of communicative ability.
- Consider this strategy for students who use ANY type of AAC: pictures, objects, speech generating device, etc.
- Since it involves MODELING, it is an excellent way of enhancing students' receptive communication as well as teaching them to express themselves via certain specific patterns.

- ***LAMP (Language Acquisition through Motor Planning)***— Language Acquisition through Motor Planning (LAMP) is a therapeutic approach based on neurological and motor learning principles, using word-based (generative language) speech-generating devices, particularly ones that feature the Unity or Minspeak system of vocabulary organization (made by the Prentke Romich company). The goal is to give individuals who are nonverbal or have limited verbal abilities a method of independently and spontaneously expressing themselves in any setting. LAMP focuses on giving the individual independent access to vocabulary on voice output AAC devices that use consistent motor plans for accessing vocabulary. "**Every word has a unique motor plan**." (Each consistent pattern of one, two or

three hits on the AAC device must always result in production of a unique word.) These motor patterns are meant to reflect the consistent and unique motor patterns that result in the production of speech. Teaching of the vocabulary happens across environments, with multisensory input to enhance meaning, with the child's interests and desires determining the vocabulary to be taught. LAMP researchers have found that when these strategies were used with nonverbal children with Autism, they were found to increase the ability of the children to communicate spontaneously in any environment using unique combinations of words to express themselves. It was often noted that as communication skills improved, social engagement increased, problematic behaviors declined, and some individuals exhibited increased verbal speech.

LAMP quick points to consider:
- This strategy was originally designed for students on the Autism Spectrum who use speech generating devices to communicate, but it may have other applications as well
- It is ideally suited to the Unity/Minspeak system featured in Prentke Romich devices; however, the general principles can apply to ANY word-based, generative language system of AAC (e.g., Word Power, Gateway, the Sonoflex iPad app, etc.)
- Since LAMP is based on motor memory, symbol (picture, word) recognition is not as prominent as in many other systems.
- Since repetition and motor memory are emphasized with LAMP rather than symbol recognition, students who exhibit position bias (i.e., a preference for choosing items on a certain side) or who have a proclivity for repetitive fine motor movement may possibly need additional prompting to meaningfully use this system.

- ***PODD (Pragmatic Organization Dynamic Display)***—The PODD system was designed by Gayle Porter, an Australian Speech Pathologist, and it refers to a series of student communication books that are organized by the different pragmatic functions of language. The books feature quick chat pages, pragmatic branch starters, and pages designed to allow the student to discuss or comment on the topic initiated (PODD messages flow from one page to the next by way of page numbers that guide the student through a conversation.) There are PODD communication books designed for several different language levels and they all provide extensive vocabulary: for continuous communication all the time, for a range of messages across a range of topics, and in multiple environments. Communication partners and teachers are also encouraged to use and model the PODD books for communication (using Aided Language Stimulation techniques—see above) and gradually the student becomes familiar with the system and more independent.

PODD quick points to consider:
- The PODD "system" is for sale by Mayer Johnson in the US, and it uses Boardmaker picture symbols.
- The PODD books are fairly extensive, but because of the system organization, conversational "branches" are fairly easy to follow.
- The system encourages users to "always begin on the front page with a pragmatic branch starter" and allows the conversational partner to navigate the levels for the student as s/he is learning.

- ***General strategies for AAC implementation--*** There are a number of general strategies that may prove useful for introducing AAC into a student's routine so that s/he can participate more effectively in the classroom. Perhaps the most important general principle is to, as much as possible, set up "communicative temptations" into the student's routine. This can be difficult at first, since our natural tendency as educators and caregivers is to help him/her out as much as possible and save him/her any trouble. The key idea is to sabotage an expectation and make him/her work (i.e., learn how to communicate a need) for his/her reward. It's possible to encourage the student's "need" for requesting, using a communicative temptation by:

  o Time delay—preferred items or activities are present but access is delayed until s/he makes a request.
  o Missing item—An item needed for a preferred activity is missing.
  o Blocked response (interrupted behavior chain)—Momentarily blocking a response or interrupting an ongoing activity.
  o Verbal prompt-free strategy—A symbol is placed near the student (with no accompanying prompt or explanation) and if s/he touches it intentionally or not, the item is provided.
  o Incomplete presentation—His/her initial request is followed by a partial presentation of the requested item (only part of a puzzle, for example)
  o Delayed assistance—Needed assistance is delayed until s/he makes a request.
  o Wrong item format—S/he is given the wrong referent (activity or item) and needs to repair the mistake.[11]

In addition, if a voice output device is being introduced, the device can be fitted with symbol/object prompts by simply taping or velcroing the symbol to the appropriate place on the top of the device. Care needs to be taken that the student's use of a voice output device is driven by communicative intent and it is not simply the desire to derive auditory or tactile stimulation from hitting the button repeatedly. This can be assured by carefully structuring the communicative environment such that s/he gets the appropriate social encouragement and reinforcement as quickly and effectively as possible.

When the goal for the student involves multiple utterances, sequencing utterances, and/or taking turns, scripted routines can be pre-planned, practiced, and implemented into appropriate social interactions. Taking part in a play at school might be a possibility here, as would pre-planning an interaction with a store owner or restaurant worker in the community (asking about the price of an item, ordering food, etc.). Many additional possibilities can be found in Beukelman & Mirenda (in Chapters 10 & 11) and in our handout in Appendix D: Assistive Technology & Communication: Encouraging Your Students In The Classroom.

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[11] Beukelman & Mirenda, p. 304.

VOCABULARY/SYMBOL DISPLAY & ARRANGEMENT: A BRIEF DISCUSSION

The purpose of a communication display is to arrange language in space so individuals can, by selecting from the available options, say what they wish to say as quickly as possible, and can do so with a minimal amount of effort. (Blackstone, 1993)

Static (or fixed) displays are those on which the symbols do not change automatically when the user activates a particular button or touches a particular symbol, object, picture, or icon. One page must be removed and replaced by another one in order to access additional vocabulary. Typical examples include paper communication boards and books, object boards, and light tech speech generating devices that feature the "one button, one message" approach to organizing symbols. **Dynamic displays** are those on which the language symbols are electronically generated on an LCD screen and change automatically as a normal part of operating the device. The student touches a single symbol and can access multiple overlays automatically.

Other important considerations for displaying symbols for the student include:

- the optimal size and shape of the array (one by two? two by four? seven by twelve?),
- the size, shape, and color of the symbols (4" X 4"? 2" X 2"? Smaller?),
- the TYPE and "iconicity" or abstractness of the symbol (photograph, line drawing with background, line drawing without background, abstract shape, etc.)
- and, of course, the choice and precise arrangement of the vocabulary.

Again, it is important to decide what the specific goals are for the interaction and maintain as much flexibility as possible: should the messages be individual words or phrases? Will we need to prompt the student to access the correct "page" of vocabulary for the desired activity? Do we need to emphasize nouns, verbs, or both for the message to be comprehensible to the unfamiliar communication partner? What are the goals—functional communication? Language generation? Information presentation? All of the above?

Picture communication books can be arranged in terms of topic or "category" (home, recess, lunch, snack time) and some speech-generating devices (both digitized and synthesized) use a **"leveling"** approach to language storage and retrieval. Traditional "leveling" systems such as the DynaVox Interaact "child user" or "teen user" incorporate a phrase-based approach to communication: you press one button and a phrase or sentence like "I need to go to the bathroom" will be spoken. Light tech devices with a static display that use a leveling strategy (such as the 7-Level Communication Builder or the Supertalker) require multiple overlays.

Picture communication books can also be arranged so that the student can construct sentences word by word (I--want--cookie) or by using "carrier phrases" (I want—cookie). In certain speech generating devices this can also be the case. Strategies that are word-based such as the DynaVox "Gateway" build up a message word-by-word according to the rules of grammar—the approach is slow, but allows for the possibility of generating novel or unique utterances ("**generative language**"). Hybrid systems are also available (e.g., incorporating "Gateway" with the traditional DynaVox "users") for a combination approach.

Devices that use the Unity or Minspeak system of symbol or icon organization (these are designed by Prentke Romich or "PRC") are word-based, and are loosely organized according to

"parts-of-speech" (e.g., pronouns on the left, verbs on the right, activities on the upper activity row). They use "multiple-meaning icons" as choices: the picture of William Shakespeare can be used to build up a statement about reading (since he was an author) or the future tense "will" (as in "Will" Shakespeare). Similarly, the picture of the apple can be used to build up a statement about eating or growing. Bruce Baker has been the driving force behind **Unity** or **Minspeak** (also called "**semantic compaction**") for many years. PRC devices (ECO, Vantage Lite, Springboard Lite, and the newer Accent series) have Unity/Minspeak as their starting point, but now also incorporate some leveling and phrase-based strategies to a certain extent.

A newer approach to AAC is called "**visual scenes**" and has been shown in some recent studies to be an extremely effective way to organize vocabulary and promote communication.[12] Visual scenes are images (they can be either digital photographs or illustrations) which show activities, people, and objects in relation to one another and the natural environment. For example, a visual scene may be a photo of the student's classroom with books on his/her desk. S/he may point to or touch the book image to refer to a homework assignment or (on a device) to open up a dialog box to engage in a conversation relating to the assignment. In general, visual scenes provide much more information than symbols representing single concepts, so that the student and his/her communication partner can understand CONTEXT and MEANING more accurately and completely.

Bottom line, there are various approaches to choosing, displaying, and organizing AAC system symbols and vocabulary, but there is no one "right way" for all situations. Again: "it all depends!"

FOLLOWING UP

The overall goal and gauge for successful use of AAC should be "**communicative competence**"—a term used by Janice Light[13] to refer to the student having skills in four domains: **operational**, **linguistic**, **social**, and **strategic**. **Operationally**, students need to learn to apply the necessary motor, cognitive, and sensory (i.e., visual/auditory) skills needed for actually operating their AAC systems (setting them up or turning them on, making choices, etc.). **Linguistically**, students are learning the structure and patterns of their system's linguistic code (vocabulary and grammar): pictures, words, manual sign, etc. and **socially**, they are using these linguistic codes during actual interactions with others: choice making, requesting, rejecting, and initiating, maintaining, repairing, and terminating conversations. **Strategic** skills are the abilities and the compensatory strategies needed to communicate despite having significant operational, linguistic, and social impairments: being able to get the message across no matter what the situation may be.

AAC ADOPTION AND ABANDONMENT: A BRIEF DISCUSSION

Caregivers and teachers need to be able to foster the student's communicative competence with AAC in any way they can, in every situation that the student encounters. It is an unfortunate fact,

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[12] See the discussions in Drager et al, 2003, Drager, et al, 2004, and Light et al, 2004.
[13] See Light, 1989 and Light, Beukelman & Reichle, 2003).

though, that despite the best of intentions on the part of all concerned parties, AAC is abandoned at an alarmingly high rate. What accounts for this? According to teachers and staff, lack of training, time constraints, technical problems, and lack of support are some of the primary reasons. Time is extremely precious in the classroom and not many can devote the necessary time and prep work for customizing a system for each student in the class, and troubleshooting a system that goes down for whatever reason.

For students, the pressure to fit in with peers and not be singled out as "different" or "disabled" can be a truly significant deterrent. We knew one student who had his own custom-programmed state-of-the art AAC device who never brought it to school, and in fact hid it under his bed to try and prevent his mother from sending it in with him each day! This is perhaps a dramatic example, but we see it to varying degrees with many other students as well. Another deterrent for students might be if the system is a poor fit for his/her needs. If the messages that are available are not something that the student wants to communicate, or if communication partners do not understand his/her message correctly, s/he will become frustrated and abandon the AAC. In addition, if the system is too difficult for the student to understand (e.g., if the student is at a pre-symbolic cause/effect level and the system calls for generating complete sentences), or if s/he can't operate the system quickly enough to produce a usable message, s/he will also become frustrated and not use the system.

	User	Caregivers	A.T. specialists	Developers
Characteristics of successful adoption	Desires change in what they can do. Self-disciplined and has a high frustration tolerance Proud to use the device Willing to the tools use into their daily routine	Able to put forth effort required to learn to use and personalize the tool Support the user in using the new tool Welcome changes use of the tool brings to the social dynamic Understand that customization is not a one-shot deal and may need to continue throughout the technology's life.	Extensive knowledge of assistive technology Willingness to learn about new tools coming out on the market Facilitate a process which is collaborative rather than directive Offer training and support both in programming and integration Sensitivity to family values and cultural differences	Comprehensive understanding of functional limitations Develop customizable tools Develop tools which are simple to set-up Develop tools which are durable Allow for customer's aesthetic preferences Support users with technical support and short repair times

Participant characteristics of successful AT adoption. (from Kintsch & Depaula, 2002)

The above chart outlines some important stakeholder characteristics that might lead to the successful adoption of an AT (or AAC) system or strategy. From the chart, we can appreciate that all AAC stakeholders need to be "in the loop": the AAC user, his/her family, the school team, the assistive

technology specialists, private therapists, the developers, etc. "Buy in" and commitment from all parties is essential! Without it, we are much more likely to be unsuccessful with our efforts: a strategy or system may be absolutely effective in one setting, but totally inappropriate for another. That said, there is nothing wrong with using different strategies in different settings—again: "think multi-modal!" But, it would be ideal if the student's primary means of communication, his/her "primary voice," would be versatile and robust, easily transferable between settings. This is much more likely IF the assessment and AAC determination process has been performed effectively, and IF all stakeholders have been actively involved in the process.

Caregivers, educators, and peers can go far in helping promote AAC usage! Strategizing and planning ahead—"**engineering the environment**"--can be an extremely effective means of AAC systems implementation.[14] First, the daily routine is analyzed in order to identify possible opportunities for communicative interaction and then the AAC system is customized appropriately: overlays are created, messages are recorded, and devices are pre-programmed and customized. Finally, the student is taught to use the system effectively in context. Complete and accurate data keeping is absolutely crucial in this stage in order to maximize the possibility of acceptance and adoption. Data should include issues such as when and how the system is used (and for what purposes), how effectively it is used, student, peer, and teacher reaction and comments, the clarity of the intended message and any instances of communicative repair, etc. Many types of data sheets are possible (depending on the specific goals and activities), and several examples are included in the Appendix to this workbook (Appendix B).

SPECIAL CONSIDERATIONS AND BRIEF DISCUSSIONS

- ### *A BRIEF DISCUSSION ABOUT USING "YES/NO" AS VOCABULARY OPTIONS*

When introducing two-option choice making into an AAC system it is often quite tempting to use "yes" and "no" as the choices. It's simple, clear, elegant, multi-purpose, and seemingly easy to comprehend (at least from our perspective). And so it turns out to be, in SOME, perhaps most, situations—again, **"it all depends."** However, it should be noted that requiring a yes/no response may be problematic for some children as this concept tends to be a later-developing cognitive and communicative skill. "Yes" and "no" can have a wide variety of meanings and results, and the interpretation of those words is dependent upon the question being asked. "Do you want milk, yes or no?" "Are you happy, yes or no?" "Do you agree with the recent Supreme Court decision, yes or no?" According to Cynthia Cress, "…even after children begin to use yes and no appropriately, they tend to vary in their success at answering questions that require a yes/no response across linguistic contexts, and frequently make errors in saying either yes or no when it does not match their communicative intent." If warranted, consider using other more "direct" words as choices.

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[14] This phrase is taken from the work of Goossens, Crain, & Elder.

- ***A BRIEF DISCUSSION ABOUT USING iPADS AS AAC DEVICES***

For the brief period of time that mobile devices such as iPads, iTouches, and iPhones ("iDevices") have been available they have proven to be amazingly popular items, and have quickly become useful and effective tools for education, entertainment, AND communication. Communicating with others via the iPhone and the Internet are obvious functions, and, for students with Complex Communication Needs, there are now a large number of powerful AAC apps available that transform the iDevice into a Speech-Generating AAC device. Advantages of using iDevices as AAC tools are obvious:

- Low price (less than $1000)
- iDevices are multi-purpose tools: there are many apps: 500,000+ total, 200+ for AAC
- iDevices can access the internet
- iDevices have a "coolness" factor for students, and give instant peer acceptance
- iDevices have a digital camera
- iDevices are extremely portable and elegant

As with any other AAC strategy we have considered, one size does NOT fit all, and despite their instant and undeniable appeal, iPads will not be an appropriate choice for all students in all situations. "It all depends." Some disadvantages to consider...

Physical access can be a significant problem for some students—is s/he able to isolate finger motions? Is s/he able to swipe or pinch? Can s/he see what is on the screen? The situation is improving considerably with newly marketed switch interfaces and apps designed for scanning, but at this point, it is still a significant consideration. Another question would be whether the student understands what a picture represents or whether s/he can comprehend synthesized speech (a computer voice). In addition, iPad apps are nowhere near as complex and "robust" as fully-functional AAC software, so that a student might be poorly served by a relatively simple iPad app when s/he might really need the power and capability of a DynaVox or PRC or Saltillo (or other) device.

A final disadvantage might actually be one of the already-listed advantages: multi-functionality and versatility. Traditional speech-generating devices have always had the communication software as their main function and purpose. You get a Vantage Lite or a MiniMo, and you are not going to make phone calls with it or surf the web. Even with the tablet-based devices such as the Prentke Romich ECO2 or the DynaVox V, it was difficult or at least awkward to close down the communication software and use them as anything other than what they were sold as: speech-generating AAC devices. Not so with the iPad! It is just as easy (and perhaps easier and even more desirable?) to boot up a fun game such as Angry Birds as it is to open up Proloquo2Go or Touch Chat or one of the other AAC apps. The difficulty now becomes one of distractibility – is the iPad an AAC device (a "voice prosthesis" to help the student communicate), an educational tool, a toy, or all of the above? Why should the student want to boot up an AAC app when Angry Birds is more fun? Should we close off ALL other apps except the AAC app of choice so that we have a "dedicated" speech-generating device? (This type of lock-out is possible with the "Guided Access" feature in iOS 6: Settings > General > Accessibility > Guided Access) Or will this type of approach be counter-productive, spoil the multifunctional appeal of the iPad, and ignore its "insanely great" power and versatility? An informal email poll we did of about a dozen or so international AAC

experts produced answers across the spectrum: a few suggested that the iPad, if used as an AAC device, should be a DEDICATED device—close off all other apps as distractions (or else have TWO iPads with different color cases—one for educational/entertainment purposes, and one for JUST communication). Several experts responded that there should be NO restrictions—a tool is a tool is a tool and why deny the power and range of the iPad's full capability? Finally, several of the responses held to a middle ground of sorts, echoing the sentiments that we have expressed throughout this manual: **"it all depends."** It all depends on the student (whether s/he is distractible), the context, the communication partners, and the overall goals—the who, what, when where, how, and WHY of the situation. Ultimately, iPads and apps are TOOLS ("cool gizmos," but tools, nevertheless). Some possible basic questions to ask might be:

- o What is it that you want the student using the iDevice to do, learn, examine, discuss, and think about? (What do you want the iDevice and app to do?)
- o Create a list of what you want to do **first** so that you don't get distracted by the extra bells and whistles.
- o How will the technology help to accomplish the student's communication goals?
- o Do the features meet the needs of the student?
- o Do the iDevice features work in this environment?
- o Does the iDevice address the tasks which the student is expected to perform?
- o Does this tool align with curriculum, teaching method, IEP goals, etc.?

• *A BRIEF DISCUSSION OF USING FACILITATED COMMUNICATION AS AAC*

Facilitated communication (FC) is a technique in which a "facilitator" (a therapist, teacher, or caregiver) gives a student consistent direct or indirect physical (and other) supports in an attempt to promote communication: pointing to pictures or objects, pointing to printed letters or words, or typing on a computer keyboard. According to personal anecdotal accounts and descriptions, this type of technique may reveal previously undetected literacy and communication skills in students with autism and other severe disabilities.[15]

Although publicized FC success stories are both dramatic and impressive, it should be noted that this strategy is considered "controversial" by both the American Psychological Association (APA) and the American Speech-Language-Hearing Association (ASHA) in their 1994 and 1995 Position Statements, respectively.[16] In their view, in many cases it can be unclear who is really doing the communicating and how much help the communicator is really obtaining from the facilitator. Numerous studies that have been conducted have failed to show that this technique is in fact a consistent and dependable means for expressive communication (i.e., it is not repeatable across settings and facilitators). Because of this, we cannot ethically or professionally recommend it as a general AAC strategy, especially since we run the risk (especially with an inexperienced or insensitive facilitator who might have a "heavy-handed" approach) that we might actually disempower or discourage our student's communication attempts rather than facilitating them.

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[15] Information can be found on the Syracuse University Institute on Communication and Inclusion website: http://soe.syr.edu/centers_institutes/institute_communication_inclusion/default.aspx
[16] See http://www.apa.org/divisions/div33/fcpolicy.html and http://www.asha.org/policy/PS1995-00089.htm

- ### *A BRIEF DISCUSSION OF "AAC IN THE IEP" (GENERAL SUGGESTIONS)*

In Section 7 (**Consideration of Special Factors**), letter G. "Does the student need Assistive Technology devices or services?" The "Yes" box can be checked, and a description of the specific assistive technology can be given after the prompt "If yes, please specify." When describing assistive technology, avoid brand names. Naming a particular device or software program only locks a student in to using that specific product, which may become obsolete or may not be appropriate in a given situation. Flexibility in the IEP allows the student's team to find and use the most appropriate tool for each task. Rather, describe the necessary assistive technology and the function it performs. For example:

- Rather than "DynaVox" write "dynamic screen speech-generating communication device."
- Rather than "Big Mack," write "Message recording communication device."
- Rather than "AbleNet Control Unit," or "Big Red Switch," write "Switch access for environmental controls, communication, and computer access."

In Section 10 (**Accommodations and Modifications**), the AAC strategy or system can be included under "Accommodations-- What type(s) of accommodation(s) if any is (are) necessary for the student to access the general curriculum and/or appropriate activities to make effective progress?" Answers can vary depending on the technology in question—several examples are:

- Access to a picture communication book.
- Access to a text-to-speech AAC device for communication.
- Access to a speech-generating communication device.

In Section 9 **Annual Goals and/or Objectives**, the assistive technology can be included as a part of the goal or objective—NOT as the main focus of the goal, but as a TOOL to accomplish that goal. Focus on the desired outcome or skill, the "essential learning" and/or the communicative function --what does the student need to do?   "The student will [read, write, speak, etc.]…" Describe in detail the criteria/evaluation and necessary accommodation. Use of equipment/devices as accommodations or levels of assistance can be included in goals and objectives in much the same way as assistance by an adult would be described. Here are some specific examples:

SIMPLE MESSAGES:

Goal: By his/her next annual review date [the student] will independently greet peers and staff using a single-message recording device (e.g. "Big Mack", "One Step," "Step-by-Step", etc.) in at least 4 of 5 opportunities.

Baseline: Student greets peers and staff in 1 out of 4 opportunities.

COMPLEX COMMUNICATION DEVICES:

Goal: By his/her next annual review date, [the student] will demonstrate appropriate conversational turn taking techniques using a multiple-message communication device (e.g. "Supertalker," "DynaVox V," "iPad with Proloquo2Go app) for 3 or more conversational turns with peers and/or staff in at least 3 out of 4 opportunities.

Baseline: Student takes 1-2 conversational turns in 2 out of 4 opportunities.

CHOICE MAKING:

Goal: By his/her next annual review date, [the student] will initiate interactions and make appropriate requests using stylized line drawings depicting desired objects and/or actions from a field of two given choices in at least 4 of 5 opportunities with verbal prompting.

Baseline: Student makes requests using stylized line drawings from a field of two in 1 out of 4 opportunities with verbal and gestural prompting.

BIBLIOGRAPHY

Alberto, P.A., & Troutman, A.C. (2006). Applied Behavior Analysis for Teachers (Seventh Edition). Upper Saddle River, NJ: Pearson, Merrill, Prentice Hall.

Bates, E., Thal, D., Finlay, B., & Clancy, B. (2003). Early language development and its neural correlates. In F. Boller & J. Grafman (Series Eds.), I. Rapin & S. Segalowitz (Vol. Eds.), Handbook of Neuropsychology (Second Edition). Elsevier: Child Neuropsychology 8: 525-592.

Bean, Ian. (2011). Learning Journeys Switch Progression Road Map. Inclusive Technologies. Retrieved from: http://www.inclusive.co.uk/articles/switch-progression-road-map

Beukelman, D.R., & Mirenda, P. (2005). Augmentative and Alternative Communication: Supporting Children and Adults with Complex Communication Needs (Third Edition). Baltimore, MD: Paul H. Brookes.

Blackstone, S. (1993) For Consumers. Augmentative Communication News, 6, 1-6.

Bogart, R., & Visvader, P. (2009). "GOT SWITCH, WHAT'S NEXT?" Establishing Switch Access, Assessing Cognition and Communication, and Implementing a Training Curriculum for Individuals Who Use Switches. Retrieved from: www.swaaac.com/Files/FormsandDocuments/SWITCHBOOK.pdf

Brady, N.C., & Bashinski, S.M. (2008). Increasing Communication in Children With Concurrent Vision and Hearing Loss. Research and Practice for Persons with Severe Disabilities, 33, 59-70.

Brandstatter, E., Leonesio, J., & Visvader, P. (2011). School-based Assistive Technology Communication Evaluation. Retrieved from: www.swaaac.com/Files/FormsandDocuments/School-Based%20Assistive_Technology_Communication_Assessment.pdf

Calculator, S.N. (2002). Use of Enhanced Natural Gestures to Foster Interactions Between Children With Angelman Syndrome and Their Parents. American Journal of Speech-Language Pathology, 11, 340-355.

Camaioni, L. (1992). Mind knowledge in infancy: The emergence of intentional communication. Early Development & Parenting, 1, 15–22.

Camaioni, L. (1993). The development of intentional communication: A re-analysis. In J. Nadel & L. Camaioni (Eds.), New perspectives in early communicative development (pp. 82–96). London: Routledge.

Carter, M., & Iacono, T. (2002). Professional judgments of the intentionality of communicative acts. Augmentative and Alternative Communication, 18, 177-191.

Cress, C.J. (2001) A Communication "Tools" Model for AAC Intervention with Early Communicators. Perspectives on Language Learning and Education, 8, 23-25.

Cress, C.J., & Marvin, C.A. (2003). Common questions about AAC services in early intervention. Augmentative and Alternative Communication, 19, 254-272.

Downing, J.E.   (1999). Teaching Communication Skills to Students with Severe Disabilities. Baltimore: Paul H. Brookes.

Drager, K.D.R., Light, J.C., Speltz, J.C., Fallon, K.A., & Jeffries, L.Z.   (2003). The performance of typically developing 21/2-year-olds on dynamic display AAC technologies with different system layouts and language organizations. Journal of Speech, Language, and Hearing Research, 46, 298-312.

Drager, K.D.R., Light, J.C., Carlson, R., D'Silva, K., Larsson, B., Pitkin, L., & Stopper, G.   (2004). Learning of dynamic display AAC technologies by typically developing 3-year-olds: effect of different layouts and menu approaches. Journal of Speech, Language, and Hearing Research, 47, 1133-1148.

Flippin, M., Reszka, S., & Watson, L.R. (2010). Effectiveness of the Picture Exchange Communication System (PECS) on Communication and Speech for Children With Autism Spectrum Disorders: A Meta-Analysis. American Journal of Speech-Language Pathology, 19, 178-195.

Frost, L. & McGowan, J. (2011). Strategies for Transitioning From PECS to SGD; Part I: Overview and Device Selection. Perspectives on Augmentative and Alternative Communication, 20, 114-118.

Frost, L. & McGowan, J. (2012). Strategies for Transitioning From PECS to SGD. Part 2: Maintaining Communication Competency. Perspectives on Augmentative and Alternative Communication, 21, 3-10.

Gleason, J.B. (1993). The Development of Language (Third Edition). New York: Macmillan.

Halloran, J., & Halloran, C. (2006). LAMP: Language Acquisition through Motor Planning. Wooster, OH: The Center for AAC and Autism.

Hoge, D.R., & Newsome, C.A. (2002). The Source for Augmentative Alternative Communication. East Moline, IL: Linguisystems.

Iacono, T., Carter, M., & Hook, J. (1998). Identification of intentional communication in students with severe and multiple disabilities. Augmentative and Alternative Communication, 4, 102-114.

Johnson, J.M., Inglebreta, E., Jones, C., & Ray, J. (2006). Perspectives of Speech Language Pathologists regarding success versus abandonment of AAC. Augmentative and Alternative Communication, 22, 85-99.

Johnston, S.S., Reichle, J., Feeley, K.M., & Jones, E.A. (2012). AAC Strategies for Individuals with Moderate to Severe Disabilities. Baltimore, MD: Paul H. Brookes.

Kangas, K. & Lloyd, L. (1988). Early Cognitive Skills as Prerequisites to Augmentative and Alternative Communication Use: What are we Waiting For? Augmentative and Alternative Communication, 4, 211-221.

Kennedy, C. H., & Haring, T. G. (1993). Teaching choice making during social interactions to students with profound multiple disabilities. Journal of Applied Behavior Analysis, 26, 63-76.

Kintsch, A., & DePaula, R. (2002). A framework for the adoption of assistive technology. Retrieved from: citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.124.3726&rep=rep1&type=pdf

Korsten, J.E., Foss, T.V., & Berry, L.M. Every Move Counts Clicks and Chats: Sensory-Based Strategies for Communication and Assistive Technology. Kansas City: EMC, Inc., 2007.

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., & Lindsay, P. (1991). Cognitive science and augmentative and alternative communication. Augmentative and Alternative Communication,7, 186-203.

Light, J., Drager, K., McCarthy, J., Mellott, S., Millar, D., Parrish, C., Parsons, A., Rhoads, S., Ward, M., & Welliver, M. (2004). Performance of typically developing four- and five-year-old children with AAC systems using different language organization techniques. Augmentative and Alternative Communication, 20, 63-88.

Loncke, F.T., Campbell, J., England, A.M., & Haley, T. (2006). Multimodality: A basis for augmentative and alternative communication—psycholinguistic, cognitive, and clinical/educational aspects. Disability and Rehabilitation, 28, 169-174.

Mar, H. H., & Sall, N. (1999). Profiles of the expressive communication skills of children and adolescents with severe cognitive disabilities. Education and Training in Mental Retardation and Developmental Disabilities, 34, 77–89.

Mirenda, P., & Iacono, T. (2009). Autism Spectrum Disorders and AAC. Baltimore, MD: Paul H. Brookes.

Nation, J.E., & Aram, D.M. (1991).   Diagnosis of Speech and Language Disorders (Second Edition). San Diego, CA: Singular Publishing.

Orelove, F.P. & Sobsey, D.   (1996). Educating Children with Multiple Disabilities: A Transdisciplinary Approach (Third Edition). Baltimore: Paul H. Brookes.

Owens, R.E. Development of communication, language, and speech. (1990). In G.H. Shames, E.H. Wiig, & W.A. Secord (Eds.), Human Communication Disorders: An Introduction (pp. 36-81). NY: Macmillan.

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., Beukelman, D.R., & Light, J.C. (2002). Exemplary Practices for Beginning Communicators: Implications for AAC. Baltimore, MD: Paul H. Brookes.

Reed, V.A. (1994). An Introduction to Children with Language Disorders (Second Edition). NY: Macmillan.

Rowland, C. (2005). But what can they do? Assessment of communication skills in children with severe and multiple disabilities. Perspectives on Augmentative and Alternative Communication (ASHA Division 12 Newsletter), 14, 7-12.

Rowland, C., & Schweigert, P. (1993). The Early Communication Process Using Microswitch Technology. Portland, OR: OIDD Design to Learn Products.

Rowland, C., & Schweigert, P. (2000). Tangible Symbol Systems: Making the Right to Communicate a Reality for Individuals with Severe Disabilities (Second Edition). Portland, OR: Design to Learn.

Rowland, C., & Schweigert P. (2003). Cognitive skills and AAC. In J. Light, D. Beukelman, & J. Reichle (Eds.), Communicative competence for individuals who use AAC (pp.241-275). Baltimore: Paul H. Brookes

Rowland, C., & Schweigert, P. (2004). First Things First: Early Communication for the Pre-Symbolic Child with Severe Disabilities. Portland, OR: Oregon Health and Science University.

Rowland, C., & Schweigert P. (2009). Tangible Symbol Systems Primer Retrieved from: http://www.designtolearn.com/uploaded/pdf/Tangible-Symbols-Primer-07-09x.pdf

Schlosser, R.W. (2003). The efficacy of augmentative and alternative communication. San Diego, CA: Academic Press.

Snell, M.E., & Brown, F. (2000). Instruction of Students with Severe Disabilities (Fifth Edition). Upper Saddle River, NJ: Prentice-Hall.

Stephenson, J., & Linfoot, K. (1996). Pictures as Communication Symbols for Students with Severe Intellectual Disability. Augmentative and Alternative Communication, 12, 244-255.

Wetherby, A.M. & Prizant, B.M. (1989). The expression of communicative intent: Assessment guidelines. Seminars in Speech and Language, 10, 77-91.

Wetherby, A.M., Warren, S.F., & Reichle, J. (1998). Transitions in Prelinguistic Communication. Baltimore, MD: Paul H. Brookes.

Wolery, M., Bailey, D.B., & Sugai, G.M. (1988). Effective Teaching: Principles and Procedures of Applied Behavior Analysis with Exceptional Students. Boston: Allyn and Bacon.

Woolfolk, A.E. (1995). Educational Psychology (Sixth Edition). Boston: Allyn & Bacon.

WEB RESOURCES

- AAC Device Manufacturer List: http://aac.unl.edu/AACVI1.html
- AAC-RERC (AAC Rehabilitation Engineering Research Center) http://aac-rerc.psu.edu/
- AAC Tech Connect: http://www.aactechconnect.com
- AbleNet: www.ablenetinc.com
- American Speech-Language-Hearing Association (ASHA): http://www.asha.org/default.htm
- Augmentative and Alternative Communication Center: http://aac.unl.edu/
- Colorado Speech-Language-Hearing Association (CSHA): http://www.cshassoc.org/
- Colorado SWAAAC website: http://www.swaaac.com/
- Design to Learn (Tangible Symbol Systems and Communication Matrix): http://www.designtolearn.com/
- Don Johnston (Co:Writer & Write Out:Loud): www.donjohnston.com
- DynaVox: http://www.dynavoxtech.com/
- Enabling Devices: www.enablingdevices.com
- The International Society for Augmentative and Alternative Communication (ISAAC) http://www.isaac-online.org/english/home
- Joy Zabala Website (SETT Framework): http://www.joyzabala.com/
- PODD: http://www.lburkhart.com/podd.htm and http://www.cpec.org.au/podd.html
- Priory Woods (cause & effect software): www.priorywoods.middlesbrough.sch.uk
- Proloquo2Go (app for iPhone, iPod Touch, iPad): http://www.proloquo2go.com/
- Pyramid Educational Consultants (the Picture Exchange Communication System) http://www.pecs.com/
- Prentke Romich: http://www.prentrom.com/
- Saltillo: http://saltillo.com/
- Scope website: http://www.scopevic.org.au/idex.php/site/resources/aac/aaawhatwhywho
- SENSwitcher programs: http://www.northerngrid.org/resource/sen-switcher
- Simplified Technology (Linda Burkhardt): http://www.lburkhart.com/
- Silver Kite (apps for iPad): http://www.silver-kite.com/
- Tobii ATI (Evaluware and Sono Flex): www.tobii.com
- Widgit (Writing with Symbols or SymWriter): www.widgit.com
- YAACK website (intro to AAC): http://aac.unl.edu/yaack/

APPENDIX A

CHARTS & LISTS

LEVELS OF COMMUNICATIVE ABILITIES

SEVEN LEVELS OF COMMUNICATIVE COMPETENCE (COMPARED WITH BVSD LEVELS)

	LEVEL	SALIENT BEHAVIOR	BVSD LEVEL
I.	Pre-intentional (reactive) behavior (not intentionally communicative)	Pre-intentional or reflexive behavior that expresses state of subject. State (e.g., hungry, wet) is interpreted by observer.	1.
II.	Intentional (proactive) behavior (not intentionally communicative)	Behavior is intentional, but not intentionally communicative. Behavior functions to affect observer's behavior, since observer infers intent.	1.
III.	Nonconventional pre-symbolic communication	Nonconventional gestures are used with the intent of affecting observer's behavior.	1.
IV.	Conventional pre-symbolic communication	Conventional gestures are used with the intent of affecting observer's behavior.	1.
V.	Concrete symbolic communication	Limited use of concrete (iconic) symbols to represent environmental entities. 1:1 correspondence between symbol and referent.	2.
VI.	Abstract symbolic communication	Limited use of abstract (arbitrary) symbols to represent environmental entities. Symbols are used singly.	2-3
VII.	Formal symbolic communication	Rule-bound use of arbitrary symbol system. Ordered combinations of two or more symbols according to syntactic rules.	3

From: Communication Intervention for Children with Severe and Multiple Disabilities. Charity Rowland & Philip Schweigert c. 1997.

Our own three-level schema is compared with Rowland and Schweigert's in the diagram above. This is further expanded in their books and website at www.designtolearn.com

There are a number of developmental schemas for language acquisition, and they vary slightly from case to case; some overlap, some emphasize one skill over another, some are sequenced somewhat unevenly and to compare them or to reconcile them with each other is really "splitting hairs." Many of them are based on the original proposed by language researcher Elizabeth Bates— this schema has been used many times[17] (She revised some of the categories used by philosophers John Searle and John Austin in their "speech act" theory):

Perlocutionary--reflexive behavior by the individual is interpreted by the caregiver as meaningful and communicative and then acted upon,
Illocutionary--intentional communication but does not use symbols,
Locutionary--The individual is able to intentionally use words or another symbol system.

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[17] See, for instance: Korsten, Foss, & Berry's Every Move Counts: Clicks and Chats

SPECIFIC EXAMPLES OF LIGHT TECH AND HIGH TECH AAC STRATEGIES (PARTIAL LIST)

LIGHT TECH:

• A single-message speech-generating device such as a "Big Mack" or "One Step" with a static display--these are versatile and can be used in many different situations; they are quick-to-program and use digitized speech (you record a message); and they can easily be fitted with pictures (photos or picture symbols) velcroed onto the device.

• A two message speech-generating device such as a "Rocking Plate Talker" or "iTalk2" with a static display—these are versatile and allow for the possibility of choice-making or a sequenced message of some kind; they are quick-to-program and use digitized speech (you record messages); and they can be easily "fitted" with pictures (photos or picture symbols) velcroed onto the device.

• A wearable message recording device such as a "Hip Talk" (a message recording device that can be worn around the waist like a "fanny pack") with a static display—these are versatile and very portable and can be used in many different situations. They are relatively easy to program, use digitized speech (you record messages) and they can be easily "fitted" with pictures (photos or picture symbols) velcroed onto the device.

• A single button message sequencing device (digital speech—the actual human voice) with a static display such as a "Step-by-Step." This type of device offers the possibility of sequencing a message: telling a joke, singing a song, relating a longer narrative or parts in a play, etc.

• A multiple-message (single level) voice output device with a static display such as a Cheaptalk-4 or Cheaptalk-8 (using digital speech—the actual human voice). These devices have a relatively limited range, but they are quick and easy to program and extremely versatile. They can be easily "fitted" with pictures (photos or picture symbols) velcroed onto the device.

• A multiple-message (multiple level) voice output device with a static display such as a 7-Level Communication Builder or Supertalker (using digital speech—the actual human voice). These devices have a relatively limited range, but they are quick and easy to program and extremely versatile. They have multiple levels (or pages) that can be programmed with 1, 2, 4, 8, (or 16, with the 7-level) messages. They can also be easily "fitted" with pictures (photos or picture symbols) velcroed onto the device.

HIGH TECH:

• A computerized, voice output device with a dynamic display (an LCD touch screen) and digitized (recorded) speech such as a MiniMo or an M3. These devices are DynaVox devices and use a "leveling" approach to organizing vocabulary: you press one button and a whole phrase or sentence like "I need to go to the bathroom" will be spoken. Hit another button, say for "school" and another page or level opens up. Once one navigates to the proper level (levels are usually organized by category), the total message is related quickly.

•   A computerized, voice output device with a dynamic display (an LCD touch screen) such as an Alt-Chat or Nova Chat (Saltillo), a DynaVox V+, Maestro, or Xpress (DynaVox), a Springboard Lite, a Vantage Lite, an ECO2 or one of the newer Accent series devices (Prentke Romich), or a Say-It! SAM or TuffTalker (Words Plus). These high-end devices have communication software which features high-quality synthesized speech (computer voices) and the possibility of accommodating communicators at different skill levels, from beginner to advanced. Although all of these devices are extremely versatile, several devices (e.g., the DynaVox models) primarily emphasize a phrase-based leveling or visual scene approach, whereas others (e.g., the Prentke Romich models) primarily emphasize a word-based or generative language approach.[18]

•   A computerized text-to-voice device with a dynamic screen (an LCD touch screen) such as a DynaWrite 2.0 (DynaVox) or a Lightwriter (Toby Churchill) or else less expensive voice output portable word processors such as the Fusion (Writer Learning Systems) or the Neo (Renaissance Learning). There are text-to-voice features on most of the high-tech AAC devices as well, so that displayed text can be combined with pictures/icons, as needed.

•   Computerized, voice output apps loaded onto the iPod Touch or iPhone or iPad. This type of system is the latest for portability and functionality and there are various AAC apps which can accommodate leveling (e.g., Proloquo2Go), generative language (Proloquo2Go, SonoFlex, LAMP Words for Life, or the Word Power add-on app to the Touch Chat suite), or text-to-speech strategies (TextToSpeech, TTS, Speak It!, Speak It To Me, Speak Bot, Write&Say, Easy Speak, iSayIt, iSpeakIt, Voice Generator, etc.). There are hundreds of AAC apps available as of this writing, with additional ones being added every day

        With apps featuring the "leveling" approach to organizing vocabulary you press one button and a whole phrase or sentence like "I need to go to the bathroom" will be spoken. Hit another button, say for "school" and another page or level opens up. Once one navigates to the proper level (levels are usually organized by category), the total message is related quickly. You can usually customize the software very easily to accommodate communicators at different skill levels, from beginner to advanced.

        With apps featuring the "generative language" strategy to organizing vocabulary, you build up sentences word-by-word by pressing the appropriate pictures/icons (usually organized in terms of parts of speech). Apps which feature this approach usually have accommodations for communicators at various skill levels, from beginner to advanced.

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[18] The lines have blurred significantly, especially in recent years, as the DynaVox devices also feature easy access to the "Gateway" User Areas (very much word-based and generative), and the Prentke Romich Unity-based devices allow for limited phrase-based statements.

APPENDIX B

SOME USEFUL DATA SHEETS

DATA SHEET RESOURCES:

AAC Intervention (Caroline Musselwhite) www.aacintervention.com

Allegheny Intermediate Unit (Scott Dougherty) http://www.aiu3.net/Level3.aspx?id=3860

Bucks County Intermediate #22 (Lauren Enders) http://www3.bucksiu.org/Page/1146

Nancy Lamb--AAC Specialist from Broomfield, CO (former member of BVSD Assistive Technology Team)

Minneapolis Public Schools Assistive Technology Center (Amy Marquez)

(ALL SHEETS ARE INCLUDED HERE WITH AUTHORS' PERMISSIONS)

See also:
- Every Move Counts www.everymovecounts.net
- AAC TechConnect www.aactechconnect.com/freetools/?forms
- How Do You Know It? How Can You Show It?
  www.wati.org/content/supports/free/pdf/KnowItShowItJan09.pdf
- Kenosha Unified School District No. 1: www.kusd.edu/departments/assistive_technology/forms.html

BVSD AAC DATA COLLECTION FORM 1

STUDENT: **DOB:**

DATES: **TEACHER/SLP:**

OBJECTIVE — DATE																			
I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0

OBJECTIVE — DATE																			
I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0

OBJECTIVE — DATE																			
I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0

OBJECTIVE — DATE																			
I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0	I V G M T P 0

PROMPTING (Least to Most):   I = Independent   V = Verbal   G = Gestural   M = Model   T = Touch, Partial Physical   P = Full Physical   0 = No response

BVSD AAC DATA COLLECTION FORM 1

Comments:

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BVSD AAC DATA COLLECTION FORM 2

STUDENT: DOB:

DATES: TEACHER/SLP:

SPECIFIC TARGET SKILL OR OBJECTIVE:

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

TRIALS				Date:
1	**2**	**3**	**4**	**5**
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
0	0	0	0	0

KEY:	5 =	4 =	3 =	2 =	1 =	0 =

BVSD AAC DATA COLLECTION FORM 2

Comments:

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BVSD AAC DATA COLLECTION FORM 3

STUDENT: DOB:

DATES: TEACHER/SLP:

SPECIFIC TARGET SKILL OR OBJECTIVE:

DATE:																					
Setting:	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0
DATE:																					
Setting:	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0
DATE:																					
Setting:	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0
DATE:																					
Setting:	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0	2 1 0
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DATE:																					
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KEY:	2 =	1 =	0=

BVSD AAC DATA COLLECTION FORM 3

Comments:

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BVSD AAC DATA COLLECTION FORM 4

STUDENT: **DOB:**

DATES: **TEACHER/SLP:**

SPECIFIC TARGET SKILL OR OBJECTIVE:

	Week 1:	Week 2:	Week 3:	Week 4:	Week 5:	Week 6:	Week 7:	Week 8:
Mon. Avg.	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0
Tues. Avg.	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0
Wed. Avg.	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0
Thurs. Avg.	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0
Fri. Avg.	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0	5 4 3 2 1 0
Week Avg.								

KEY: 5 =   4 =   3 =   2 =   1 =   0 =

BVSD AAC DATA COLLECTION FORM 4

CHART: AVERAGE RESPONSE (PROMPTING) PER WEEK FOR 8 WEEKS

The chart shows a grid with the y-axis labeled from 0 to 5, and the x-axis labeled Week 1 through Week 8.

Comments:

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Data Charting to 5 Occurrences

Student:		Week:					Week:					Week:				
Goal/Activity:	n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:	n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:	n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:	n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:	n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:	n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:	n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
	5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

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Data Charting to 10 Occurrences

Student:

Goal/Activity:

n=	Week: M	T	W	R	F	Week: M	T	W	R	F	Week: M	T	W	R	F
10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:

n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:

n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
1	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Goal/Activity:

n=	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
10	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
9	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
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Comments:

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Data Collection Sheet – Multiple Objectives

Student
Name: Date:

Objective:

1.

2.

3.

4.

5.

(+ = Correct Response) (- = Incorrect Response) (P = Prompted Trial)

Date	Obj. #											%/Comments

Reinforcement:

Behavioral
Comments/Prompting/Modification:

Comments:

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Task Analysis and Prompt Hierarchy Data Collection Sheet

Student:

Teacher:

Objective:

Task:

KEY
5 – Independent
4 – Verbal Prompt
3 – Gesture/Model
2 – Physical Prompt
1 - Refusal

STEPS		DATES/INITIALS									
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
	5 4 3 2 1	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
TOTALS											

Comments:

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Number of Location Activations for AAC

Student: _____ Date: _____

Teacher: _____ Subject/Grade: _____

Use this sheet to record the number of activations that are made on a particular page or button. This information can be useful to the team when making decisions about page content and/or vocabulary use on an augmentative and alternative communication (AAC) device.

	Activity & Observations	Location Used	Page/Button Name	# of Activations
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Comments:

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STUDENT: _____   **DATE:** _____

ENVIRONMENT / TASKS

What environments are present in the school day and with whom is the child communicating?

- ☐ Regular education: _____
- ☐ Special education: _____
- ☐ Community outings: _____
- ☐ Work site: _____
- ☐ Other:
- _____

Within those environments, what are the main tasks that require communication?

- ☐ Group participation activities
- ☐ Meal time
- ☐ Independent work
- ☐ Mainstream class
- ☐ Community outings
- ☐ Work site
- ☐ Other:
- _____

OBSERVATIONS:

Directions: Observe 2-3 different activities. Collect data on communication functions that are both available and ones that are demonstrated by the student. Data can be a collected by either checking a box each time it is observed (☒) or by writing an *I* for independent or *P* for prompted in the box.

Activity/Task #1 (please name): _____

What communicative functions were observed to be AVAILABLE to student (i.e., opportunities scripted into activity)?		What communicative functions did the student ENGAGE in during the activity?		Describe communication tools used during observation (e.g., voice output switch, symbols)	Ideas for classroom /school resources to increase communication
Greet ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Greet** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Request ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Reject ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Reject** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
More ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**More** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Initiate ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Initiate** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		

ENVIRONMENT / TASKS: OBSERVATIONS (Continued)

Activity/Task #2 (please name): _____

Communicative functions AVAILABLE		Communicative functions ENGAGED IN		Communication Tools Used	IDEAS
Greet ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Greet** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Request ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Reject ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Reject** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
More ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**More** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Initiate ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Initiate** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		

Activity/Task #3 (please name): _____

Communicative functions AVAILABLE		Communicative functions ENGAGED IN		Communication Tools Used	IDEAS
Greet ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Greet** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Request ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Reject ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Reject** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
More ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**More** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Initiate ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Initiate** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		

AAC Communication Data Collection

Name of Device:　　　　　Date of Trial from:　　　to　　　　Student:　　　　　　　　　School:

Date	Significant notes about use and independence. How much assistance does he/she require to use device? a) minimal assistance b) maximum assistance **c)** no assistance: independent Is s/he able to navigate to vocab, remember sequence of keys, access buttons; turn on & off, carry easily, show interest in the device; look for the device to communicate.	How many times did she/he use the device to: request, ask, answer questions, comment, etc.	Sample of messages & length…. Able to creates message easily; (i.e. 'single word" or "phrase….")	Environments/activities; In which environments/ activities was the device used? (school, home, cooking, snack, lunch, etc)	Comments	Comm. partner initials

AAC Communication Data Collection

Name of Device: Date of Trial from: to   Student: School:

Comments:

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DATA SHEET for AAC PROGRESS

Student: _____   **Name of therapist/staff member taking data**:_____

Please take data during 2 activities per day for about 5-10 minutes

Target Core Vocabulary Word	Date	Brief Activity Description incl. location	Prompts Given	Times target word correctly activated	Notes

PROMPT CODES		
N= No model of prompt	**M=modeled** (example – use device yourself to activate target along with verbal supports)	**IVP=indirect verbal prompt** (example: point to device and say "tell me")
DVP= direct verbal prompt (example: "hit rainbow then red to tell me red")	**DVPSS = direct verbal prompt with sequence support** (example: "Great! You hit rainbow, now hit red to tell me red")	

Comments:

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DATA COLLECTION FORM - AAC TRIAL

STUDENT NAME: _____   DEVICE: _____   TRIAL PERIOD: _____ to _____

DATE:	TEACHER/ THERAPIST NAME(S)	SETTING (i.e., therapy room, classroom, recess….)	BRIEF DESCRIPTION OF LESSON	ANECDOTAL NOTES FROM SESSION (student performance, successes, pitfalls, etc.)	NOTES ON PROGRESS: *include level of prompting needed*

Comments:

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AAC TRIAL - DATA COLLECTION FORM (use one per activity/session)

STUDENT: _____ **DOB:** _____ **TRIAL PERIOD:** _____ through _____
TEACHER: _____ **SLP:** _____

DATE/ TIME:	ENVIRONMENT (location of use: i.e., classroom, hallway, cafeteria, therapy session, etc.)	ACTIVITY (What was going on? What was the student being asked to do?)	Number of appropriate activations (use tick marks)	Number of total activations (use tick marks)	Types of activations (see codes below) Use tick marks for all activations.	LEVEL OF CUES (see codes below) Use tick marks for all prompts given.
					NL _____ AL _____ RA _____ RC _____ Q_____ A _____ G_____ P _____ RJ _____ V _____ C _____ D _____ O _____	N _____ G _____ H _____ V _____ M _____ P _____ HOH _____

Notes/Language samples:

TYPE OF DEVICE ACTIVATION CODES			
NL= noun label (ball, cat)	AL=action label (go, jump)	RA=request assistance (help)	RC=Recurrence (more, again)
Q= Ask question (request answer)	A= answer question	G=Greet P= Part (bye)	RJ=Rejection (Stop! All done!)
V=Vocative (call someone by name)("Mom!")	C=make comment (green, funny, like that)	D=Directive (direct action or make request (i.e,. go, help, stop)	O=Other

TYPE OF CUE CODES:
N=No cue, natural cue   G=gesture   H=Hint (indirect verbal cue)   V=Verbal (direct verbal cue)   M=Model   P= Light Physical   HOH=Hand over hand

Comments:

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Preference Survey

Preferences Identified for_____ **Date**_____

Likes *What people, objects, or activities are preferred?*	Tolerates *What does s/he do when asked, but wouldn't do if not asked?*	Dislikes *What people, objects, or activities are resisted, rejected?*

(created by Nancy Lamb

Preference Survey

Preferences Identified for_____ **Date**_____

Comments:

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Activities – Skills Planning Sheet

Time	Activity	What does peer do?	What does AAC user do?	Assistive Tech needed?	Strategies necessary?	Who is responsible?

(created by Nancy Lamb)

Activities – Skills Planning Sheet

Comments:

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Communication and Participation Lesson Planning for _____

Activity/Group	Materials Needed	Participation	Communication Goal	AT Equipment

Communication and Participation Lesson Planning for _____

Comments:

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Goal Matrix for _____'s Day   Date:

Time	Goal 1:	Goal 2:	Goal 3:	Goal 4:	Goal 5:	Goal 6:

(created by Nancy Lamb)

Goal Matrix for _____'s Day   Date:

Comments:

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Tracking Device Use

by Caroline Musselwhite

WHAT AND WHY?

This form was developed to support teachers, parents, and therapists in building accountability, and observing when . . . and how . . . devices and communication displays are used. I have tried to keep it simple, so that it is more likely to be implemented.

	Activity	Device?	Overlay?	Model?	Prompts?
8:00 - 8:10	Meet & greet	✓			
8:10 - 8:20	Free Play - computer	✓	x	Verbal only	
8:20 - 8:30	Circle: Song	✓	generic singing	A.L.Stim	shadow light - flashing
9:50 - 10:00	Snack Prep	✓	generic cooking (no supps)	A.L.S.	shadow light - temporary

HOW DO YOU USE IT??

1) First, be sure to get a **baseline**! Use this form at the beginning of the school year, when introducing a new communication device, when implementing a new training approach, etc.

2) **Study** the prompting and cueing hierarchy, to increase your familiarity with terminology. It is fine to make up your own prompting and cueing key, to meet the needs of YOUR classroom and teaching style!

3) **Plan ahead** for how long you will wait before repeating assessment using the checklist.

4) **Set goals** to be met for the next assessment such as:
a) Will increase availability of appropriate device / vocabulary across
     daily activities
b) Will provide appropriate modeling, using aided language stimulation,
     for at least three activities
c) Will reduce prompt dependency by offering less intrusive prompts (e.g.,
     moving from hand over hand to use of light cues)

DESCRIPTION OF CATEGORIES

Time of Day: track at least 5 activities during the day. Consider picking them at random (write activities on pieces of paper & pull from bowl) so you don't 'cheat' and observe activities that are the 'best' or 'worst'!!

Activity: be as specific as necessary to allow comparison with future checks

Device: list all light & high tech devices the student can actually use for the activity

Vocabulary / Overlay: check whether the student has available vocabulary or the
     appropriate vocabulary to accomplish the task.

Model: see key below chart, plus attached description page

Prompts & Cues: see key below chart, plus attached description page

AAC Device Use Checklist
Musselwhite, 2005

Student: **Date:**
Observer: **Comments:**

Time of Day	Activity	Device	Vocab/ Overlay	Model	Cues & Prompts	Notes

Key to Cueing / Prompting:
Environmental Setup = ES
Pause = P
Shadow Light = SL
Intermittent Light Cueing = IL
Constant Light Cueing = CL
Verbal = V
Physical Touch = PT
Hand Over Hand = HH

Key to Modeling
Aided Language Simulation = ALS
Verbal Modeling = V

APPENDIX C

AAC SETT WORKSHEET

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The following worksheet is a useful tool for taking data and evaluating the efficacy of an AAC strategy, and can also serve as a quick protocol for an initial evaluation or a re-evaluation of a student who may need assistance with his/her current method(s) of communication. It is based on the "SETT" Framework pioneered by Joy Zabala and takes into account: Student, Environments, Tasks, and Tools. (see http://www.joyzabala.com/). The third and fourth pages of the worksheet (reproduced also in the previous section—Appendix B) can be adapted and can be particularly useful for periodic "probes" during classroom implementation of AAC strategies.

AAC SETT WORKSHEET

Student Name: _____ Date: _____

Speech-Language Pathologist completing form:_____

School:_____ Grade:_____ Disability:_____

ID Number:_____ DOB: _____ Language spoken at home: _____

Team Members Present: _____

Reason for completing worksheet (please check):
- ☐ Evaluation (initial or re-evaluation)
- ☐ IEP meeting
- ☐ Parent requested/initiated interest in AAC device
- ☐ SLP or IEP team requested/initiated interested in AAC device

Please note, most of the above options require additional data (e.g., present levels of performance, data on use of AAC systems, etc.)

Helpful hints when completing each section of the AAC SETT	
Student	• What are the student's current communication abilities?
Environment	• What are the physical arrangements of the student's classrooms? • What are the instructional expectations/styles? (e.g., lecture, group activities, etc.) • What AAC equipment/materials are already available in the room? • What existing supports are available to help the student communicate? (e.g., an SEA, regular ed peers, etc.)
Task	• What communication activities does the student have to do in the classroom that relate to IEP goals? • How might activities be modified to allow progress and participation? • Think about what everyone else doing in class.
Tools	• Think no-tech, low-tech, mid-tech, to high-tech. • What are the features of a system that will help develop communication skills targeted on the IEP?

IF YOU NEED ASSISTANCE COMPLETING THIS FORM PLEASE CONTACT ATC
Amy Marquez or Katie Taylor @ 668-2121

The AAC SETT is adapted from the SETT process developed by Joy Zabala (Zabala, J. S. SETT Framework: Information, Forms and Resources http://www.joyzabala.com)

STUDENT

Current means of communicating – describe any way the student is able to communication (please check and add notes if needed)

Student uses and discriminates symbols (indicate what level)	Gestures	Describe current communication system:
☐	☐ Gestures	
☐ Real Objects ☐ Tactile symbols	☐ Word approximations	
☐ Photographs ☐ Sign	☐ Speech: intelligible to familiar listener ____%	
☐ Product Logos ☐ Other:	unfamiliar listener ____%	
☐ Line Drawn Pictures	☐ Other:	

Student's ability to meet communication needs in school environment | | **What modifications are needed to increase communicative performance?**

Able to make wants/needs known:	Describe student's receptive language:		☐ Pausing/waiting for response
☐ All of the time	☐ Follows schedule E M NO	E=Emerging	☐ Repeating instructions
☐ Most of the time	☐ Identifies vocabulary E M NO	M= Mastered	☐ Visually aiding language input
☐ Some of the time	☐ Answers questions E M NO	NO= Not	☐ Other: _____
☐ Unable to make wants/needs known	☐ Follows one-step directions E M NO	Observed	

STUDENT PROFILE (adapted from Mar & Sall, 1999)   CIRCLE THE DESCRIPTION UNDER EACH CATEGORY THAT BEST DESCRIBES THE STUDENT:

	Intentionality	Communicative Complexity	Turn Taking	Initiating
Communicative Competence	**Preintentional** - Behaviors (crying, babbling, smiling, etc.) must be interpreted by the communication partner. Student is not aware of his signal's affect on the partner (e.g., cries when hungry but doesn't locate teacher first, stands by door and pounds on it to leave room).	**Nonsymbolic** – Reflexive behavior (e.g., smiles in response to music, moves arms when preferred object shown, cries when hungry).	**Full Prompt**- Student's response is always prompted.	**Adult Initiate** – Adult initiates communication and child responds in some way (e.g., crying, vocalizing, gesturing, etc.).
	Early intentional – Students behaviors are a physical and direct action upon /towards objects or persons in an attempt to satisfy wants, needs, or interests. Specific behavior occurs in **one or two situations**--and is context dependent (e.g., pushes button on toy to make it light up, takes adult's hand and moves it towards bottle, reaches towards bottle).	**Presymbolic** – Direct behaviors are used to express needs or desires (e.g., points to or reaches for desired object, vocalizations, eye gaze, shows object).	**Single Turn** - Student responds to communication bid (e.g., hands symbol of drink to adult after being asked what he wants to drink).	**Student Initiated (Non-Specific)-** Student initiates communication with partner, without a specific purpose/need (e.g., vocalizes to gain attention but does not follow up with more specific communication act, takes partner's hand and leads him to an area, but does not follow up with more specific information re: his/her desire).
	Intentional- Student engages in specific behaviors to gain and establish communication. Student is **aware** that his/her behavior has an affect on communication partner and demonstrates this by shifting gaze back and forth. Intentional behaviors are **spontaneous, initiated by student, and occur across context** (e.g., vocalizes and alternates eye gaze between partner and desired object, holds out object in a "show" gesture while establishing mutual eye gaze, reaches towards bottle and looks at caregiver, gains partner's attention prior to intentional gesture).	**Basic Symbols** – Single symbol, word, sign, or gesture used to represent an object, person, or activity (e.g., says "cookie", signs "eat", points to symbol/photo of preferred object).	**Emerging Reciprocity** – Student able to engage in a **2-turn communicative exchange** (e.g., hands symbol of drink to adult and then indicates what kind of juice he wants after being asked, signs more and then when asked "More what?" signs/ or points to a cookie).	**Student Initiated(Specific)-** Student initiates communication with partner, indicating a specific purpose/need (e.g., touches partner's hand and gives him the bottle he wants opened, takes partner's hand, leads them to an area, and reaches/points towards the item/activity he/she wants).
		Simple Combinations – Combines 2 symbols, words or signs to produce a simple message (e.g., points to object and signs "more", combines two symbols or words – "dolly sleep").	**Brief Social Exchange** – Student able to engage in a **3+ turn communicative exchange on single topic** (e.g., asks/answers questions, comments, with conversational partner).	
		Extended Symbol Combinations – Combines 3 to 5 symbols, words or signs to communicate a basic or abstract message.	**Complex Conversational Exchange**- Student able to engage multi-turn, communicative exchange, while maintaining and changing topics appropriately (e.g., student and conversational partner discuss topic, by asking/answering questions, and commenting, topic may change as conversation progresses).	
		Elaborate Use of Symbols / Formal Language – Combines 5 or more symbols, words or signs to make unique and complete sentences		

ENVIRONMENT / TASKS

What environments are present in the school day and with whom is the child communicating?

- ☐ Regular education:_____
- ☐ Special education:_____
- ☐ Community outings:_____
- ☐ Work site: _____
- ☐ Other:
- _____

Within those environments, what are the main tasks that require communication?

- ☐ Group participation activities
- ☐ Meal time
- ☐ Independent work
- ☐ Mainstream class
- ☐ Community outings
- ☐ Work site
- ☐ Other:
- _____

OBSERVATIONS:

Directions: Observe 2-3 different activities. Collect data on communication functions that are both available and ones that are demonstrated by the student. Data can be a collected by either checking a box each time it is observed (☒) or by writing an *I* for independent or *P* for prompted in the box. **Other observation tools may be used. Please attach.

Activity/Task #1 (please name): _____

What communicative functions were observed to be AVAILABLE to student (i.e., opportunities scripted into activity)?		What communicative functions did the student ENGAGE in during the activity?		Describe communication tools used during observation (e.g., voice output switch, symbols)	Ideas for classroom /school resources to increase communication
Greet ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Greet** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐		
Request ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Request** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐		
Reject ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Reject** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐		
More ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**More** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐		
Initiate ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Initiate** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐		

ENVIRONMENT / TASKS: OBSERVATIONS (Continued)

Activity/Task #2 (please name): _____

Communicative functions AVAILABLE		*Communicative functions ENGAGED IN*		*Communication Tools Used*	*IDEAS*
Greet ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Greet** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Request ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Reject ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Reject** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
More ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**More** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Initiate ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Initiate** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		

Activity/Task #3 (please name): _____

Communicative functions AVAILABLE		*Communicative functions ENGAGED IN*		*Communication Tools Used*	*IDEAS*
Greet ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Greet** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Gain attention** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Request ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Comment** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Reject ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Reject** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Request info** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
More ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**More** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Answer questions** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		
Initiate ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Initiate** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	**Repair breakdowns** ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐		

STOP	**DECISION POINT:** Are communication goals and needs being met for this student given the CURRENT system of communication? (please circle)	**YES!** Current system is working. Student is making progress. **Describe current system:**	**YES! (with modification)** Current system is working but needs adjustments. **Describe adjustments:**	**NO!** Current system is not working for this student. **Continue to Tools Section** ▶

GLOSSARY:
Alternative Mode – Access method, other than direct select or scanning, which allows the user to choose symbols on an AAC system.
Dynamic Display Electronic- Symbols organized categorically. Display screen changes based upon what symbol is chosen (e.g., choose the "school" symbol and the screen will change to display school vocabulary.)
Dynamic Display Non-Electronic – Multiple pages are available with symbols organized categorically. Pages are usually kept in a book or binder. User must flip through pages manually to find the desired page.
Word Prediction – A dynamic retrieval process in which word options are offered to the user based on what has already been typed into the device (e.g., student types in: mo. Word choices offered may be: mom, more, Monday, etc.)

VOCABULARY/SYMBOLS NEEDED

- ☐ **Vocabulary Size** (needed to participate in school communication opportunities)
    - ☐ **<15** (e.g., CheapTalk, Partner 4, Communication board, Big Macs, etc.)
    - ☐ **16-99** (e.g., TechTalk with levels, TechSpeak with levels, PECS book, Communication book, etc.)
    - ☐ **100-249** (e.g., TechSpeak with levels)
    - ☐ **>250** (e.g., DynaVox, Vanguard, etc.)
- ☐ **Vocabulary needed for different environments? How many:**_____

- ☐ **Symbol Set** *(add brief explanation as to how the team chose the symbol set)*
    - ☐ Real Objects
    - ☐ Tactile symbols (textured symbols or parts of real object symbols)
    - ☐ Photos
    - ☐ Line Drawn Symbols (i.e., Boardmaker)
    - ☐ Text
    - ☐ Scene/Context-based (e.g., drawing of a classroom or a digital picture of classroom)

- ☐ **Symbol Size** (can be for nonelectronic or electronic system)
    Please list size (e.g., 1 inch, 2 inch, etc.): _____
    How was the size determined? _____

ACCESS METHOD (Choose method(s))

- ☐ **Direct Select** (e.g., point, reach, grab, point with adapted "stick", etc.)
    - ☐ Keyguard is needed
    - ☐ Eye gaze
- ☐ **Scanning** (e.g., symbol choices are presented to the user one at a time. The user chooses the symbol, or group of symbols, wanted by signaling at the appropriate time
    - ☐ **Auditory** (symbol choices menued auditorally with a verbal label of symbol)
    - ☐ **Visual** (symbol choices are menued visually by highlighting or darkening the symbol)

- ☐ **Alternative Mode**
    - ☐ **Head Mouse**
    - ☐ **Joystick**
    - ☐ **Other:** _____

VISUAL DISPLAY (Indicate which type(s) are needed)

- ☐ **Static/Fixed** (Symbols don't change. Ex: Communication books or paper boards)
- ☐ **Dynamic Electronic**
- ☐ **Dynamic Non-Electronic**
- ☐ **Written word(s)**

OUTPUT (Indicate which type(s) are needed)

- ☐ **AAC system does not need voice output**
- ☐ **Digitized speech** (i.e. recorded speech)
- ☐ **Synthesized speech** (i.e., "computer voice" – DEC Talk, Text to Speech)

MESSAGE COMPOSITION FEATURES (Choose all that apply)

- ☐ **Message Options**
    - ☐ Preprogrammed phrases (symbol of drink = "I want a drink")
    - ☐ Can combine words to build sentences (I + want + drink)
    - ☐ Word prediction
    - ☐ Able to spell

OTHER FEATURES

- ☐ **Does communication system need to be PORTABLE?**
    - ☐ YES
    - ☐ NO

- ☐ **If NO, does device need to be mounted?**
    - ☐ YES (circle one)
      --On Wheelchair   --Other (mount system for ambulatory student)
    - ☐ NO

- ☐ **Durability:** *Please list any special considerations below.*

- ☐ **Access:** *Can/Should the student have access or be denied access to controls? (e.g. volume, on/off, editing, etc.)*
    - ☐ Yes
    - ☐ No
    - ☐ Please Explain :

NEXT STEPS:

FIRST:
- Review the TOOLS section to see what features of an AAC system is educationally necessary for your student.

THEN:
- Create/modify an AAC system using resources at your school (e.g., use a big Mac, make symbols, etc.).

OR

- Call ATC to see how we can help you find/create a system that meets your student's educational/IEP-driven needs.

- A low-tech/mid-tech system can be checked out for an indefinite period of time.
- A high-tech system (i.e., dynamic display) can be checked out for a trial period. Trial periods may last anywhere from two weeks to one month, depending on availability.

FINALLY:
- Take data on AAC use. Does the data show that the tool is helping the student make progress on their communication goal and objectives?

APPENDIX D

HANDOUTS

ASSISTIVE TECHNOLOGY & COMMUNICATION:
Encouraging Your Students in the Classroom

"Augmentative or Alternative Communication (AAC) is any device, system, or method that improves the ability of a child with a communication impairment to communicate effectively." Encouraging these students to use augmentative/alternative communication (AAC) strategies in the classroom can be challenging. The following are some general and more specific suggestions and ideas...

General Suggestions

- **Collaborate and strategize** with all staff and parents: teachers, SLPs, OTs, PTs, paras, etc.
- Make sure all staff are **trained** on AAC device usage (if necessary)
- **"Think multimodal"—**a speech generating device can be used in one context, picture symbols in another. We all communicate in multiple modes (speech, gesture, smiles, etc.)
- **Program age- and peer-appropriate vocabulary—**"gross," "cool," "what's up?"
- Include appropriate **negative comments** on the student's AAC system
- **Use sabotage and temptations for increased communication opportunities.** For example, give your student a fork to eat his/her cereal with or skip a student's turn in a fun activity and see how s/he problem solves this "mistake."
- **"Engineer the Environment":**
  - **Identify and prioritize communication activities** that occur throughout the day. The best teaching moments occur during "real life" activities in context.
  - **Develop message sets** for each activity using the student's AAC system.
- Plan and use **scripted routines** for longer turn-taking (two-three-four exchanges)
- **Organize** the AAC user's physical environment
  - Access: Appropriate **positioning** of the AAC
  - Access: Appropriate **organization** of the symbols for fast retrieval
  - If the student is using a dynamic screen device, does s/he know where to find the information? Has s/he had time to **explore** and **practice** the pages?
  - Does s/he have something s/he wants to talk about?
  - **Set the AAC user up for success**!!!
- **Communication strategies for facilitators:**
  - **Encourage peers** to figure out messages from the AAC user.
  - **Expect a response** every time.
  - **Respond** to any attempt by the student to communicate as you would any other child.
  - **Confirm** the intended message; clarify if unsure.
  - Have a **shared focus**—confirm the same topic.
  - **Vary** meaningful activities and provide choice making and opportunities for comments, greetings and other interactions throughout the day.
  - Do not talk for or respond for the student
  - **Learn to "Wait" 20 or 30 seconds**—It seems like a long time to wait. It's not!
  - **Model--**Adult shows how to interact using the talker: "You do it" "You try"
  - **PROMPT only when REQUIRED:** Wait, don't hover--aim for independence.

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- o **Possible prompts** can include:
  - telling your student to "use his/her words" (e.g., **verbal** reminders)
  - illustrating the correct symbol choice using sign language or other visual representation without pointing to your student's actual communication board (e.g., **visual** prompts)
  - modeling pointing to the correct symbol (e.g., **gestural** prompts)
  - verbally stating the correct response (e.g., verbal **model**)
  - physically helping your student point to the correct symbol (e.g., **physical** assistance)
  - **REMEMBER TO ALLOW ADEQUATE WAIT TIME!**

Specific Ideas for Younger Students

Arrival
- Yes/No questioning-regarding hot or cold lunch option for the day.
- Live voice scan regarding who student wants to be his/her "helper" for the day or who s/he wants to sit by at circle time.
- Single message devices can be used to greet staff or peers.
- A Step-by-Step (message sequencer) can be used to allow for communication regarding arrival topics, such as requesting assistance with removal of outerwear or items in a backpack.
- The student can use a multiple location device to make comments or respond to questions.

Literature Activity
- A two-choice communication system can allow the student to participate in pre-reading activities such as choosing books, selecting a reader, or selecting the type of voice used to read the story.
- A single message device can be used for the student to request that the page of a book be turned or the repetitive line of a story be read.
- The student can use eye gaze to identify vocabulary words upon request.

Post-Literature Activity
- A picture communication board can be used for the student to comment on a story or to make requests. For example, "That's scary," "That's funny," "Read it again."
- Yes/no questions or live voice scan can be used to assess the student's comprehension of the book.

Social Studies
- The student can activate a Step-by-Step (message sequencer) to call on peers or identify a state and have a peer name the corresponding capital.
- The student can use a switch-activated spinner to select a picture symbol of a state and activate a single message device to request the name of the state.
- Picture symbols can be sequenced to represent events of a trip.
- A multiple location overlay can be used on a voice output device to direct peers to move from location to location on a map.

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Math

- The student can use a switch-activated spinner to select numerals to create math calculation problems for their classmates to compute.
- A multiple location overlay can be used on a voice output device for the student to identify values of mixed groups of coins.

Sharing

- Velcro can be used to attach a souvenir onto a single message device. The student can activate a prerecorded message to give details about his/her souvenir to the class.
- The student can demonstrate an electrically powered toy with a switch, activated with an AAC device.
- The student can demonstrate a battery-operated toy using a switch with a battery device adapter.
- A multiple location overlay on a voice output device can be used for the student to direct peers in a multiple step recipe or experiment.
- The student can ask peers questions or make comments using a multiple location communication device.

Lunch

- The student can use a customized lunch tray, lunchbox, or placemat with picture symbols to make comments or requests in the lunchroom setting.
- The student can use any multiple location voice output device to order lunch items.

Recess

- Wristbands can be created with digital photos for choice making between recess activities (e.g., swing, slide).
- The student can wear a fanny pack or a janitor key ring with photos or picture symbols representing choices for recess activities, peers to play with, or general comments/requests.
- The student can use a play mat for indoor recess. For example, place picture symbols on a placemat for a bubble-blowing activity (pop it, blow a big bubble, and blow a small bubble).
- A Step-by-Step message sequencer can be used to direct peers during a game situation (Simon Says).

Departure

- The student can use a single-message device to relay a message about events of the school day to the home setting.
- Live voice scan can be used to have the student select whom they want to sit by on the bus.

ASSISTIVE TECHNOLOGY & COMMUNICATION:
Encouraging Your Students in the Classroom

<u>Specific Ideas for Older Students</u>

- Participate in specific events that require contextual messages (e.g., singing a song that is pre-programmed, e.g., "Happy Birthday" or "For He's a Jolly Good Fellow")
- Say (or lead) the Pledge of Allegiance
- Cheer or boo a favorite sports team
- Converse on the telephone
- Greetings and departures
- Comment on things ("This food is disgusting") and activities ("Yeah—this is cool!")
- Indicate enthusiasm ("I want more") or the need to discontinue an activity ("I need a break")
- Ask questions ("What's your name?" "What's your favorite music?")
- Maintain the conversation with optional comments like "Really?" or "Uh-huh."
- Make requests in predictable situations ("I'd like a cheeseburger")
- Initiate conversations or introducing topics ("How was your weekend?")
- Make introductions between people
- Tell a knock-knock joke (e.g., using a Step-by-Step message sequencer)
- Recite a scripted series of lines in a class play
- Relate pre-programmed academic information to the class during a classroom presentation
- Dictate the words in a spelling test to the rest of the class
- Engage in simple, predictable conversations that involve turn-taking
- Participate in a predictable song with repeated lines ("We all live in a Yellow Submarine")
- Discuss the season and weather in a structured classroom routine
- Relate the day of the week and the date in a structured classroom routine
- Discuss upcoming events of interest to the class
- Discuss what s/he had for lunch in a structured classroom routine
- Discuss what s/he did over the weekend/summer break in a structured classroom or conversational routine
- Relate daily "school news to home" and "home news to school"
- Converse about personal information: family members, address, phone number, pets, favorite music, favorite sports, etc. in structured and unstructured discourse
- Give information about personal preferences ("I like Hip Hop music." "My favorite movie is Pirates of the Caribbean.")
- Give information about emotions ("I'm happy") and physical status ("I feel tired." "I feel sick.")
- Participate in an educational "game" played by the class or group of students
- Interface the AAC device with a computer to participate in literacy activities:
    - Reading—using text readers such as WYNN
    - Writing—using onscreen keyboards, word prediction (e.g., Co:Writer), using email
- Interface the AAC device with a computer to surf the web for information.

AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC):
AN INTRODUCTION

WHAT IS AAC?

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

SOME TYPES OF AAC

- **No Tech:** These are "**unaided**" systems an individual uses with no additional tools or technology such as motor behaviors, gestures, vocalizations, verbalizations (or verbal approximations), proxemics (approach or avoidance of a communication partner), eye gaze, and facial expressions.

- **Low Tech:** These are "**aided**" communication strategies (i.e., requiring some type of external assistance for the symbols) which do not run from a power source. Examples: picture or object communication, the Picture Exchange Communication System (PECS), partner assisted scanning, etc.

- **Light Tech:** voice output communication systems which are typically battery operated and have a **static** (non-changing) display such as the Big Mac, Rocker Plate Talker, Step by Step, Cheaptalk, Tech Talk, Go Talk, Supertalker, or 7-Level Communication Builder.

- **High Tech:** Systems typically requiring an electronic power source and having a **dynamic** (changing—i.e., computerized LCD screen) display such as a DynaVox Maestro, a Prentke Romich Accent, a Saltillo Nova-Chat or an iPad (with an appropriate AAC app).

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

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AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC):
AN INTRODUCTION

WILL USING AAC PREVENT A STUDENT FROM USING OR DEVELOPING NATURAL SPEECH?

The research says: NO! It may actually improve speech.

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

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

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

WHY MIGHT AAC INTERVENTION (e.g., SPEECH GENERATING DEVICES) IMPROVE SPEECH?

Consider the following:

- AAC can encourage the student to be less of a passive observer during communicative interactions and more of an active participant.
- AAC may increase the number of messages that are possible and increase the length of the student's utterance.
- AAC produces immediate acoustic output (the message), is effective across many environments, and offers a consistently-produced "speech model" for the student to listen to and imitate.
- The acoustic output can be paired with the visual symbol (word, picture, or icon), thereby strengthening the connection between the spoken word, graphic symbol, and the referent (what the symbol refers to).
- Hearing oneself produce speech via a speech-generating device may help stimulate and develop the brain mechanisms utilized for speech production ("internal phonology")

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AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC):
AN INTRODUCTION

ARE THERE ANY "PREREQUISITES" (e.g., AGE OR COGNITION) FOR USING AAC?

The current research says: NO! If needed, AAC interventions can be introduced at ANY time.

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

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

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

MULTIMODAL COMMUNICATION: AN EXPLANATION

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

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

Multimodal communication is flexible. People need to be able to use different communication modes in different social circumstances—what might seem appropriate with friends in an informal interaction might be totally out of place interacting with your teacher, or with your new relatives at a wedding, for example. Similarly, a student who communicates with his/her paraprofessional with manual sign language would need to have the flexibility to communicate via a different mode in the community with individuals who do not understand sign.

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AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (AAC):
AN INTRODUCTION

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

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

CONCLUSIONS?

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

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

- Blischak, D. M., Lombardino, L. J., & Dyson, A. T. (2003). Use of speech-generating devices: In support of natural speech. Augmentative and Alternative Communication, 19, 29–35.
- Kangas, K. & Lloyd, L. (1988). Early Cognitive Skills as Prerequisites to Augmentative and Alternative Communication Use: What are we Waiting For? Augmentative and Alternative Communication, 4, 211-221.
- Loncke, F.T., Campbell, J., England, A.M., & Haley, T. (2006). Multimodality: A basis for augmentative and alternative communication—psycholinguistic, cognitive, and clinical/educational aspects. Disability and Rehabilitation, 28, 169-174.
- Millar, D. C., Light, J. C., & Schlosser, R. W. (2006). The impact of augmentative and alternative communication intervention on the speech production of individuals with developmental disabilities: A research review. Journal of Speech, Language, and Hearing Research, 49, 248-264.
- Schlosser, R., & Wendt, O. (2008). Effects of augmentative and alternative communication intervention on speech production in children with autism: A systematic review. American Journal of Speech-Language Pathology, 17(3), 212–230.

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Communication Bill of Rights

(1992 Joint Committee for the Communication Needs for Persons with Severe Disabilities)

All persons, regardless of the extent or severity of their disabilities, have a basic right to affect, through communication, the conditions of their own existence. Beyond this general right, a number of specific communication rights should be ensured in all daily interactions and interventions involving persons who have severe disabilities. These basic communication rights are as follows:

1. Request desired objects, actions, events, and person, and to express personal preferences or feelings.
2. Be offered choices and alternatives.
3. Reject or refuse undesired objects, events, or actions, including the right to decline or reject all preferred choices.
4. Request and be given attention from and interaction with another person.
5. Request feedback or information about a state, an object, a person, or an event of interest.
6. Active treatment and intervention efforts to enable people with severe disabilities to communicate messages in whatever modes, and as effectively and efficiently as their specific abilities will allow.
7. Have communicative acts acknowledged and responded to, even when the intent of these acts cannot be fulfilled by the responder.
8. Have access at all times to any needed augmentative and alternative communication devices and other assistive technology devices, to have those devices in good working order.
9. Environmental contexts, interactions, and opportunities that expect and encourage participation as full communicative partners with other people including peers.
10. Be informed about the people, things, and events in one's immediate environment.
11. Be communicated with in a manner that recognizes and acknowledges the inherent dignity of the person being addressed, including the right to be a part of communication exchanges about individuals that are conducted in his or her presence.
12. Be communicated with in ways that are meaningful, understandable, and culturally and linguistically appropriate communications.