Assessment and Implementation of Augmentative and Alternative Communication for Children with Autism

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Why do we need special considerations for Children with Autism?

- Differences in social approach and social motivation
- Differences in establishment of joint attention in early learning
- Development of unusual and/or dangerous ways of getting needs met- using people as “tools”, climbing, head banging
- Across the board deficits in the development of pragmatic language
- Tendency towards very analytical thinking- A+ B=C
- Difficulty attending to and responding to multiple stimuli at one time
- Differences in response to sensory experiences
- Often co-morbid anxiety disorder with low tolerance for frustration
Essential for living—“Must Have” skills

- Without these skills, children and adults with disabilities will almost certainly exhibit forms of problem behavior, will have limited access to preferred items, activities, places and people and will have limited contact and interactions with the community in which they live. “ (McGreevy 2012)
Essential for Living

1. Making requests
2. Waiting
3. Accepting removals, making transitions, sharing and taking turns
4. Complete 10 consecutive brief previously acquired tasks
5. Accepting “No”
6. Following directions related to health and safety
7. Complete daily living skills related to health and safety
8. Tolerating situations related to health and safety

If these are “essential”, why not start here?
Choosing a Form of Communication- 1st Goal- Getting an independent way to communicate in place as quickly as possible

• Gestures- Yes, for everyone
• Signs- For on the go, immediate needs?
• Picture Exchange Communication System- Strong Evidence base for AU
• Low Tech Communication Boards- Need to know there’s a listener, modeling within activities
• Pragmatic Organization Dynamic Display (PODD)- Partner assisted? Independent?
• Flip Books- Enough motivating language?
• Speech Generating Devices- Flexibility in programming to be person centered
• Ipad App- relatively cheap, quick- Varied language
• Dedicated- more support, might be more durable, insurance funded
Assessment Guides Practice

• Assessment of overall communication skills
  - Communication Matrix- https://www.communicationmatrix.org/
Look at Typical Development


• [https://pubs.asha.org/doi/10.1044/persp3.SIG12.80](https://pubs.asha.org/doi/10.1044/persp3.SIG12.80)
Informal Assessment of Learner

• Reactions to touch- Does the individual recoil from being touched? Does he enjoy touch? (This might inform prompting strategies currently available)

• Reactions to sounds- Does he stim on sound toys? Does he recoil from sudden sounds? (This might inform a competing motivation for SGD or difficulty tolerating specific voices)

• Level of joint attention/object focus- Do you “lose him” when toys or preferred objects are brought into a social interaction? (This might interrupt development of early social skills if we bring an external object in.)

• Social approach/ initiation behaviors – Will the individual bring things to a “listener” to request? (This might inform us if teaching initiation will be important)

• Early gesture use/forms of communication- Can the individual lead, point, reach for what he wants? Will he give you things to activate or open? (important for all learners)

• Number of potential reinforcers- Is the individual motivated by many toys, people, activities, foods etc.? (might inform the size of the vocabulary you initially need to provide)
Informal Assessment of Learner, Cont.

- Acquisition rates- How fast does the person currently acquire new requests or words? (Informs the rate of which we might need to add new vocabulary to keep up with progress.)

- Receptive language- Is the individual able to follow directions? How many important elements can he respond to at once (conditional discriminations)? Do visuals improve comprehension? (This gives us an indication of overall ability to respond to visual stimuli.)

- Imitation skills- both with and without objects- Does the individual demonstrate difficulty imitating movements? (Informs the ability to benefit from model prompts)

- Current vocal skills- How likely is it that vocal communication will be his primary mode? (If this is a “right now” only system, how much time do we need to spend on teaching it vs. working on vocals?)

- Current social skills- Does he enjoy engaging in his favorite activities with others or prefer to remain alone? (Informs design of system and vocabulary selection for within context language learning)
Informal Assessment of Learner, Cont.

- Age of the individual: What are typically developing children at his age able to communicate? How do children his age typically communicate? (informs vocabulary selection and stimuli used)

- Results of psychological testing: What is the individual’s developmental level? (CAUTION) (can help us anticipate rate of learning and vocabulary selection)

- Learning history: What has been tried in the past? Results?

- Visual discrimination: ability to respond in a variety of field sizes and visual properties of whatever stimuli we use. (informs selection of visually based systems)

- Range of communicative functions: Is the child climbing, pulling or exhibiting problem behavior to get his needs met? Then teach requesting and denying! Is the child initiating joint attention? Then teach commenting! Is the child anxious about his day? Teach him to ask questions! Is the child approaching peers but has nothing to say? Teach conversation!
A Systematic Method to Decide First Form/Topography

Alternative Method of Speaking (AMS)- A systematic approach to determine an alternative method of speaking- Essentials for Living – chapter 6 (McGreevy)  
http://www.amscompare.com/

1) Is the primary method effective? Is vocabulary expanding? Is audience able to respond? Are they requesting throughout the day? Is related maladaptive behavior decreasing?

2) Does the system match the specific sensory, skill and behavioral repertoires of the individual? Hearing, sight, hearing, ambulatory, non-ambulatory, active, inactive, fine motor coordination, motor imitation, matching, problem behavior

3) Clear understanding of pros and cons of different systems- portability, effort, complexity, match to current communication skills, audience
“Quick and Dirty method”

- Make a list of reinforcers and rank order them with the family.
- Number 1, 2, 3 in sequential order down the list.
- Teach 3 reinforcers as signs, 3 as PECS and 3 with a SGD.
- Collect data on # of teaching trials to mastery.
- Start with the topography with fastest acquisition.
Assessment of Environment

- “Buy in” - does the family see the need and value of the system?
- Other children in the home - ease of use by entire family
- Adequate training for system use all day/every day
- Strategies in place when the system breaks down, things are lost etc.
- Range of environments in which the child is expected to communicate (e.g. home, school, daycare, job)
- Need for specialized training to model or teach the system
- Ease of programming
- Ability of others to communicate with the child.
Profile One - What would you do?

- Rarely approaches people to get needs met.
- Tends to climb on furniture to get to what he wants.
- Avoids interacting if possible.
- Doesn’t engage in many leisure or play activities.
- Does not make many sounds.
- No vocal attempts to communicate.
- Limited to no use of gestures but may lead people on occasion.
- No joint attention
- When objects are brought into play he often loses engagement (object focused)
Profile Two - What would you do?

- Makes lots of sounds but no intelligible words.
- Approaches new people with ease and shows interest in what they are doing.
- Can imitate movements with and without objects in the context of favorite play activities.
- Likes music and sound toys but tends to push the same buttons over and over and shows problem behavior when they’re taken away.
- Has a large family and 2 working parents who are very busy.
- Primarily needs to communicate at home and in his small, self-contained preschool class.
What would you do?

• Has been using PECS for a year and has over 200 words nouns, verbs and adjectives.

• Very few, if any, intelligible vocal approximations.

• Has trouble imitating fine motor movements with hands.

• Interested in lots of different things.

• Approaches people to get basic needs met but really doesn’t use language for many other functions.

• Seems curious and draws people in to her interest with gestures.

• Is starting to allow friends into her favorite activities and shares her favorite things with them if the play scheme is familiar.

Profile 3-
Profile 4 – What would you do?

• Uses peoples hands as tools to get needs met.
• Has some interests but mainly interested in food.
• Likes very specific food items in specific containers and shows problem behavior if he gets the “wrong” food.
• Doesn’t really like to be touched.
• Limited social approach. Doesn’t seem to understand he needs a communication partner.
• Can point/reach to select once he has your attention.
• Has difficulty with imitation.
• Only child with highly organized parents.
• Limited production of sounds and no word attempts.
We’ve decided we need to focus on increasing social engagement and teaching gestures to communicate. Now what?

- Early Start Denver Model: https://www.esdm.co/
We’ve decided that sign language is the best choice for this child, now what?

We’ve decided the Picture Exchange Communication System (PECS) is the most appropriate for this child. Now what?

• https://pecsusa.com/
We’ve decided a speech generating device is the best solution for this child. Now what?

- Trial vs. “lifetime” device
- Age of Child
- Complexity of programming
- Who will be in charge of programming?
- Ease of modeling
- Ability of the system to grow/expand as the child’s language develops
- Anticipate changes in technology and research
- Feature matching

Do we really need to spend a lot of time worrying about which we use given the rapid changes in technology?
A search for AAC Apps yields 100s of results..

How does one decide?

Jane Farrall has done an excellent job gathering information on apps.

http://www.janefarrall.com/aac-apps-lists/symbol-picture-apps-a-m/

Most Common ones I use are:
Proloquo2go
Touch Chat
Bridge Communication
LAMP – Words for Life
Considerations for implementation

Get as many buttons as possible on the page but make sure the child can discriminate in the field OR can learn the motor plan quickly.

Collaborate with other professionals: Consider using a teaching folder and once a word is learned, put it in its “home”.

Pay attention to response effort.

Color coding backgrounds only helps people with an intact language system. Color coding the object (to match real life) HAS been shown to help.

Train parents, teachers and support staff using a Behavior Skills Training Model with ongoing coaching for best results.
Considering a Change?

- The individual’s language skills have grown beyond the capacity of the current system.
- The individual’s environment has changed and the current system is no longer effective in the current environment.
- Child has begun to talk - Continue for repair
- Mastered PECS through level 4
Implementation

- Parent Training
- Staff Training
- Training across settings
- Consistency of teaching procedures
- Agreement on Vocabulary Selection
- Agreement on who’s responsible for what
- Backup plans
What We Know:
• Use of AAC typically does not result in decreased vocalizations **but** in children with Autism research has shown increases, no change and temporary decreases in vocalizations.
• We need to keep working on vocals WITH AAC. (Gevarter et al, 2016)
• We CAN teach anyone to communicate using a wide variety of teaching procedures.
• Early, intensive intervention leads to the best outcomes for children with Autism.
• Teaching within social-communicative contexts leads to faster generalization.
• Language is the basis of learning and needs to be taught by all providers.
• Technology and science is causing rapid changes in both types for AAC and access methods: [https://rerc-aac.psu.edu/update-from-the-rerc-on-aac-state-of-the-science-conference-2018/](https://rerc-aac.psu.edu/update-from-the-rerc-on-aac-state-of-the-science-conference-2018/)
What We Know Cont.

• Language skills tend to follow a developmental continuum. (Brown, 1973)
• Motivation and function are important considerations
• Functional communication training can be used as part of a behavior plan to decrease maladaptive behaviors.
• Aided Language Stimulation can be a useful part of a treatment package for some learners.
• Children need to actually engage in a skill in order to contact reinforcement and demonstrate learning.
• Children need to be taught to communicate all day, every day in every context in order to learn language no matter what the topography (access isn’t enough)
What we know about teaching others to implement

- Expert demonstration, practice, and performance feedback (Behavioral Skills Training) with ongoing coaching works best to train others to teach children using AAC (Chazin et al, 2018).

- Behavioral Skills Training: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3592486/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3592486/)


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What we DON’T KNOW (Don’t have comparative studies)

• Which topography is best?
• Which vocabulary set is best?
• Which teaching procedures are best?
• Which design is best?
• Which app or system is best?
Suggested Solutions

- **Research Base**: Consider research in typical development as you make decisions.
- **Data Driven**: Stay open minded and let data guide you in the choices you’re making.
- **Collaborate**: Collaborate with other professionals and interpret based on your knowledge (IPP/IPE).
- **Problem Solve**: Think of AAC selection as a set of problem solving strategies.
- **Individualize**: Look at each child individually for the answers for him/her. There is no “right” answer for all children.
Now that we know which topography is best for the child, how do we decide what to teach?

- Teach the language that matters MOST to the individual learner first.
- Teach language that can replace any problem behavior that may be occurring.
- Teach language that allows the person to obtain access to their most favorite things and activities first. Give the person POWER.
- Look at non-vocal communication to tell you (reaching, pointing, gesturing) in which functions of communication the person needs.
- Teach language that’s relevant to the person and their environment.
- Teach language that will allow the “listener” to reinforce as quickly as possible. Avoid: please, more, yes
Challenges

- Different fields with different theoretical constructs of language acquisition
- Researchers and practitioners can become “married” to the system they develop or for which they have the most experience.
- Practitioners can get involved in “turf wars” over “ownership” of communication
- Practitioners specializing in AAC assessment may not have experience with autism
- People can jump on “bandwagons” without waiting for research
- Lots of research with few definitive answers for all learners
- Ongoing debates around methods of instruction, tools to use and vocabulary
“Core” Vs “Fringe” Debate- Considerations for Children with Autism

• A list of the most frequently used words does not equate to first words.
• Early language learners with Autism typically don’t use the same first words as typically developing children.
• Immediate reinforcement is difficult for most core words, especially if the child has no gestures.
• It’s difficult to teach most core words under the correct stimulus control ex: “More”- only with recurrence, “like” when use is based on internal stimuli.
• Many of these will likely lead to communication breakdowns and frustration for children with autism and/or stop the development of language.
• For children with Autism, it’s not just about the words but about using those words in a functionally appropriate way that can be reinforced quickly.
Teaching **core vocabulary** first to people with little-to-no established verbal behavior has no conceptual backing in any kind of evidence-based scientific principles.

Intervention (and research) needs to be based on established scientific principles of learning, human development, and/or human physiology.

Asserting that a word(s), frequently emitted by typically developing populations *past* a certain age neither tells us the exact conditions (both speaker and listener) under which it is emitted, nor does it tell us how the word came to be established in the speaker's repertoire prior to that age.
Visual Methods to help the person know what to do or what is expected (Receptive language)

**NOTE:** This is not the child’s voice

<table>
<thead>
<tr>
<th>Behavior cue cards</th>
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<tbody>
<tr>
<td>Schedules</td>
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<tr>
<td>First-then boards</td>
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<tr>
<td>Calm down sequences</td>
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<tr>
<td>Sequences for daily living tasks</td>
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<tr>
<td>Wait cards</td>
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<td>Availability cues</td>
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<td>Physical boundaries- stop cards</td>
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</tbody>
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Now that we’re clear on WHAT to teach, how do we decide HOW to teach?

- What does research tell us about how children with Autism who are vocal learn to communicate? Echolalia, pragmatic language difficulties, social communication difficulties, faulty stimulus control
  - Most to least prompting vs Least to Most Prompting - Make sure the prompt works and fade it quickly so that the natural contingencies are maintaining the communication.
  - Aided Language Stimulation/Modeling - For whom? Under what conditions? When?
  - Being clear on teaching receptive language vs expressive language. Whose voice is it?
  - Specific protocols - PECS protocol?
  - Make sure language is learned under the correct stimulus control
  - Make sure to keep the device paired with reinforcement and not make it a tool for “work”.
Aided Language Stimulation—Considerations for Children with Autism

- The term is typically used to describe pointing to pictures while one talks but definitions vary a bit.
- If we are “stimulating” receptive language then the child would have to already know what the pictures mean. (remember for receptive aides too)
- We know that some people with Autism tend to have difficulty attending to multiple stimuli at once. Will it help or hinder this particular child?
- One can “model” with any topography (signs, PECS, Vocal speech, SGD).
- If the child is not yet able to imitate, will the modeling serve as a prompt?
- Are you modeling based on the child’s motivation or the therapists/parent? (point of view matters, especially with pronoun usage with kids with Autism)
- Vocal children with Autism don’t learn language just by exposure. Direct teaching is required.
- Use specific protocols so staff is clear on what you want them to do.
Teaching First Communication Requests - The ONLY function of language that meets the needs of the child.

- Establish motivation - What does the person want? How can you tell? Gestures? Eye gaze?
- Prompt using the least intrusive prompt that will allow the person to be successful.
- Fade all prompts out as quickly as possible so the person is only responding to their own motivation.
- Make sure each word has its own, separate stimulus control. Ex: Shoe on

Model and Practice: Signs, PECS, AAC
Language Instruction Throughout the Day

- Write AAC into all academic goals.
- Brainstorm with teachers and TA’s about opportunities during each school day activity.
- Train parents by brainstorming teaching opportunities within daily living activities.
- Include data collection procedures to be implemented by everyone working with the child.
- Create a team with the main focus teaching the child a way to communicate.
References


• Light, J. Designing effective AAC systems for young children with complex communication needs, Presented at the ISAAC Conference, (2016). RERC-AAC-ORG


• Tardif, T., Fletcher, P., Liang, W., Zhang, Z., Kaciroti, N., & Marchman, V.A., 2008