Autism Speaks
Technology and Autism Webinar Series
Wednesday, Nov 14, 2012
Technology and Autism Webinar Series

- Mute phones to decrease background noise
- Q and A session at end of webinar
- Please ask questions that relate to the broader audience
- Webinar Handout is available online at:
  - [www.autismspeaks.org/family-services/technology](http://www.autismspeaks.org/family-services/technology)
- Session will be recorded and available online at:
  - [www.autismspeaks.org/family-services/technology](http://www.autismspeaks.org/family-services/technology)
Questions to be answered in this presentation

- What is Augmentative Alternative Communication (AAC), and who benefits from AAC?
- What is the ultimate goal for AAC users?
- How will using AAC have an impact on other areas of development?
- What can I expect from an AAC assessment?
- What kinds of AAC strategies are out there?
- Is technology the right choice for my child (or other AAC user)?
Questions to be answered in this presentation

- What else should I consider with my SLP when choosing an AAC strategy?
- How can I make AAC strategies successful in the home, school, and community?
- AAC Myths Debunked
- What aspects of AAC are particularly relevant to individuals on the autism spectrum?
- How can I get an AAC evaluation for my child?
- What information should I gather prior to an AAC assessment?
Background info and key terms

- Speech v.s. Language v.s. Communication
  - Natural Speech
    - Speech = **motor movement**: coordinating muscles into specific motor sequences
    - a verbal means of communicating
  - Language
    - Language = **Cognitive skill**
    - Includes vocabulary, grammar, word endings and prefixes (-ing, -ed, re-, etc.)
    - Shared code or **symbol** set
    - People communicate using language without speech ALL the time
      - Sign language, Emails, Writing, Texting
Background info and key terms

- Language is used for a variety of functions:
  - Requesting
  - Asking questions
  - Refusing
  - Commenting
  - Clarifying
  - Negotiating
  - Reasoning
What is Augmentative Alternative Communication, and who benefits from AAC?
What is Augmentative Alternative Communication, and who benefits from AAC?

- **AAC**: strategies that improve communication for those who are
  1. non-speaking
  2. natural speech does not meet their needs for functional communication

- **Augmentative Communication**
  - When natural speech is not meeting their communication needs, strategies augment their current communication

- **Alternative Communication**
  - For those who are non-speaking, strategies are an alternative to natural speech

- People who use these strategies are referred to as **AAC users**
What is Augmentative Alternative Communication, and who benefits from AAC?

- AAC users use AAC to compensate for a lack of functional *speech* (a motor skill).

- Needing or using AAC strategies *should not* limit access to *language* (a cognitive skill)
What is our goal for AAC users?
What is our goal for AAC users?

We want the AAC user to be able to produce **SNUG**
- **Spontaneous**
- **Novel**
- **Utterance**
- **Generation**

- AAC users should be able to produce words / phrases / sentences
- **Spontaneously**
- that are **novel, not scripted or predetermined by their communication partner**
- We make a lot of assumptions that may prevent novel communication

- what if it means “apples are gross” or “I like red apples, not green apples”

Adapted from a paper by Katya Hill, M.A., CCC-SLP, Assistant Professor, Speech-Language Pathology, Edinboro University of Pennsylvania.
What is our goal for AAC users?

Sometimes we put limitations on communication that prevents novel utterance generation.

If you could be doing anything you wanted right now, what would it be?
What is our goal for AAC users?

Guiding Principles

- Communication is a basic human right.
- Communication should extend beyond conveying basic wants and needs.
- Individuals should be able to independently express all aspects of their personality.
- Ongoing evaluation, treatment, training, and support for the individual and family should be a priority.

Kate Grandbois MS, CCC-SLP & Jennifer Leighton, MA, CCC-SLP
Spaulding Outpatient Center for Children, Lexington, at the Lurie Center
How will using AAC have an impact on other areas of development?
How will using AAC have an impact on other areas of development?

1. When language and communication improve, non-speaking individuals have improved
   - Access to the curriculum
   - Access to social interaction
   - Tools to manage behavior
How will using AAC have an impact on other areas of development?

Access to social interaction

- Social closeness is a main purpose of communication (Light, 1988)
- AAC provides non-speaking individuals with ways to
  - Greet others
  - Ask questions
    - Gain information from others
    - Engage in socially appropriate / expected exchanges (“how are you?”)
  - Comment
  - Tell jokes
  - Recall past events
  - Tell stories
  - Show empathy / sympathy
How will using AAC have an impact on other areas of development?

Tools to manage behavior

- There is a relationship between behavior and communication (Bopp, Brown, & Mirenda, 2004)

- Access to language creates opportunities to replace unwanted behaviors with functional communication
  - Example: toddlers in the sandbox
  - This is called Functional Communication Training (FCT) – ask your local behaviorist and speech and language pathologist for more information!
What can I expect from an AAC assessment?
What can I expect from an AAC assessment?

An AAC assessment should answer the following questions:

1. What is the best way for my child to **access** the communication strategies?
2. What kind of **language system** is appropriate for my child?
3. What devices / communication systems exist that **match** my child / the AAC users strengths and needs?
What kinds of AAC strategies are out there?
What kinds of AAC strategies are out there?

- There are lots of options that should be customized to your child / the AAC user based on:
  1. How the individual can best accesses the materials or strategies (generally referred to as “access”)
  2. What language system is appropriate
  3. What materials or devices are most appropriate

- In considering these three factors, your SLP will go through a feature matching process

- **Feature matching**: assessing an individuals needs and areas of strength and matching them with an ideal access method, language system, and device / system.

The following is a general review of strategies. You must work with a licensed speech and language pathologist to determine strategies that are the best fit any potential AAC user
What kinds of AAC strategies are out there?

Access
What kinds of AAC strategies are out there? Access

1. How an individual accesses the materials or strategies, or “access”
   - Direct selection:
   - Eye gaze:
What kinds of AAC strategies are out there? Access

- Direct selection
- Eye gaze
- Single or double switch use:

These are just a few examples of switch types that are out there, there are many other available and customizable options. Consult your local SLP!
What kinds of AAC strategies are out there? Access

- Direct selection
- Eye gaze
- Single or double switch use:
- Partner assisted scanning:
What kinds of AAC strategies are out there? Access

- **Things to consider** regardless of what method you chose:
  - Ideally, the user can access the language independently
  - The movement should be consistent & precise
  - Fatigue and endurance should be considered
What kinds of AAC strategies are out there?

Language systems
What kinds of AAC strategies are out there? Language Systems

2. What language system is most appropriate?
   - A language system refers to how the vocabulary or symbol set is organized / presented to the AAC user
   - Two main things should be considered

   1. What should the language system look like?
   2. How should the vocabulary be organized?
What kinds of AAC strategies are out there? Language Systems

1. What should the language system look like?
   - Symbol size (Large? Medium? Small?)
   - Symbol color
   - How many symbols to a page (grids range from 1 per page to 144 and beyond...)
What kinds of AAC strategies are out there? Language Systems

1. What should the language system look like?
   - Symbol size, color, number of symbols to a page
   - Symbol type
     - digital camera photos
   - Drawn / cartoon symbols (Boardmaker or Symbol Stix)
   - Alphabet (is the user literate?)
What kinds of AAC strategies are out there? Language Systems

2. How should the vocabulary be organized?
   - There are four main points to consider
     - Emphasis on core vocabulary
     - Inclusion of fringe vocabulary
     - Chose vocabulary that is important to the specific individual
     - Chose specific locations for vocabulary to maximize the motor plan
2. How should the vocabulary be organized?
   - Emphasis on core vocabulary
   - Core vocabulary: the relatively small number of words that are used to communicate the majority of messages
   - Used most frequently during communication
   - Verbs, adjectives, pronouns, adverbs, prepositions
   - Typically does not vary too much from person to person
What kinds of AAC strategies are out there?
Language Systems

Core Vocabulary List

- First 8 Words
  1. All done
  2. Help
  3. Want
  4. Mine
  5. More
  6. Stop
  7. That
  8. What

- First 15 words
  9. Away
  10. Go
  11. Here
  12. I
  13. It
  14. Like
  15. You

First 30 words

  16. Again
  17. Big
  18. Do
  19. Down
  20. Get
  21. In
  22. Little
  23. My
  24. Off
  25. On
  26. Out
  27. put
  28. Some
  29. There
  30. Up

What kinds of AAC strategies are out there? Language Systems

2. How should the vocabulary be organized?
   - The importance of core vocabulary
     http://www.youtube.com/watch?v=E8aprCNnecU
Word power is a software program created by Nancy Inman – see http://www.inmaninnovations.com/
What kinds of AAC strategies are out there? Language Systems

2. How should the vocabulary be organized?
   - Emphasis on core vocabulary
   - Inclusion of fringe vocabulary
     - Fringe Vocabulary
       - High percentage of nouns
       - a large number of words (tens of thousands)
       - used infrequently
       - used in a small portion of communication
       - used in a specific context
What kinds of AAC strategies are out there? Language Systems

2. How should the vocabulary be organized?
   - Emphasis on core vocabulary
   - Inclusion of fringe vocabulary
   - Chose vocabulary that is important to the specific individual
What kinds of AAC strategies are out there?

2. How should the vocabulary be organized?
   - Emphasis on core vocabulary
   - Inclusion of fringe vocabulary
   - Chose vocabulary that is important to the specific individual
   - Chose specific locations for vocabulary to maximize the motor plan
     - Similar to how we learn to type or play the piano, our muscles develop memories to help us find items quickly
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http://www.computerhope.com
2. How should the vocabulary be organized?

- Emphasis on core vocabulary
- Inclusion of fringe vocabulary
- Choose vocabulary that is important to the specific individual
- Choose specific locations for vocabulary to maximize the motor plan
  - Similar to how we learn to type or play the piano, our muscles develop memories to help us find items quickly
  - Maximize motor planning allows for a user to use the system more fluently
What kinds of AAC strategies are out there?

Devices and Communication Systems
What kinds of AAC strategies are out there? Devices and Communication Systems

What is the best way for my child to access the communication strategies?

What kind of language system is appropriate for my child?

3. What materials or devices match the strengths and needs of my child / the AAC user?
   - No Tech
   - Lite-Tech
   - Mid-Tech
   - High-Tech
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - No Tech
     - Sign Language
       - **Pros**: you always have your hands with you
       - **Cons**: Requires strength in fine motor control (Shane & Wilbur, 1980)
     - Other conventional gestures
       - **Pros**: you always have your hands with you
       - **Cons**: gestures specific to an AAC user may not be understood by a variety of people.
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - Lite-Tech
   - Paper based systems
     - Topic boards / communication boards
   - Communication books
   - Eye gaze boards
   - Alphabet boards
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - Lite-Tech
   - PECS
     - Picture Exchange Communication System (Bondy & Frost, 1994)
     - Is an actual protocol with several phases
   - Pros:
     - Emphasizing the exchange of information from one person to another
     - Is used often with children with ASD because of the emphasis on the social exchange of information
   - Cons:
     - Does not emphasize building core vocabulary, sentence building, grammatical development, or communicating for a variety of functions
     - Emphasizes requesting only
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - Mid-Tech
     - Portable Voice Output Communication Aides (VOCAs)
       - Single message
       - Multi-Message
         - Single button
         - Multi-button
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?

- **Mid-Tech**
  - **Pros**: inexpensive, portable, allow for customization when motor movements are an issue
  - **Cons**: significantly limited vocabulary options
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   • High-Tech
     • Speech generating devices with **dynamic display**
       • **Dynamic Display**: a display that allows for an AAC user to change the vocabulary / screen by touching a button
     • There are two general categories of high-tech dynamic display systems
       • **Dedicated Systems**: computerized devices that are dedicated to communication only.
       • **Open systems**: computerized devices that are used for communication and for other purposes.
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech
     - Dedicated Systems
       - Four of the more commonly known companies that manufacture communication devices:
         - Prentke-Romich Company (PRC)
         - Saltillo
         - Tobii ATI
         - Dynavox
       - Each device and manufacturer has unique specifications and software options
       - Each communication device can be ordered as a dedicated device, or an “open” device, NOTE: if a device is ordered as “open” it will likely not be covered by insurance.
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech – Dedicated Systems
   - Things to consider:
     - Screen size, weight, and physical properties

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What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech – Dedicated Systems
     - Things to consider:
       - Screen size, weight, & physical properties
       - Software options
         - Customization options of buttons
         - Vocabulary size of software platform
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech – Dedicated systems
     - **Things to consider:**
       - Screen size, weight, & physical properties
       - Software options
       - Hardware accessories:
         - Keyguards
       - Carrying cases & straps
       - Mounting systems
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech – Dedicated systems
     - **Things to consider:**
       - Screen size, weight, & physical properties
       - Software options
       - Hardware accessories
       - Customer & tech support
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech – Open systems
     - iPads and tablets
     - Hardware options:
       - Cases
       - Bubcap
       - Guided Access
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech – Open systems
     - iPads and tablets
     - Software options: APPS
       - There are so many!
       - Very few have good vocabulary libraries and good communication potential (see Webinar with Jennifer Leighton, MA, CCC-SLP on December 5th)
     - Comprehensive list by Jane Farrall, SLP
       http://www.spectronicsinoz.com/article/iphoneipad-apps-for-aac
   - Choose an app that:
     - Has good core vocabulary options
     - Has many customization options for buttons / board sizes
     - Has experience and is stable (customer / tech support)
     - Has a large library of vocabulary
     - Is compatible with the symbol type needed (boardmaker, letters, symbol stix, etc.)
     - Is compatible with the access type needed
What kinds of AAC strategies are out there? Devices and Communication Systems

3. What materials or devices are most appropriate?
   - High-Tech – Open systems
     - iPads and tablets
       - **Pros:**
         - Less expensive and more readily available than dedicated systems
       - **Cons:**
         - Not created for the purpose of communication, therefore less durable
         - Very few apps have good language platforms, the software on dedicated devices is superior
         - Minimal options for accessories (particularly keyguards and protective cases)
         - Not covered by insurance
         - Difficult to transition from use as a toy to a communication device
Is technology the right choice for my child?
Is technology the right choice for my child?

High-Tech Communication Devices:

**Pros:**
- Highly customizable, allow a lot of room for linguistic growth
- Allow for a variety of vocabulary options (devices can hold 80,000+ vocabulary words, vs. a communication book that becomes heavy and cumbersome with a small vocabulary set)

**Cons:**
- Expensive
- They can break (you must always have a lite-tech back up for your high-tech device)
- They are higher maintenance than lite-tech or mid-tech options (batteries, casing, etc.)
What else should I consider with my SLP when choosing an AAC strategy?

1. **Language potential**
   - An individual must grow into a system.
   - You must choose a system that offers more than their current level of language / communication.

2. **Core Vocabulary vs. Fringe Vocabulary**
   - Choosing vocabulary options for the user that are relevant to him or her

3. **Motor Planning**
   - Consider LAMP: *Language Acquisition through Motor Planning*
     - Maximize motor memory and learning by creating specific locations for each vocabulary word
     - Limit the number of locations for each vocabulary word
     - Maximize motor memory by teaching new words in specific locations, and model these words in specific locations
How can I make AAC strategies successful in the home, school, and community?
How can I make AAC strategies successful in the home, school, and community?

1. Create purposeful communication from an early age
   - React positively to vocalizations, or attempts to get your attention
     - Ask: “Do you have something to say?”
   - React positively to accidental communication
     - We do this for speaking children, why wouldn’t we do the same for language learners using AAC?
How can I make AAC strategies successful in the home, school, and community?

2. Use **aided language stimulation** (also called aided language input)

- Toddlers are spoken to for 12 to 15 months before verbal language is expected
- they are **immersed** in the language, or symbolic code, that they are expected to use
- AAC users learn language the same way
- AAC users should be given the same experience / opportunity

Goossens’, Crain & Elder (1992)
How can I make AAC strategies successful in the home, school, and community?

Typical Language Development

Input  Output

Spoken Language Development

Spoken Language  Spoken Language

Gayle Porter, 2004
How can I make AAC strategies successful in the home, school, and community?

Aided language development

WITHOUT

Aided language stimulation

Gayle Porter, 2004
How can I make AAC strategies successful in the home, school, and community?

Aided language development
WITH
Aided language stimulation

Gayle Porter, 2004
How can I make AAC strategies successful in the home, school, and community?

- We use aided language stimulation for these reasons:
  1. maximize ability to understand what is being said (spoken language becomes visual)
  2. Provide models and examples of the language system they are expected to use
  3. Provide a context in which they are not the only person in the room communicating differently (emotional connection, validation)
AAC Myths Debunked
If my child uses AAC strategies, will that prevent him / her from ever using functional speech?

- Short answer: No.
- Research indicates that implementing AAC strategies will either have
  1. No effect on natural speech production
  2. Will improve natural speech production

- Link to a review of the research
  http://aac.unl.edu/yaack/b2.html

Shane, 1992
Someone told me my child was too young for AAC, is that true (and other AAC myths debunked)?

“We have discovered increasingly that communication has only one prerequisite; and it has nothing to do with mental age, chronological age, mathematical formulae, or any other models that have been developed to decide who is a candidate and who is not. That is because breathing is the only prerequisite that is relevant to communication”

- Pat Mirenda, 1992
What aspects of AAC are relevant to individuals on the autism spectrum?
What aspects of AAC are relevant to individuals on the autism spectrum?

- Flexibility of core vocabulary
  - [http://www.youtube.com/watch?v=SWblqzfqUto](http://www.youtube.com/watch?v=SWblqzfqUto)
What aspects of AAC are relevant to individuals on the autism spectrum?

- Flexibility of core vocabulary
  - Use words flexibly
  - Demonstrate multiple meanings
  - Model each meaning in new and different contexts
What aspects of AAC are relevant to individuals on the autism spectrum?

- **Vocabulary selection:**
  - Sensory needs associated with ASD: vocabulary like swing, squeeze, hug,
  - Behaviors sometimes associated ASD: consider including functional communication training words
    - I need a break
    - I need a squeeze or hug / I need to be brushed / I want to swing
    - Somethings wrong, something hurts
    - I want to be alone
What aspects of AAC are relevant to individuals on the autism spectrum?

- **Vocabulary selection:**
  - Social needs associated with ASD: consider modeling social communication more frequently than you would with other AAC users
    - Greeting words, Hi and Bye
    - Social questions, “how are you?”
    - Comments, “cool!” “Awesome!” “I like / don’t like this”
    - Social phrases, “Something’s wrong” or “I have an idea”

- **Communication when upset or frustrated**
  - Decrease language demands when expecting a child to communicate during heightened states of emotion
    - Consider phrase based language on a “something’s wrong” page
      - “my head hurts,” “I am angry,”
How can I get an AAC assessment for my child?

- School
- Outpatient hospital settings
- Private clinics
- [http://www.asha.org/findpro/](http://www.asha.org/findpro/)
What information should I gather before an AAC assessment?

Insurance Benefit:

- Speech generating devices are generally covered by a **Durable Medical Equipment** benefit (DME benefit)
- DME benefits are usually a certain amount of funding, over a certain period of time (i.e. $5,000 over 5 years).
- This is usually a **time sensitive benefit**. You may only be able to access the benefit every few years, so whatever device you chose should **meet the AAC users needs for the long term**.
What information should I gather before an AAC assessment?

- **Insurance Benefit:**
  - **Before your AAC eval:**
    - Call your insurance company and verify your DME benefit
    - All kinds of medical equipment are categorized by a code. Speech generating devices have codes called “E-Codes.” Ask specifically whether or not “E-codes” are covered (see handout for E-codes and their descriptions)
    - Consider applying for backup insurance (may be available state to state). Backup insurance may cover whatever your primary insurance will not cover.
    - Talk with your child’s / the AAC users pediatrician or primary care physician to let them know your plans to get an AAC eval. If a high-tech device is prescribed by an SLP, the pediatrician / PCP will need to write a prescription.
What information should I gather before an AAC assessment?

- Previous evaluations:
  - Most recent speech and language evaluation
  - Progress notes from school, private therapists, or outpatient / clinic therapists
  - Occupational therapy evaluations
  - Physical therapy evaluations
  - Neuropsychology evaluations
SLP statement of financial independence:
Kate Grandbois, MS, CCC-SLP is not an employee of, and does not have any financial relationship with any of the above mentioned companies or suppliers.
Questions?
References


• Goossens’, Crain & Elder (1992)

• Gayle Porter, 2004


• Shane, H. C. (1992). Impact of AAC on Natural speech Production. NIDRR, 92-104.
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