Augmentative and Alternative Communication (AAC) and Autism Spectrum Disorders

Melissa L. Olive, Ph.D., BCBA-D
Applied Behavioral Strategies LLC

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Agenda
1. Overview of AAC
   - What is it?
   - Pros & Cons of various modes
2. Special Education Law as it relates to:
   - Communication Intervention
   - Assistive technology
3. Research on Devices
4. AAC Assessment
5. Using Different Forms of AAC
What is AAC?
- Augmentative and Alternative Communication
- Any symbol, aid, strategy, and technique used to enhance or compensate the language and or communication for an individual

Who Uses AAC?
- Individuals with intellectual disability (ID) (formerly MR)
- Individuals with Cerebral palsy (CP)
- Individuals with Autism Spectrum Disorder (ASD)
- Individuals with apraxia or dyspraxia
- Individuals with Acquired impairments such as stroke, TBI, spinal cord injury

Language and Communication
- Communication is any act where one person gives to or receives from another person information about that person’s needs, desires, perceptions, knowledge, or affective states.
- Communication may be intentional or unintentional
- Communication may involve conventional or unconventional signs or symbols
- Communication may take linguistic or nonlinguistic forms
- Communication may occur through spoken or other modes
Communication vs. Language

- Language is the entire system of communication and includes rules for conversation and communication
  - Syntax
  - Morphology
  - Semantics
  - Pragmatics

Modes of Communication

- Vocal
- Verbal
- Gesture
- Picture
- Voice Output Communication Aid (VOCA) or Speech Generated Device (SGD)
- Scanning Systems
  - Usually for individuals with severe motor impairments
  - Does not relate to the majority of our clientele

Vocal Communication

- Use of sounds to communicate
- “kkk” may mean cracker
- Receiver must know user’s intent
- Limited vocabulary possibilities
- Portable (always with user)
- Requires user to remember system
Verbal Communication
- Spoken language falls here
- Individual may use single words to convey meaning
- Usually easy to convey simple meanings
- Receiver may need to be familiar with user
- Portable
- Requires user to remember system

Gesture
- Includes formal and informal systems
  - Informal (e.g., pointing, head nods)
  - Formal
    - Includes American Sign Language (ASL) and Signing Exact English (SEE)
  - Receiver must know system
  - Unlimited options depending on fluency of user
  - Portable
  - Requires user to remember sign system

Symbol Communication
- Informal (e.g., pointing to pictures)
- Formal (e.g., Blissymbols)
- Portability is an issue
- Generally understood by receiver
- Slow process of communicating
Types of Symbols

- Object or 3-dimensional
- Color photographs
- Black and white photographs
- Black and white line drawings
- Bliss symbols
- Traditional orthography
- PECS falls here

VOCA or SGD

- Low Tech
  - Simple switches
  - BigMAC and Jelly Beans
  - 4 button or 8 button (TeachTalker, SuperTalker)
- High Tech
  - Computer based systems
  - Many use windows or similar
  - Dynavox
  - Mini-Merk
  - iPad
    - Multiple applications that are easy to program and versatile
    - Low tech simplicity with high tech options

Pros and Cons

- Each type of communication has a strength and a weakness
- No one method is perfect for everyone
- Usually multiple methods are used
- The best method supports the development of spontaneous, meaningful communication that generalizes to all environments
- Total Communication
  - The process of using multiple forms of communication in order to meet the individual’s needs in all environments
Pros of VOCA or SGD
- Portable (depending on type)
- Programmable
- Understandable by others
- Invention of the iPad has changed the availability of such devices
- Life of devices, …

Cons of VOCA or SGD
- Must be programmed
- May not be so portable depending on type of technology
- May not be easily used by the individual
- Will motor skills interfere?
- Will cognitive skills interfere?

Pros of Symbols or Pictures
- Socially acceptable
- Easy for individual to use
- Understood by all listeners
- Portable
Cons of Symbol/Picture Systems

- Pictures and symbols must be gathered and organized
- More difficult to teach language
- Individuals with large vocabularies will have a bulky system
- What happens when you have a new word or comment?
- Much slower method of communication
- Will motor skills interfere?
- Will cognitive skills interfere?

Pros of Gesture

- With user all the time
- Entire language systems available
  - SEE
  - ASL

Cons

- What motor skills are required to use it?
- What cognitive skills are necessary?
- Can receivers understand the message?
- What memory skills are needed?
Special Education Law
- Individuals with Disabilities Education Improvement Act
- Originally P.L. 94-142, Education for All Handicapped Children Act
- Most recently passed 2004
- Many provisions
  - Evaluation, Re-evaluation, Independent Evaluations
  - IEP at least annually
  - FBA and BIP requirements
  - FAPE including related services
  - LRE
  - Procedural safeguards

IDEIA (Procedurally)
- Referral
- Eval & Eligibility
- Special Considerations
  - AT happens here
- Document writing
- Service allocation
  - AT happens here
- Placement
- Implementation
- Progress Monitoring
- Annual Review
- Triennial Review

IDEIA 2004
- § 300.29 Native language
  - For an individual with deafness or blindness, or for an individual with no written language, the mode of communication is that normally used by the individual (such as sign language, Braille, or oral communication)
IDEIA, 2004

- § 300.304 Evaluation procedures
  - (c) Are provided and administered in the child’s native language or other mode of communication and in the form most likely to yield accurate information on what the child knows and can do academically, developmentally, and functionally, unless it is clearly not feasible to so provide or administer;

IDEIA 2004

- § 300.324 Development, review, and revision of IEP
  - (a) Development of IEP—
    - (1) General. In developing each child’s IEP, the IEP Team must consider—
      (i) The strengths of the child;
      (ii) The concerns of the parents for enhancing the education of their child;
      (iii) The results of the initial or most recent evaluation of the child; and
      (iv) The academic, developmental, and functional needs of the child

IEP or IFSP Development

- {300.320 (a)}:
  - (2)(i) Statement of measurable annual goals, including academic and functional goals
    - (A) Meet the child’s needs that result from the child’s disability to enable the child to be involved in and make progress in the general education curriculum; and
    - (B) Meet each of the child’s other educational needs that result from the child’s disability
IEP and IFSP Areas of Goals
(based on area of needs of the child/student)

1. Academic (depending on age)
2. Language (expressive and receptive)
3. Adaptive (life skills; self-help)
4. Motor (gross and fine)
5. Social/Emotional
6. Behavioral

IDEIA 2004
§ 300.324 Development, review, and revision of IEP
(a) Development of IEP —
(2) Consideration of special factors. The IEP Team must —
(iv) Consider the communication needs of the child, and in the case of a child who is deaf or hard of hearing, consider the child’s language and communication needs, opportunities for direct communications with peers and professional personnel in the child’s language and communication mode, academic level, and full range of needs, including opportunities for direct instruction in the child’s language and communication mode; and
(v) Consider whether the child needs assistive technology devices and services

Case Study
- “Daniel”
- 8-year-old male
- Autism
- Non-verbal
- Severe challenging behavior
  - Aggression to mom and others
  - SIB
- IEP team determines no AT is needed because they are going to keep working on verbal language (of which there is none)
IDEIA 2004

• § 300.5 Assistive technology device.
  • Assistive technology device means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of a child with a disability
  • The term does not include a medical device that is surgically implanted, or the replacement of such device

IDEIA 2004

• § 300.6 Assistive technology service.
  • Assistive technology service means any service that directly assists a child with a disability in the selection, acquisition, or use of an assistive technology device.
  • The term includes—
    (a) The evaluation
    (b) Purchasing, leasing, or otherwise
    (c) Selecting, designing, fitting, customizing, adapting, applying, maintaining, repairing, or replacing assistive technology devices;

IDEIA 2004 (§ 300.6 Assistive technology service continued)

(d) Coordinating and using other therapies, interventions, or services with assistive technology devices
(e) Training or technical assistance for a child with a disability or, if appropriate, that child’s family; and
(f) Training or technical assistance for professionals (including employers
IDEIA 2004

§ 300.105 Assistive technology
(a) Each public agency must ensure that assistive technology devices or assistive technology services, or both, as those terms are defined in §§ 300.5 and 300.6, respectively, are made available to a child with a disability if required as a part of the child’s
(1) Special education under § 300.36;
(2) Related services under § 300.34; or
(3) Supplementary aids and services under §§ 300.38 and 300.114(a)(2)(ii)

Case Study

“Nider”

- 7-year-old male
- Down syndrome
- Non-verbal
- At IEP meeting team said that AT was not available due to the size and limited resources of the district

IDEIA 2004

§ 300.105 Assistive technology
(b) On a case-by-case basis, the use of school-purchased assistive technology devices in a child’s home or in other settings is required if the child’s IEP team determines that the child needs access to those devices in order to receive FAPE
Case Study

Sury
- 12-year-old with CP
- Uses GoTalk to communicate
- Teacher says that GoTalk cannot go home with Sury because it is too expensive to replace if damaged or lost

Jonna
- 10 years old
- Uses iPad with Touch Chat
- Principal says it is district policy that iPads stay at school
- “we will buy the software so she has it on her home iPad too”

Assistive Technology (in addition to AAC)
- Positioning
- Computer Access
- Mobility
- Computer-Based Instruction
- PE, Recreation, Leisure
- Environmental Control
- Assistive Listening or Visual
- Self Care

Assistive Technology (in addition to AAC)
- Includes picture schedules
- Includes social stories
- Includes token boards
Federal Law vs. State Law

- State laws vary
- Know your state law
- Search for resources
  - Texas Side by Side

Research on AAC

1. PECS is an evidence-based intervention for individuals with autism
   - http://autismpdc.fpg.unc.edu/content/picture-exchange-communication-system-pecs
   - Research Articles

Research on AAC

2. VOCA/SGD is evidence-based
   - Research Articles
     - http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/SGD_EvidenceBase_0.pdf
Research on AAC and Later Verbal Skills


Everyone should have the opportunity to communicate basic needs and wants without having to rely on challenging behavior.

Case Study

- Alex
- 28-year-old male with autism, ID, and non-verbal
- Blind in one eye from SIB, cataracts in the other
- Graduated from high school after 18 years of special education services
- Has no way to communicate
  - No vocal
  - No verbal
  - No gestural
  - No pictures
We (teachers, SLPs, BCBAs) have a duty to provide our clients with a “voice.”

Case Study
- Mac (Missy’s brother)
- Has about 200 different signs
  - Favorite food, places, and people
  - Group home staff do not know sign language

Starting an AAC Intervention does not require you to stop a verbal language program
Case Study
- Nadia
- 4-year-old female with autism and Down syndrome
- Learned PECS quickly (vocabulary outgrew portability)
- Lacked motor skills to sign clearly
- Often confused signs and sign approximations
- During IEP meeting, speech and language pathologist said to BCBA, “you gave up working on her verbal skills”

Selecting a Mode for Intervention
- Assessment drives all intervention

How to Determine Appropriate Mode
- Assessment
  - Assess individual’s skills and preferences
  - Assess parents’ skills and preferences
  - Assess environment and its ability to support individual’s mode of communication
- Device selection
  - Consider family
  - Consider assessment
  - Consider community
Cigna Autism Awareness: AAC

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info@appliedbehavioralstrategies.com

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AAC User Assessment

- Cognitive abilities
- Linguistic abilities
- Seating & positioning issues
- Motor abilities
- Visual abilities
- Environmental issues
- Feature Matching

User Assessment

- Current methods of communication
  - Speech, language assessed
- Past use of AAC
- Mobility
- Motor Abilities
- Cognitive abilities
- Other issues
  - Use of other AT
  - Barriers

Assessment Process

- Interviews and file reviews
  - Get to know user as much as possible
- Determine user abilities
  - Develop understanding of what mode and system will be most appropriate
- Determine need
  - What are the user's needs in all environments
- Determine priorities
  - What does family want
  - What is most important for user
How to Teach Student/Child to Use Device

- They don’t learn it by osmosis
- Teach:
  - Prompt
  - Reinforce
  - Fade prompts
  - Thin reinforcement
- Train people in support roles
  - Parents
  - Peers
  - Teachers
  - Bus drivers, cafeteria workers, office staff, PE

Gesture (Sign)

1. Identify functional vocabulary
2. Temptations
3. Prompt
4. Reinforce

Picture Exchange Communication System

1. Basic exchange
   - Child picks up symbol and hands it to adult
2. Distance and persistence
   - Child picks up symbol, finds the adult who has moved away from the PECS symbols, and persists to exchange symbol despite deliberate ignoring by the adult
PECS, cont

3. Discrimination
   - Child selects the correct symbol from an array of more than one symbol and completes correspondence checks, selecting the requested item from an array of more than one item

4. Sentence building
   - Child selects preferred symbol from book
   - adds it to "I want" symbol
   - and exchanges the sentence strip with the adult

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PECS, cont

5. PECS with peers
   - Child uses symbols to request items from peers

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PECS, cont

- Phase I: The Physical Exchange (usually 2 trainers)
- Phase II: Expanding Spontaneity (book + distance)
- Phase III: Picture Discrimination
- Phase IV: Sentence Structure (I want)
- Phase V: Responding to "What Do You Want?"
- Phase VI: Responsive and Spontaneous Commenting (I see, I have)
How to Support Communication with iPad

- We use apps to teach manding (requesting) to new communicators
  - Example NC
- We use apps for teaching commenting when children are non-verbal or limited verbal
  - Example Mac
- We use apps to teach reading (with symbol support)
  - Example AJ
- We use apps to teach writing
  - Example RT

Communication Apps

- Proloquo2go
- iPACS
- Expressionist
- iConverse
- iCommunicate
- Look2Learn
- MyTalk
- Grace
- Tap to Talk

Proloquo2go

- Individualize home page
- Individualize phrases
- Huge icon vocabulary
- Add your own pictures
- Easy modifications
- Text and picture enlargement
- Expensive $189.99
- Great support online
Selecting Learning Objectives

- How do verbal children develop language skills?

Communicative Intent (functions)

- Request Object
- Request Action
- Request Information
- Statement or comment
- Yes/No response
- “Wh” question response
- Acknowledgement
- Other (any not mentioned above)

Eat

- Fruit
  - Apple
  - Banana
- Snack
  - Cracker
**Functions of Behavior**

- Obtain
- Objects
- Attention
- Activities
- Sensory

- Want ______
- More ______
- Yes
- Labels generic vs. specific

- Avoid
- Objects
- Attention
- Activities
- Sensory

- No thanks
- Don’t want ______
- No
- All done

**Other Vocabulary Selection**

- Greetings
- Small talk
- Story telling
- Procedural descriptions
- Wrap up or farewell
- School versus home

**Conversational Exchanges**

- Low Effort with Multiple Opportunities
  - Transfer
  - Greetings
  - Call
  - Acknowledge
  - Request social routine

- Higher Effort with Fewer Opportunities
  - Comment on objects
  - Comment on actions
  - Request information
  - Request permission
Training Parents and Support Staff

- Will require on-going training
- Hands-on
- Must support and provide feedback in several settings
- DTT (it works for adults too!)

Parent Training

- Train parents on device
- Train parents on application purchasing and synching
- Train parents on how to use device for instruction rather than a babysitter (what you are learning today)
- Train parents how to adjust restrictions
- Train parents on the specifics of any program that you have developed, including data collection if applicable

Parent Training

- Establish rules regarding modification and use of specific programs
  - Proloquo2go
  - Conversation Builder
- Teach parents to establish and follow through with contingencies
- You must monitor the program (i.e., data)
Resources

- http://www.spectronicsinoz.com/article/iphoneipad-apps-for-aac
- http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/Files/SGD_EvidenceBase_0.pdf
- http://en.wikipedia.org/wiki/Augmentative_and_alternative_communication
- http://aac-rerc.psu.edu/

Questions?