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## Case Studies in AAC

Trina Becker, MS, CCC-SLP

Moderated by:  
Amy Natho, MS, CCC-SLP, CEU Administrator, [SpeechPathology.com](http://SpeechPathology.com)



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## Case Studies in AAC

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## Learning Outcomes

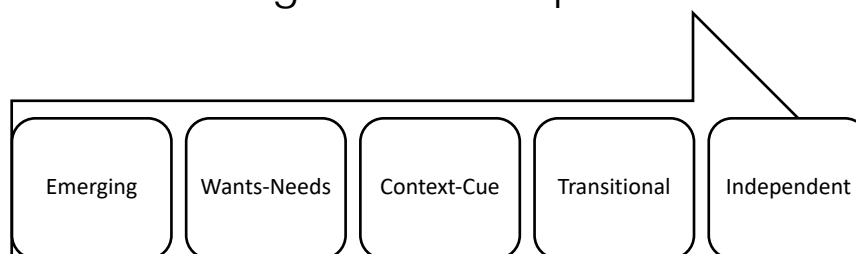
After this course, participants will be able to:

- Identify appropriate communication independence levels for individuals who use AAC based on case study descriptions.
- Identify goals appropriate for individuals who use AAC, based on case study descriptions.
- Describe evidence-based treatment strategies appropriate for individuals who use AAC, based on case study descriptions.

Stages of  
Development in AAC

Communication  
independence levels

## Consider Stages of Development in AAC



\*\*Provides a hierarchy of skills which can be used for establishing goals

RESOURCES : \*\*Tobii DynaVox Dynamic AAC Goals Grid 1 and 2

\*\*Classification system for individuals with aphasia developed by Garrett and Beukelman (1992;1998; revised in 2005)

\*\*Adaptations to levels of functioning made based on my professional experience

## Determining Client's Level of Communication Independence

- **Emerging Communicator** - not yet using symbolic communication to communicate or just beginning to
- **Wants/Needs Communicator** – using symbolic language primarily wants/needs
- **Context-Cue** – ready to learn language! Combining symbols to create sentences, answering questions, starting to use language for social purposes, etc. Relies heavily on context and cues to communicate.
- **Transitional** – gaining more complex language and social skills and becoming more independent
- **Independent** – independent communicator

## Summary of Stages of Development

- Emerging Communicator
  - Typically communicates non-verbally
  - Not using symbolic communication consistently
- Wants-Needs
  - Understands symbolic communication
  - Uses symbols to make requests
  - Vocab consists of highly motivating nouns and verbs
  - Doesn't typically use system for social communication

## Summary of Stages of Development

- Context-Cue Communicator – able to use AAC to do the following with support from familiar context or cues from communication partners
  - Create sentences
  - Answer and ask routine questions
  - Comment (yuck, I like this)
  - Participate in routine conversation
  - Basic device operations
  - Use some basic communication repair strategies

## Summary of Stages of Development

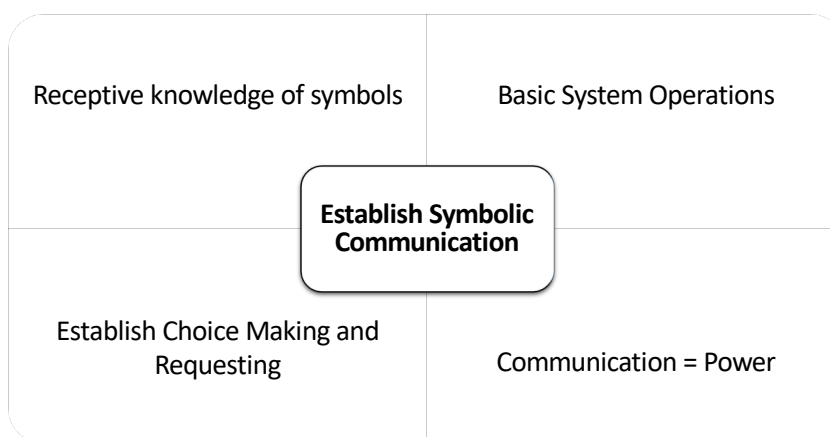
- **Transitional Communicator** - greater independence across all competency areas
  - Uses sentences with varied length and complexity
  - Answers and asks a variety of questions
  - Converses with various communication partners; may require assistance with unfamiliar CPs.
  - Competent with a variety of device operations
  - Mostly competent with recognizing and repairing conversational breakdowns
- **Independent Communicator** – generally competent across all communicative competency areas

## Continuum of Goals & Intervention Strategies

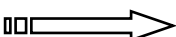
\*Not all inclusive list. Need to also think about specific skills that are precursors to the benchmark skills listed under each stage

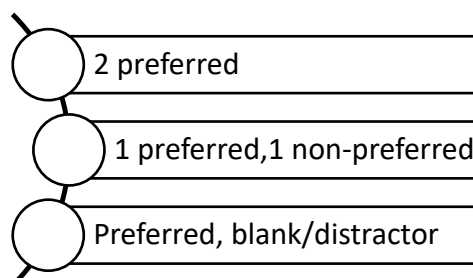


## Main Objectives for Emerging Communicator



## Teaching Offered Choice Making

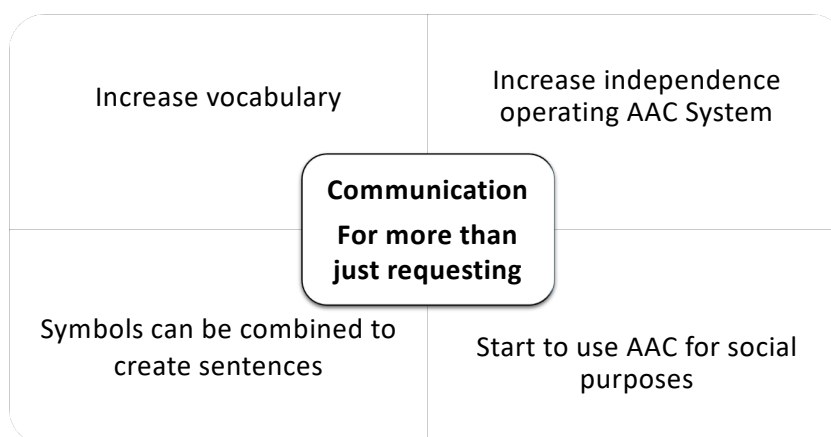
- Opportunities – embed into natural environment
- Objects  Symbols
- Teaching methods



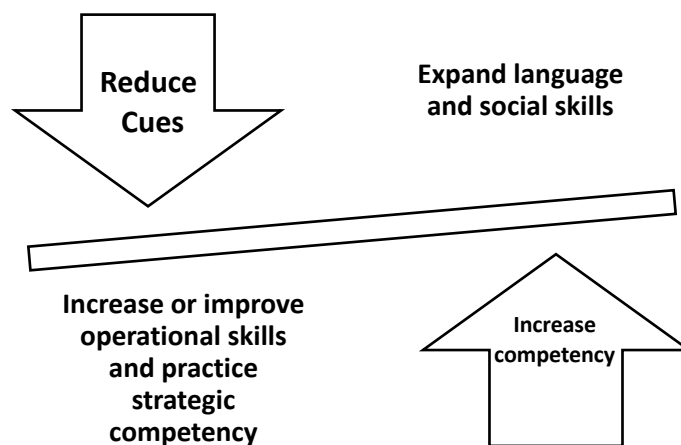
## Strategies to Teach Requesting

- Incidental Teaching (Sigafoos & Miranda, 2002)
  - Mand-Model - adult initiated, prompted
    - “what do you want?” If no response – model
  - Time-Delay –once behavior established, initiation
    - Question or object prompt paired with extended wait and expectant facial expression
  - Interrupted behavior chains
    - break in routine creates opportunity for request
  - Missing/out of reach item (sabotage)
- PECS – Picture Exchange Communication System (Flippin, Reszka & Watson, 2010)

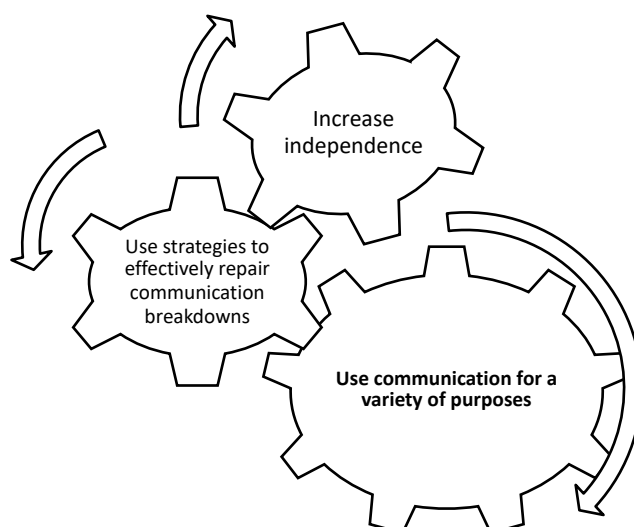
## Main Objective for Wants-Needs



## Main Objective for Context-Cue



## Main Objective for Transitional Communicator



## Strategies Language Intervention

- Aided AAC modeling
- Expectant delay
- Open-ended questions
- Recasting
- Structured intervention
- Cues
  - Cuing hierarchy
  - Visual Cues – pictures and sentence strips

## Aided Language Modeling

- Aided Language Stimulation
  - A teaching strategy in which the facilitator highlights symbols on the user's communication display as he interacts and communicates verbally with the user. (Goossens, Crain & Elder, 1992)
- Mimics the way typically developing children learn language
- Also referred to as...
  - Aided language modeling
  - Augmented input
  - System for Augmenting Language (VOCA)

## ALM can be used to teach...

- ALL language skills
  - Receptive before expressive
  - When in doubt...use ALM!!!
  - Strong EBP that supports this strategy
    - Semantics (Drager et, al, 2006)
    - Form (Binger & Light, 2007)
    - Parents and educators can learn how to do. (Kent-Walsh & McNaughten, 2005)
- \*Only one example of author(s) per area, but more EBP for ALM exists
- NOTE: Video Modeling has also been used as an effective intervention strategy, specifically for children with autism (Banda, Copple, Koul, Sancibrain, & Bogschutz, 2010)

## Open Ended questions and Expectant Delay

- Asking open ended questions will ...
  - Facilitate use of symbols
  - Prompt higher-content communication
  - Allow user to demonstrate knowledge
  - Facilitate turn taking
- Increased pause time during interaction to prompt child to communicate while maintaining eye contact and expectant facial expression.
  - EBP – Binger et. al, 2008; Olive et al., 2007)

## Recasting

- Expand child's utterance to add new information (model more advanced language)
  - Expand utterance
  - Use more specific vocabulary
  - Add word endings (-s, -ing, -ed)
- Always pair with modeling!

Car! → Go Car! → Go racecar! → Go faster racecar!

Flower → Pretty flower → Pretty rose →  
You smelled the pretty rose.

## Structured Teaching

- The skill is taught during a structured, drill-like task
- Usually in pull-out therapy, not natural contexts
- Not ideal for early language skills natural context best approach
- Better for teaching a specific, higher level language skill
- Used for skills that need discrete teaching and multiple opportunities for practice
- Usually focused on one discrete skill at a time

## Cuing Hierarchy

- General hierarchies (min, mod, max) not ideal because they lack specificity
- Specific cuing hierarchies preferred
  - Tobii DynaVox Cuing Hierarchy
    - Indirect cue
    - Direct verbal cue
    - Direct pointer cue
    - Physical assistance
- Can choose whatever cuing hierarchy you prefer but need to define each level of cuing

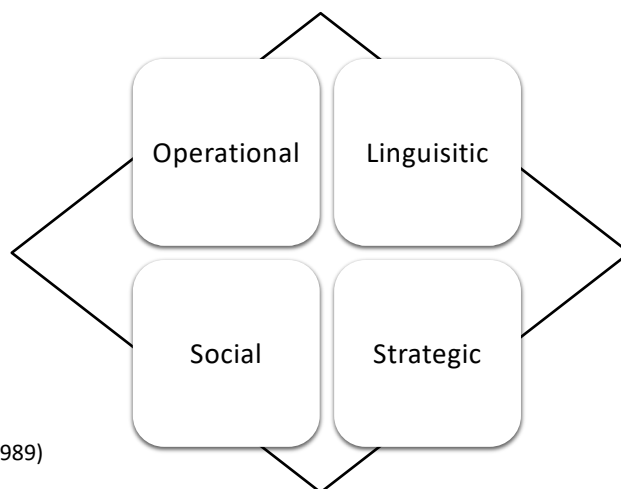
## Visual Cues

- Prompting with pictures
  - Sentence strips can be used during specific activities to demonstrate combination of picture symbols
  - Added to literacy activities
  - Can be used instead of verbal prompts
- Other strategies specific to social competency
  - Social scripts
  - Social stories



continued

AAC Goals should develop skills to promote communicative Competence



Light, J. (1989)

continued

## CASE STUDIES

Time to put knowledge  
into practice!

continued



continued

## Case 1

5 year old with apraxia of speech

continued

## Case 1: Background

- 5 year old child
- Dx: severe apraxia of speech
- Receptive language: Age appropriate – PPVT SS 92
- Expressive language: significantly delayed – primarily communicates in 1-2 word utterances. Difficult to get a reliable expressive language assessment due to poor intelligibility of speech.
- Speech Intelligibility: highly unintelligible and primarily consists of CV and occasional CVC productions. Child uses gestures and facial expressions to supplement speech
- Speech Therapy: Child has been receiving speech therapy since age 2

continued

## Question



Based on the background information, what level of communication systems would you have available for the evaluation?

- a) No tech (e.g., pictures or communication board)
- b) Low tech (1-2 message communicator)
- c) Mid tech (multi-message communicator, fixed display, recorded speech)
- d) High tech (dynamic display, synthesized speech, unlimited messages)

## Case 1: Evaluation Info

- AAC evaluation: client trialed 3 different high tech devices
  - Was able to use a variety of symbols for communication. After being provided with a model and shown location of symbols, child learned symbols quickly.
  - Combined 3 symbols to produce simple utterances such as “I want cracker” “Want play car”
  - Utilized greetings on the device to say hi/bye
  - Used comment “awesome”
  - Answered simple “what” questions to label toys, colors and food (e.g, ball, blue, apple)

Question



Based on evaluation information, what communication independence level is this child functioning?

- a) Emerging Communicator
- b) Wants/needs Communicator
- c) Context-cue Communicator
- d) Transitional Communicator
- e) Independence Communicator

## Case 1: Prescribed Device

- Client was prescribed a iPad with a sophisticated communication app with dynamic display, emphasis on core vocabulary for sentence building and keyboard for literacy development.
- What goals would you recommend?
- Keep in mind that goals should be written in all 4 areas of communication competence and should be geared toward moving the client to the next level of communication independence level

**Disclaimer:** The following goals are suggestions and are not an all inclusive list. They should only be used as a guideline as goals should be individualized for each client.

## Case 1: Operational Competence

- Perform basic functions such as on/off and volume control
- Utilize navigational symbols on the device to navigate through pages
- Utilize functional symbols to perform functions such as clear, delete, close page

Strategies: Structured practice and ALM

## Case 1: Linguistic Competence

- Increase exp. vocab to include functional core (verbs, adjectives, pronouns, concepts, etc.)
- Increase exp. vocab to include fringe vocabulary specific to client (personal information, likes, people, etc.)
- Increase MLU
- Answer wh-questions
- Use appropriate word endings (plurals, past tense, etc)

Strategies: ALM, Structured practice, open-ended questions, expectant delay, sentence strips

continued

Question



What would be most appropriate strategies for teaching child how to build sentences/expand MLU

- a) ALM
- b) Sentence Strips
- c) Expectant Delay
- d) Open-ended
- e) a and b
- f) All of the above

continued

Question



Structured practice would be the most appropriate to use to teach which of the following skills?

- a) Expanding core vocabulary
- b) Expanding fringe vocabulary
- c) Expanding MLU
- d) Using appropriate word endings

## Case 1: Social Competence

- Use comments during play activities and social exchanges (e.g., cool, awesome, oh no, boring, etc)
- Use greetings and farewells
- Appropriately join in to play activities
- Maintain a conversational topic for 3-4 conversational turns

Strategies: ALM, open ended questions, expectant delay, social scripts, social stories

## Case 1: Strategic Competence

- Will recognize when a conversational breakdown occurs
  - Doesn't have word on device
  - Presses wrong symbol
  - User or partner does has difficulty understanding
- Will choose appropriate strategy for breakdown
  - "Ask me a yes/no question"
  - "oops wrong button"
  - "let me try again"
  - "I don't understand"

Strategies: structured practice, ALM, role play

continued

## Case 2

3 year old with autism spectrum disorder

continued

## Case 2: Background

- 3 year old child
- Dx: autism spectrum disorder
- Receptive language: Significantly delayed. Not able to complete standardized testing. Play-based observation revealed limited joint attention, object exploration, imitation and turn-taking. Play was limited. Child engaged in repetitive and sensory seeking behaviors.
- Expressive language: Significantly delayed. Primarily communicates through behavior: reaching towards objects, grabbing communication partner's hand and leading toward desired item, crying and vocalizations.

continued

## Question



Based on the background information, what level of communication systems would you have available for the evaluation?

- a) No tech (e.g., pictures or communication board)
- b) Low tech (1-2 message communicator)
- c) High tech (dynamic display, synthesized speech, unlimited messages)
- d) All of the above

## Case 2: Evaluation Info

- AAC evaluation: client trialed no tech picture symbols and high tech communication system
- Modeling, physical assistance and maximum cues used throughout assessment to teach cause and effect and symbol-object correspondence
  - Did not engage in communication through pictures.
  - Did not make choices or requests using photographs or colored line drawings (e.g., Boardmaker pictures or symbols on various high tech communication systems)
  - Would walk up to something he was interested in, but would not use a picture to request a desired object



Question



Based on evaluation information, what communication independence level is this child functioning?

- a) Emerging Communicator
- b) Wants/needs Communicator
- c) Context-cue Communicator
- d) Transitional Communicator
- e) Independence Communicator

## Case 2: Prescribed AAC System

- It was recommended that SLP utilize both no tech pictures and high tech systems to try to establish cause and effect and symbol-object correspondence
- What goals would you recommend?
- Keep in mind that goals should be written in all 4 areas of communication competence and should be geared toward moving the client to the next level of communication independence level

**Disclaimer:** The following goals are suggestions and are not an all inclusive list. They should only be used as a guideline as goals should be individualized for each client.

## Case 2: Operational Competence

- Efficiently locate and point to desired pictures
- Demonstrate ownership of the communication system
- Transport communication system

## Case 2: Linguistic Competence

- Will develop linguistic precursors: joint attention, cause and effect and imitation
- Will use pictures to make meaningful choices
- Will use pictures to make requests for objects/actions
- Increase receptive and expressive vocabulary (verbs, nouns)

Strategies for cause & effect, choice making: 2 preferred, preferred/non preferred, preferred/blank,

Strategies for requesting: mand model, interrupted behavior chain, missing/out of reach item, expectant delay

Strategies for vocabulary: ALM, structured practice

## Question



Once child understands that selecting a symbol gets him something, what would be most appropriate strategy for teaching meaningful choice making

- a) 2 preferred items
- b) 1 preferred, 1 non-preferred
- c) 1 preferred, 1 blank or distractor
- d) a and b
- e) b and c

## Case 2: Social Competency

- Will establish object based turn taking
- Will use greetings hi/bye (may have goal for building receptive knowledge of this first)
- Will initiate interactions

Strategies: ALM, video modeling, structured practice, social stories

continued

## Case 2: Strategic Competence

- Will gain partner's attention before communicating
- Will repeat request if request is not met.

Strategies: sabotage, ALM

continued

## Case 3

12 year old with cerebral palsy

## Case 3: Background

- 12 year old child
- Dx: severe dysarthria
- Receptive language: Significantly delayed. Informal observation and criterion-referenced assessment indicated receptive language level around 24-30 months
- Expressive language: Significantly delayed – primarily communicates through vocalizations, gestures and a few modified signs (e.g., more, help, finished). Can also use no tech picture symbols to make basic requests for food, toys
- Speech Intelligibility: highly unintelligible and primarily consists of vowel-like vocalizations
- Other: client is very social and enjoys watching and interacting with peers

## Case 3: Evaluation Info

- 3 high tech AAC systems were trialed during evaluation
  - Client was able to make requests using the AAC systems. He easily transitioned from using no tech picture symbols to use the device.
  - Requests were for highly preferred items specifically, the no tech symbols he was exposed to with his no tech system
  - With moderate cuing he was able to request “more” and terminate an activity by using “all done” symbol
  - Did not utilize any “new” symbols or combine 2 symbols (e.g., “want \_\_\_”)

## Question



Based on evaluation information, what communication independence level is this child functioning?

- a) Emerging Communicator
- b) Wants/needs Communicator
- c) Context-cue Communicator
- d) Transitional Communicator
- e) Independence Communicator

## Case 3: Prescribed AAC System

- It was recommended that client receive a high tech AAC system with dynamic display
- What goals would you recommend?
- Keep in mind that goals should be written in all 4 areas of communication competence and should be geared toward moving the client to the next level of communication independence level

**Disclaimer:** The following goals are suggestions and are not an all inclusive list. They should only be used as a guideline as goals should be individualized for each client.

## Case 3: Operational Competency

- Will effectively and efficiently locate desired symbols
- Will independently transport communication system

## Case 3: Linguistic Competency

- Will increase symbol knowledge to include more nouns and verbs
- Build receptive symbol knowledge of descriptors/adjectives
- Will expand types of requests to include a variety of objects
- Will request actions (e.g., eat, play, read, watch, make, etc.)
- Will expand utterances by using carrier phrases (e.g., “want \_\_\_\_\_,” “like \_\_\_\_\_”)

Strategies for vocab: ALM, structured teaching

Strategies for expanding requests: ALM, Mand Model, interrupted behavior chains, expectant delay, missing item, sabotage

Strategies for expanding utterances: recasting, sentence strips

## Case 3: Social Competency

- Will use greetings and farewells
- Will use comments to express basic feelings (e.g., pleasure, displeasure).
- Build receptive knowledge of comments to express a variety of emotions.

Strategies: ALM, social scripts, social stories, open-ended questions, expectant delay

Question



If you were to choose a strategy to begin teaching comments, which of the following strategies would you pick?

- a) Social story
- b) Aided language modeling
- c) Open ended questions
- d) Expectant delay



continued

## Case 4: Strategic Competency

- Will gain partner's attention before communicating
- Will repeat request if request is not met

continued

Summary

Take away message

continued

continued

## Assigning Communication Independence levels

- Communication independence levels should be determined based on how client uses picture symbols for communication.
- Communication independence levels can be used to help determine:
  - Type of AAC system
  - Goals to target (you are always working towards the next communication independence level)

continued

## Determining Goals

- Write goals in all 4 competency areas to develop a well-rounded communicator. Can't forget about operational and strategic skills.
- Use communication independence levels as a road map
- Always incorporate receptive goals. What area(s) do you need to build receptive knowledge so that client has solid foundation to build expressive skills. Will result in less cuing when it is time for client to use expressively.

## Choosing Intervention Strategies

- REMEMBER: AAC intervention is just language intervention using a different modality. You can use many of the same strategies you use with verbal children.
- Aided Language Modeling (ALM) – most versatile and effective intervention strategy to teach child how to communicate with an AAC system. Can embed when using other intervention strategies.
- Consider a least to most cuing hierarchy to encourage independence

## Resources

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- Beukelman, D. & Mirenda, P. (2005). *Augmentative and Alternative Communication: Management of Severe Communication Disorders in Children and Adults* (3rd ed.). Baltimore: Paul H. Brookes Publishing Company.
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## Resources

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