

# Practical Language-Based Solutions for Children who Need AAC

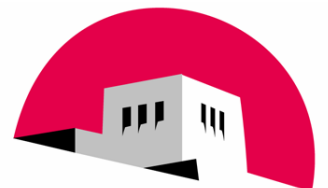
## Part I: Fostering Expressive Language & Communication Skills

Cathy Binger,  
Ph.D., CCC-SLP  
University of New Mexico

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# OVERVIEW

## Morning Session

- Background
- Interaction Strategy
  - Techniques to Improve Expressive Communication
    - Aided AAC Modeling
    - Expectant Delay
    - Open-Ended Question Asking
    - Direct verbal prompting
    - (Physical prompting)
    - Increased Responsivity

## Differences between the Videos

- What are the differences between the two videos?

## Overall Goals by End of Session

- or you to
  - Learn to use the strategy used in the second video (plus a few additional ones)
  - Adapt the strategy for clients/students on your caseloads

# BACKGROUND

- Risks to Development for Children who use AAC
  - At risk in all aspects of language development (Binger & Light, 2008)
    - Pragmatic
    - Semantic
    - Syntactic
    - Morphological
    - Narrative
  - Historically more focus on improving pragmatics
  - More focus recently on other areas

## – Contributing factors

- intrinsic factors
  - e.g., cognitive impairments, motor speech impairments
- extrinsic factors
  - e.g., lack of communication opportunities, lack of access to appropriate AAC solutions

## – We have more control over the *extrinsic* factors

- Can help children make rapid progress when we tackle extrinsic factors
  - » Main focus of today's talk
- Can help compensate for some intrinsic factors, too
  - » e.g., expectant delay increases processing time

# BACKGROUND

- **Communication Characteristics of many *Children who use AAC*** (e.g., Light, Collier, & Parnes, 1985):
  - are passive communicators
  - initiate few interactions
  - respond infrequently
  - produce a limited number of communicative functions
  - use restricted linguistic forms
- **Communication Characteristics of many *Communication Partners*** (e.g., Light, Collier, & Parnes, 1985):
  - Take the majority of conversational turns
  - Provide few opportunities for communication
  - Ask predominantly Yes/No questions
  - Interrupt individuals using AAC
  - Focus on the technology, instead of the individual

# BACKGROUND

- Children who tend to make very rapid progress
  - Large receptive-expressive gap
    - Gap with this population is typically due to severe/profound motor-speech impairments
    - These children lack the **tools** to communicate linguistically, not the **ability**

# Children who can make Rapid Progress with AAC

- Test receptive language formally
  - May need to make adaptations for physical limitations
- Use standardized, normed tests that require NO verbal output from child
  - Good tests for children who need AAC
    - PPVT
    - Test of Auditory Language Comprehension (TACL)
    - CELF-P (some sections)
  - Terrible tests for children who need AAC
    - PLS
      - Requires verbal output on receptive portion



# Children who can make Rapid Progress with AAC

- Determine age-equivalent score on test
- This is the age to aim for *expressively*
  - Child's age = 5;0
  - Receptive age = 3;0
  - Expressive expectations = ???
    - What are your expectations for language for a child who is 3 years old?

# Children who can make Rapid Progress with AAC

- Even if there is a big gap between chronological age and receptive age
  - Chances are very good that you are underestimating expressive capability
- Many children are simply lacking the tools and expectation that they can do more expressively

# BACKGROUND

- Language Intervention Techniques that Increase Early Expressive Communication Skills  
(e.g., Binger, Kent-Walsh et al., 2008; in press; Kent-Walsh, Binger, et al., in press)
  - Aided AAC Modeling
  - Expectant Delay
  - Open-Ended Question Asking
  - Direct Verbal Prompting
  - (Physical prompting)
  - Increased Responsivity
- These steps have been incorporated into Interaction Strategies
  - Least-to-most prompting hierarchies
    - Focus is on improving everyday functional communication

# Interaction Strategies

- Have been successfully taught to and used by:
  - Parents
    - African-American
    - Anglo /White
    - Latino
  - Educators
    - Educational assistants
    - Classroom teachers
    - Other support staff (SLPs, OTs, etc.)
    - From various cultural/ethnic backgrounds
  - Peers

# Interaction Strategies

- Have been instructed
  - Individually
  - In groups
    - “AAC Camp” for parents
    - AAC teams in schools (current project)
- We’ll focus on the instruction this afternoon...

# Interaction Strategies

- Have successfully been used with children ages 3-12 who have
  - Cerebral palsy
  - Childhood apraxia of speech
  - Cornelia de Lange Syndrome
  - Developmental Delays
  - DiGeorge Syndrome
  - Down Syndrome
  - Mental retardation
  - Prader-Willi Syndrome
  - Profound phonological disorders
  - (Autism)

(Binger & Light, in press; Binger & Kent-Walsh, 2006; Kent-Walsh, 2003; Kent-Walsh et al., 2004)

# Interaction Strategies

- Have resulted in improvements in the following areas
  - Pragmatics
    - Turn-taking skills
    - Communicative functions
  - Semantics
    - Vocabulary size & diversity
  - Syntax
    - Length of messages
    - Complexity of messages
  - Morphology
    - Use of bound morphemes

(Binger, Kent-Walsh et al., 2008; in press; submitted; Kent-Walsh, 2003; Kent-Walsh et al., in press)

# Interaction Strategies

- Clinical Implications of Instruction
  - For many skills, involves relatively little instructional time
    - With children ~1-4 hours
    - With communication partners ~ 2-3 hours
  - Yields very positive changes in children's expressive communication
  - Yields high participant satisfaction for communication partners



# Sample Interaction Strategy

## Interaction Strategy for Teaching Multi-Symbol Messages

Until the student uses 2 symbols, you will RAAP on each double-page spread of the book:

“Elicitation” Component

**READ + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ASK + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ANSWER + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**PROMPT** using AAC system  
“Show me two”

*\*Pause\**

“Response” Component




*When the student uses 2 or more symbols:*

***RESPOND*** by using 2 or more symbols



**RAAP, RAAP, RAAP!**

# Sample Communication Board

who 	Little Critter 	raining 	want 	bad 	day 	cereal 
what 	Mom 	eat 	wear 	wet 	oatmeal 	shirt 
where 	Dad 	watch 	paint 	break 	TV 	picture 
Sister 	play 	throw 	chase 	truck 	wheel 	
puppy 	Mouse 	color 	stop 	puzzle 	puzzle piece 	cards 

# AIDED AAC MODELING

- Used in most steps in the Interaction Strategy above (can be used on its own, too)
- Purpose
  - To provide functional models of effective AAC use
- Method
  - The communication partner:
    - Selects aided symbols while
      - labeling the symbols orally
        - » if low tech AAC is used
      - the speech synthesizer provides the label
        - » if a voice output system is used

# AIDED AAC MODELING

- History
  - Technique has been promoted for many years
  - Research supports its use (e.g., Binger & Light, 2007; Goossens' 1989; Ronski et al., in press)
  - But communication partners seldom do this
  - If I had to select **one** technique to teach partners, it usually would be this one

# EXPECTANT DELAY

(\*Pause\* on the Interaction Strategy)

- Used after each step in Interaction Strategy
- Purposes
  - To provide
    - communication opportunities
    - additional processing time
    - expectation for communication
- Method
  - The communication partner:
    - Maintains eye contact while:
      - Maintaining an expectant facial expression
      - Providing increased conversational pause time (Light & Binger, 1998)

- History

- Has been promoted for years for children with language disorders (verbal)
  - “Time delay” in milieu teaching
  - “Expectant delay” in focused stimulation
- Must be conscious of cultural differences
  - E.g., expectant eye contact may be seen as punitive in some Latino families

# Interaction Strategy

for

## Teaching Multi-Symbol Messages

Until the student uses 2 symbols, you will RAAP on each double-page spread of the book:

“Elicitation” Component

**READ + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ASK + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ANSWER + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**PROMPT using AAC system**  
“Show me two”

*\*Pause\**

“Response” Component

*When the student uses 2 or more symbols:*

***RESPOND* by using 2 or more symbols**



**RAAP, RAAP, RAAP!**

# ASKING *WH* QUESTIONS

- Second step in Interaction Strategy
- Purpose
  - To prompt higher-content communicative turns  
(e.g., Basil, 1992; Bruno & Dribbon, 1998).
- Method
  - Replace yes/no questions with *WH* questions using both speech and AAC



# ASKING *WH* QUESTIONS

- History
  - Children who use AAC frequently communicate mainly by answering yes/no questions
    - Very efficient way to communicate
    - Partners know the child has the vocabulary to answer the question
  - Does not allow them to initiate
  - Does not promote semantic and syntactic development

# Interaction Strategy

for

## Teaching Multi-Symbol Messages

Until the student uses 2 symbols, you will RAAP on each double-page spread of the book:

“Elicitation” Component

**READ + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ASK + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ANSWER + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**PROMPT using AAC system**  
“Show me two”

*\*Pause\**

“Response” Component

*When the student uses 2 or more symbols:*

***RESPOND* by using 2 or more symbols**



**RAAP, RAAP, RAAP!**

# ANSWER *WH* QUESTIONS

- Third step in Interaction Strategy
- Purpose
  - To model an appropriate answer to *WH* questions if needed
  - Helps teach question-and-answer formats
- Method
  - Provide an answer to the question posed using both speech and AAC

# Interaction Strategy

for

## Teaching Multi-Symbol Messages

Until the student uses 2 symbols, you will RAAP on each double-page spread of the book:

“Elicitation” Component

**READ + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ASK + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ANSWER + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**PROMPT using AAC system**  
“Show me two”

*\*Pause\**

“Response” Component

*When the student uses 2 or more symbols:*

***RESPOND* by using 2 or more symbols**



**RAAP, RAAP, RAAP!**

# DIRECT VERBAL PROMPT

- Last step in Interaction Strategy (usually)
- Purpose
  - To provide child with a direct indication of what he or she is supposed to do
- Method
  - Provide a BRIEF verbal prompt (2-3 words)
    - E.g., If goal is to produce multi-symbol utterance → “Show me two”

# DIRECT VERBAL PROMPT

- History
  - Often, communication partners provide no opportunities for communication
  - But when they do, many partners provide WAY too much verbal prompting
    - “Jimmy, it’s your turn, now point to *CLIFFORD*, it’ right there, see? There’s Clifford, he’s a big dog, isn’t he? Yes, Clifford is a big red dog. Now show me where he is, where is the big red dog?.....”
  - Goal is to have children be spontaneous
  - But if a child needs it, it’s ok to provide *very brief* verbal prompts

# PHYSICAL PROMPTS

- Not built into the strategies we've been using
- Some children quickly become “prompt dependent”
- Only add this step if there are no other options
  - LAST step in a least-to-most cueing hierarchy
- If child is consistently at this level, will need to fade
  - (Typically, no ‘fading’ needed in least-to-most cueing hierarchy)

# Other Potential Prompts

- Pointing toward the device
- Pointing toward a particular symbol
- Touching the child's arm or elbow
- Others you can think of?

\*Where would you put each one on the hierarchy?\*



# INCREASED RESPONSIVITY

- “Response” Component of Interaction Strategy
- Purpose
  - reinforce communicative attempts
  - expand utterances
- Method
  - Provide appropriate and consistent responses to communicative intent of messages

# INCREASED RESPONSIVITY

- Tons of research to support the use of contingent responses to support language development
- May take different forms
  - Imitation (confirms child's message)
  - Expansion (adds syntactic complexity)
  - Extension (adds new info)
  - Correction (if off topic)
- Same role as for other children; only the tool is different
  - i.e., AAC instead of speech

# Up Next.....

- How to teach communication partners to use all of these techniques

# Practical Language-Based Solutions for Children who Need AAC

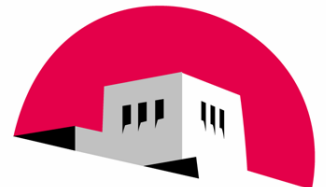
## Part II: Teaching Key Communication Partners to Improve Outcomes

Cathy Binger,  
Ph.D., CCC-SLP  
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The University of New Mexico

# OVERVIEW

## Afternoon Session

- Teaching AAC Strategies/Techniques to Others
  - Why use such a formal approach?
- Strategy Demonstration
- Practicing the Strategy
- Your cases
- Questions

# Teaching AAC Strategy/Techniques to Communication Partners

(Teachers, EAs, parents, peers, etc.)

- Based on Cognitive Strategy research (Ellis et al., 1991)
- Comes from educational research
- Has been used to teach many different skills to students
- We're applying the same approach for teaching skills to communication partners

# Partner Instruction Steps (Kent-Walsh & McNaughton, 2005)

- (1) Pre-test and commitment to completing instructional program
- (2) Strategy description
- (3) Strategy demonstration
- (4) Verbal practice of strategy steps
- (5) Controlled practice and feedback
- (6) Advanced practice and feedback
- (7) Post-test and commitment to long-term strategy use
- (8) Generalization of targeted strategy use

# Why Use such a Formal Approach?

- First, a little background
  - How many of you have told parents/educators how to use an AAC device (or told them anything else for that matter) and come back later to find that nothing has been done/changed?
  - How many of you have been frustrated by this?
- Goal of this part of the session:
  - Teach you ways to help ensure that both you and the parents/educators are no longer caught in this trap



- Developing ***knowledge***
  - When you tell or show someone how to do something
- Developing ***skills***
  - When the person you are teaching has hands-on practice

- We usually teach others by ‘telling’ or ‘showing’
- But if you really want someone to learn how to do something, they have to ***practice***
- It is really no surprise, then, that many AAC devices sit around not getting used

- This 8-step program is all about teaching new **skills**, not just new knowledge
- You can use/adapt these 8 steps to teach parents, educators, and children a huge range of new skills

# TEACHING INTERACTION STRATEGY

## Case Study: Oscar

- Age: 6;4
- Dx: DD
- TACL-3 Age Equivalent score (overall):
  - 3;6
- **Comprehensibility** (Index of Augmented Speech Comprehensibility in Children; Dowden, 1997)
  - Without context: 30%
  - With context: 53%
  - → better intelligibility than many kids who use AAC
- Seldom initiates speech

# (1) Pre-test and commitment to completing instructional program

- Show pre- and post- videos; discuss differences (next 2 slides)
- Alternatively: Can simply demonstrate with the child
  - Spend ~ 5 minutes showing what it looks like to NOT use the strategy/techniques you're going to teach
    - Interact with the child in ways that are typical for the communication partners you are about to teach
  - Then spend ~ 5 minutes showing what it looks like to USE the strategy/techniques you're going to teach

# Commit to Completing Program

- Ensures understanding of and commitment to learning the new strategy

**Instructional Program Contract**

**PARTICIPATING EDUCATIONAL ASSISTANT**

I, \_\_\_\_\_, understand that the goal of the instructional program in which I will participate is to increase the expressive language skills of my student ( \_\_\_\_\_ ) during book reading activities. I understand that I will learn to use a specific interaction strategy to facilitate the communication of this student.

I am committed to learning to implement the interaction strategy and to fully participating in the following instructional activities:

- In today’s session, I will learn about the interaction strategy that we will be using throughout the instructional program, and I will have an opportunity to practice using this strategy during role-plays with the researcher.
- For the next three instructional sessions (approximately), I will have the opportunity to practice using the strategy during role plays and during book reading activities with my student.
- In another instructional session, I will review my progress and commit to a long-term plan for continuing to use the strategy.
- I will participate in any additional instructional sessions required to facilitate my learning.

I understand that these instructional sessions will involve approximately five hours of my time.

**RESEARCHER**

I, \_\_\_\_\_, agree to conduct the above-listed instructional sessions with \_\_\_\_\_, in order to assist him/her in learning to implement the interaction strategy.

\_\_\_\_\_  
Participating Educational Assistant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

## (2) Strategy Description

- Provide people you are teaching with some type of visual aid/handout if you are teaching a multi-step strategy (like RAAP)
- May not need handout if you are teaching just one technique
  - E.g., aided AAC modeling
- Describe each component of strategy or technique



# Handout of RAAP RAAP RAAP! Strategy

## Interaction Strategy

for

## Teaching Multi-Symbol Messages

Until the student uses 2 symbols, you will RAAP on each double-page spread of the book:

“Elicitation” Component

**READ** + MODEL 2 SYMBOLS  
using AAC system

*\*Pause\**

**ASK** + MODEL 2 SYMBOLS  
using AAC system

*\*Pause\**

**ANSWER** + MODEL 2 SYMBOLS  
using AAC system

*\*Pause\**

**PROMPT** using AAC system  
“Show me two”

*\*Pause\**

“Response” Component

*When the student uses 2 or more  
symbols:*

***RESPOND*** by using 2 or more  
symbols



**RAAP, RAAP, RAAP!**

# (3) Strategy Demonstration

- ROLE PLAYS
  - Core part of a cognitive strategy instructional approach
  - This is the ‘practice’ part that builds ***skill***, instead of just knowledge
  - FAR more powerful than simply telling or showing someone how to do something

# (3) Strategy Demonstration

- SLP plays communication partner; partner plays child
- SLP demonstrates how to use the instructional strategy
- Use “think-aloud” statements
- Demo at least 10 pages

# (3) Strategy Demonstration

- Start simple
  - First 3 pages: “Child” says nothing; SLP demonstrates whole strategy

# RAAP! Example: First Step READ + MODEL 2 SYMBOLS

- First Step
  - I'll demonstrate
    - READ and MODEL TWO SYMBOLS ON DEVICE
    - Pause for AT LEAST 8 full seconds
      - “I wanted a puppy, just for me. So I traded my baseball mitt for one.”
      - “Little Critter **LITTLE CRITTER** wanted a puppy **PUPPY**”
      - *‘Child’ does and says NOTHING until later on in the program*

- Now you try for 3 pages (SLP and ‘child’)
  - Pair up and practice
  - Use
    - communication boards
    - copies of book pages
    - Interaction Strategy

# SLP plays communication partner; partner plays child

(Oscar Video #1)

who 	Little Critter 	raining 	want 	bad 	day 	cereal 
what 	Mom 	eat 	wear 	wet 	oatmeal 	shirt 
where 	Dad 	watch 	paint 	break 	TV 	picture 
	Sister 	play 	throw 	chase 	truck 	wheel 
puppy 	Mouse 	color 	stop 	puzzle 	puzzle piece 	cards 

# (3) Strategy Demonstration

- Systematically increase difficulty
  - Interaction Strategy
  - Have ‘child’ jump in at various points
    - Use one symbol
      - » Appropriately
      - » Inappropriately
    - Use two symbols
    - Use speech, pointing, signs, other gestures



# (4) Verbal practice of strategy steps (RAAP RAAP RAAP!)

- Helps partner to
  - memorize the strategy
  - Depend less on the handout
  - Integrate the new information

# (4) Verbal practice of strategy (RAAP RAAP RAAP)

“Let’s practice saying the steps involved in the strategy:

- **R**ead
- **A**sk
- **A**nswer
- **P**rompt
- And always respond with 2 symbols

(a) “Let’s say it together (at least 5 times)

(b) “Now you say the steps 5 times”

(c) “Now I’ll say them again 5 times”

(d) “Now you say them again 5 times”

# (5) Controlled practice and feedback

- SLP plays ‘child’; Partner plays self
- Start simple
  - SLP provides feedback and guidance as needed
  - “Errorless learning” approach; don’t let the partner make mistakes

# SLP plays child; Partner plays self

- Start simple
  - First 3 pages: ‘Child’ says nothing; Partner goes through whole RAAP strategy
    - Pair up and practice
- Systematically increase difficulty
  - Next 7 pages or so: “Child” takes single symbol turns at various points in the hierarchy
  - (Partner will therefore still have to go through each RAAP step)
  - Pair up and practice

# SLP plays child; Partner plays self

- Continue to increase difficulty
  - “Child” begins to use 2-symbol messages
    - At this point, will need to discuss how to **respond** to any multi-symbol messages
  - Take variety of different turns at various points in the hierarchy
  - \*\*\*Mimic the child with whom you’d be using this\*\*\*
    - Might try to get out of your seat, etc.

# SLP plays child; Partner plays self

- Continue until partner feels ready to work with child
- Then switch places and start Step 5 over again

## (6) Advanced Practice & Feedback

- Partner works with child directly
- SLP sits in background and provides feedback as needed
- Continue with 'errorless learning' approach
  - SLP help as much as needed
  - Fade feedback as partner masters using the strategy with the child

# (7) Post-test and commitment to long-term strategy use

- Partner works with child until specified criterion is met
  - Oscar:
    - Uses at least 10 multi-symbol messages within a 10 minute story reading activity at Read, Ask, or Answer level of hierarchy across 3 consecutive sessions
  - Other skills/children
    - Takes a symbolic turn on 80% of the pages in a story reading activity
    - Uses at least 10 [descriptor + object] combinations during 15 minute art activity
    - Etc.



# (7) Post-test and commitment to long-term strategy use

- Obtain feedback from the partner to see what they liked and suggestions they'd make for improvement
- Generate an 'action plan' for ensuring
  - Partner will continue to use new skills
  - Child's performance will be maintained over time

# (8) Generalization of strategy

- Practice using strategy/skill across wide range of settings
  - E.g., other classroom activities for Oscar
  - Will very likely need new vocabulary/communication boards
  - Need a plan to ensure these are developed
  - Collaborative effort!
  - Lots of boards available at [www.adaptedlearning.com](http://www.adaptedlearning.com)

# ADAPTING STRATEGY FOR OTHER CONTEXTS AND SKILLS

- Other contexts
  - School
    - Circle time
    - Centers
    - Math/Science/Language arts/etc.
    - Snack/lunch
    - Anytime where child is interacting w/ others
  - Home
    - ADLs
      - Shopping, play routines, bath time (laminated!), etc.
    - Play routines (tea party, vehicles, Barbies (see next slide))
    - Ask parents!

who



Anamae



want



ride



wild



yellow



castle



shirt



what



Maria



brush



push



naked



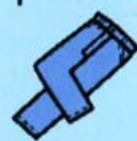
green



hair



pants



where



Sara



get dressed



sleep



red



blue



car



dress



Mom



splash



drink



orange



bed



shop



skirt



Dad



eat



drive



purple



blanket



shower



house



big



little



tent



tub



carriage



# Interaction Strategy

for

## Teaching Multi-Symbol Messages

Until the student uses 2 symbols, you will CAAP:

“Elicitation” Component

“Response” Component

**COMMENT + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ASK + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**ANSWER + MODEL 2 SYMBOLS**  
using AAC system

*\*Pause\**

**PROMPT** using AAC system  
“Show me two”

*\*Pause\**

*When the student uses 2 or more  
symbols:*

***RESPOND*** by using 2 or more  
symbols



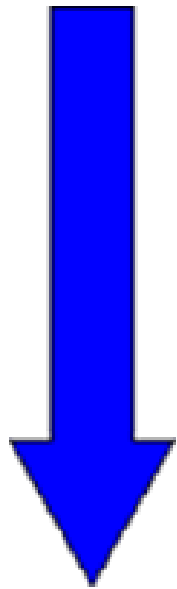
**CAAP, CAAP, CAAP!**

# ADAPTING STRATEGY FOR OTHER CONTEXTS AND SKILLS

- Other skills
  - Turn-taking (see next slide)
  - Grammatical structures
  - Partner-focused questions
  - Greetings
  - Etc.

# ADAPTING STRATEGY FOR TURN-TAKING

On each double-page spread in each book read, you will RAA as follows:



READ + MODEL using AAC system

\*Pause\*

ASK + MODEL using AAC system

\*Pause\*

ANSWER + MODEL using AAC system

*RESPOND* to all  
communicative  
turns taken by  
[target student]  
at any time.

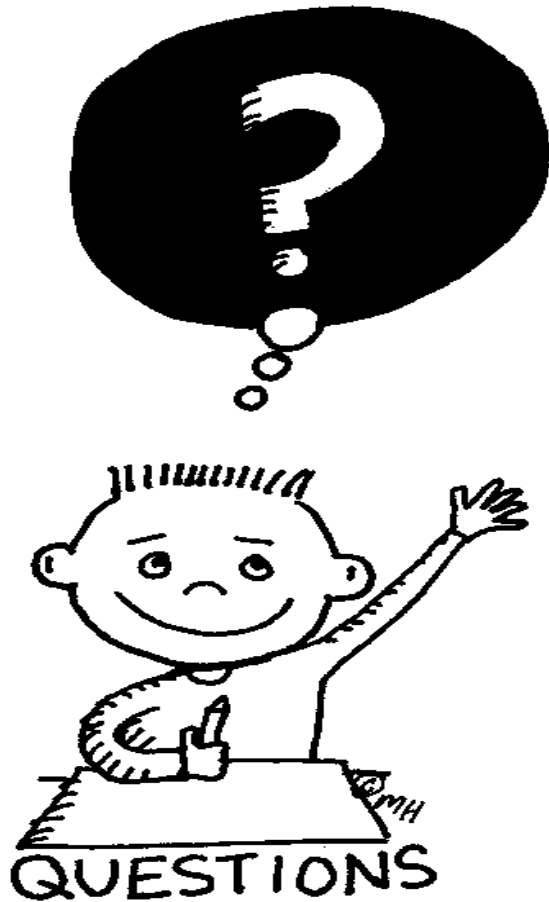
*RAA, RAA, RAA!*

# YOUR CASES

- Cases you'd like to discuss
  - Other skills
  - Adapting the strategy
- How would you adapt strategy for higher level skills?
  - What might you need to change, and why?



# QUESTIONS?



# CONTACT INFO

**Cathy Binger**

Dept. of Speech and Hearing  
Sciences

University of New Mexico

E-mail: [cbinger@unm.edu](mailto:cbinger@unm.edu)

Little Critter, Dora, Clifford, and  
other boards available:

[www.cathybinger.com](http://www.cathybinger.com)

# Key References

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