

# *How can I target AAC and Natural speech in childhood apraxia or dysarthria therapy?*

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Chicago, IL  
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W185BC, McCormick Place



## *Speaker Disclosure*

Elizabeth Oommen & John McCarthy have no relevant financial or nonfinancial relationship(s) to disclose.

# Dual Paradigm Approach

## What?

- Simultaneously targeting natural speech & AAC strategies in intervention

## Why?

- *Best approach*: Use of natural speech for communication, supplemented by AAC strategies [Hustad et al., 2002]
- AAC intervention strategies do not hinder the development of natural speech in children [Millar et al., 2006; Ronski & Sevcik, 2005; Culp, 1989]
- Ability to integrate & use multiple modes of communication depending on the communication partner & context

[Hustad & Shapley, 2003]



## *Dual Paradigm Approach*

- Important consideration in children with severe AOS
  - Difficulty using natural speech for functional communication [Hall, 2000]
- Shown to improve communication & social participation
  - In those individuals where natural speech cannot be used to satisfy all communication needs [Beukelman & Miranda, 2005]
- *Established lack of research*: Examining the speech outcomes when natural speech & AAC strategies are simultaneously targeted in children [Hustad et al., 2002]
- *Limited literature*: Decision making process adopted by professionals using the dual paradigm approach



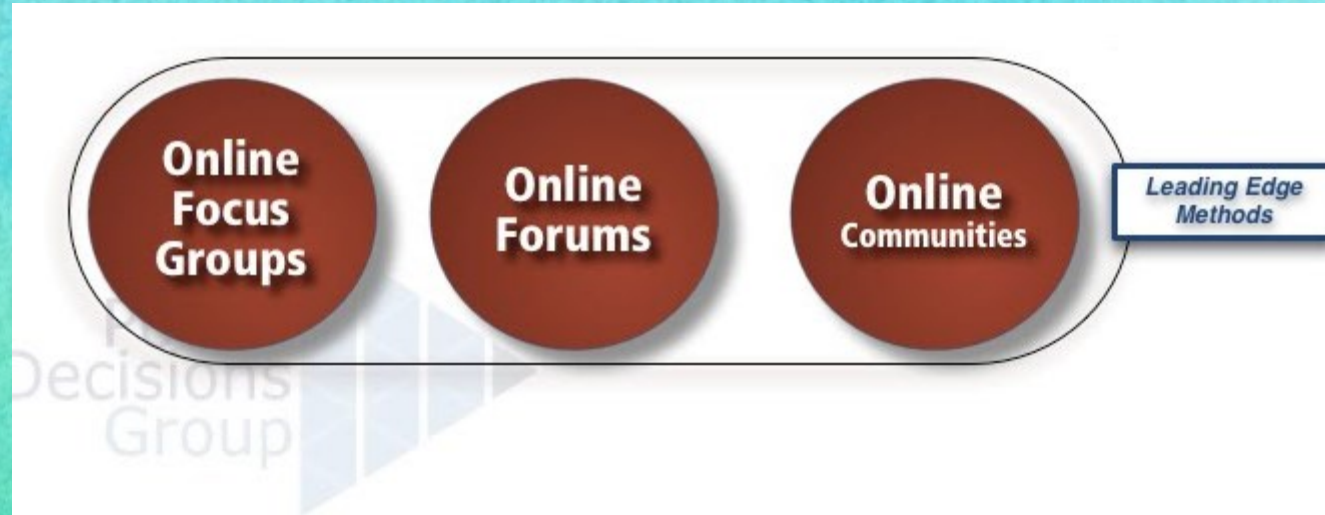
# *Research Questions*

*When addressing intervention for children with dysarthria & apraxia of speech, among the areas of participation, literacy, language, and speech:*

*How do AAC intervention specialists make decisions regarding the frequency and duration of therapy goals targeting natural speech?*







*Method*



# *Design*

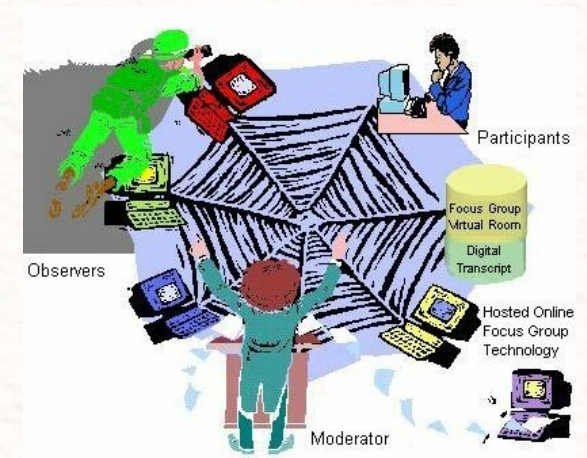
## ➤ Qualitative online focus group methodology

- No restriction on geographical location (Williams & Robson, 2004)
- Allowed interaction in a convenient setting

## ➤ Focus groups modified for online purposes

## ➤ Recruitment:

- SLPs in the field of AAC with a strong record of publication
- SLPs providing AAC services in societies & forums
- Advertising in Division 12 of ASHA



## *Inclusion Criteria*

### ➤ *Apraxia of Speech*

- Certified SLPs
- 5 years of clinical experience
- Significant clinical experience
  - Providing some type of AAC intervention services to children
  - Providing some direct intervention services to children with AOS

### ➤ *Dysarthria*

- Certified SLP providing direct AAC intervention services for 50% of the time
- Experience providing AAC intervention services to children with dysarthria
- 5 years clinical experience



## *Materials*

- Online password protected forum: phpBB® software
- Demographic & screening questionnaire
  - 12 questions
  - Individual password protected forums
- Focus Group Discussions
  - Open ended questions
  - Password protected forums
  - Questions were created by the researchers & modified based on feedback from 6 professionals



## *Focus Group Discussions*

Question I: Have you always **conducted treatment** for children with apraxia /dysarthria of speech with this **dual paradigm approach**?

–If yes/ no, what factors do you led you to believe this / change your philosophy of treatment?

Questions II: What are the **challenges / barriers** when targeting natural speech in children with apraxia / dysarthria who use AAC?



## *Focus Group Discussions*

Question III: When you think about the most challenging case (child with apraxia of speech / dysarthria ) where you worked on natural speech and AAC goals:

- How did you and/or the educational team make decisions regarding the time allotted for goals targeting natural speech during intervention?
- How often did you target the goals focusing on natural speech over the course of intervention and were you satisfied with that?
- In one session, how long did you target the goals focusing on natural speech and were you satisfied with that?
- Describe how you targeted natural speech and AAC goals



## *Focus Group Discussions*

Question IV: When you think about the **least challenging case** where you worked on natural speech and AAC goals for a child with dysarthria /apraxia of speech:

- How did you and/or the educational team *make decisions* regarding the time allotted for goals targeting natural speech during intervention?
- How *often did you target the goals* focusing on natural speech over the course of intervention and were you satisfied with that?
- In *one session, how long did you target the goals* focusing on natural speech and were you satisfied with that?
- Describe *how you targeted natural speech and AAC goals*



## *Focus Group Discussions*

Question V: How do you work with different members of the team to ensure generalization of skills targeted during the session?

Question VI: What recommendations would you have for a clinician who is just learning how to integrate working on natural speech and AAC?





## Natural Speech and AAC Decision Making

Focus Group discussion of natural speech and AAC intervention in children

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## Demographic and Screening Questionnaire

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Please answer this question second last. by <b>mccarthy</b> » Tue May 03, 2011 2:35 pm	0	1	by <b>mccarthy</b> Tue May 03, 2011 2:35 pm
Please answer this question tenth. by <b>mccarthy</b> » Tue May 03, 2011 11:35 am	0	4	by <b>mccarthy</b> Tue May 03, 2011 11:35 am
Demographic and Screening Questionnaire by <b>mccarthy</b> » Wed Feb 02, 2011 10:04 pm	0	5	by <b>mccarthy</b> Wed Feb 02, 2011 10:04 pm
Please answer this question first. by <b>mccarthy</b> » Wed Feb 02, 2011 9:56 pm	0	3	by <b>mccarthy</b> Wed Feb 02, 2011 9:56 pm
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Please answer this question fifth. by <b>mccarthy</b> » Wed Feb 02, 2011 9:43 pm	0	2	by <b>mccarthy</b> Wed Feb 02, 2011 9:43 pm
Please answer this question sixth. by <b>mccarthy</b> » Wed Feb 02, 2011 9:42 pm	0	4	by <b>mccarthy</b> Wed Feb 02, 2011 9:42 pm
Please answer this question seventh. by <b>mccarthy</b> » Wed Feb 02, 2011 9:32 pm	0	5	by <b>mccarthy</b> Wed Feb 02, 2011 9:32 pm
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Please answer this question ninth. by <b>mccarthy</b> » Wed Feb 02, 2011 9:28 pm	0	4	by <b>mccarthy</b> Wed Feb 02, 2011 9:28 pm
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by mccarthy » Tue May 03, 2011 3:08 pm

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### Welcome to the Focus Group Discussion Forum!

by [mccarthy](#) » Mon Feb 14, 2011 9:20 pm

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## *Participants in the Study*

### *(Demographic & Screening Questionnaire)*

#### ➤ *Apraxia of Speech*

- 8 SLPs (7 SLPs: Masters degree & 1 SLP : PhD)
- Settings: EI, hospitals, private & public schools, private practice
- Specialist Training: 2 day course on the Kaufman & Beckman program, PROMPT training
- Unaided & all levels of aided AAC used

#### ➤ *Dysarthria*

- 5 SLPs (4 SLPs: Masters & 1 SLP: PhD)
- Settings: EI, Hospital, private & public schools, private practice
- Specialist Training: ATP (RESNA) & Level 1 PROMPT
- Unaided & all levels of aided AAC used



## *Expertise of the Participants* (Demographic & Screening Questionnaire)

### *Apraxia of Speech*

- Significant clinical experience
  - 3SLPs - 5, 1SLP – 5 to 6, 3SLPs -6, 1 SLP - 7
- Significant clinical experience providing direct intervention services
  - 2 SLPs < 4, 1 SLP – 4, 2 SLPs – 6, 3 SLPs – 5

### ➤ *Dysarthria*

- AAC intervention specialists
  - ❖ Providing direct AAC intervention services 50% of the time (Beukelman, Ball, & Fager, 2008)
  - ❖ Rating: 38-99% experience
- Confirmed significant experience providing AAC intervention services to children with dysarthria
- 5 years of clinical experience

# *Procedure*

- Completed demographic & screening questionnaire
- Focus group discussions
  - Pseudonym/first name basis
  - Moderator
    - ❖ Posted weekly discussion questions
    - ❖ Send follow-up messages & thanked participants
  - Welcome message & instructions for operating the forum
  - No confidential information revealed
  - Extended for 7 weeks
  - Forum kept open throughout the study
    - ❖ Greater flexibility for SLPs



# *Data Analysis*

- Responses transcribed into thought units
  - Frankel (2006): “the smallest meaningful piece of information.”
- Operational definitions
  - Coded thought units into themes & subthemes
- Reliability
  - Thought units:
    - ❖ Rater 2 independently analyzed two responses/discussion question: > 80% agreement between raters
  - Themes & Subthemes
    - ❖ Rater 2 independently categorized 20% of the total thought units based on operational definitions, Cohen’s kappa > 0.90



# *Results: Themes & Subthemes*

*AOS*

*Thought Units: 795, Themes: 7*

*Dysarthria*

*Thought Units: 487, Themes: 7*



# Themes, Subthemes, & Thought Units

Theme	AOS Subthemes/ Thought Units	Dysarthria Subthemes/ Thought Units
<u>*Key Decision Making Factors</u>	4/43	6/77
<u>*Theoretical Goals &amp; Approaches in Therapy</u>	7/75	7/58
<u>*Therapy Strategies &amp; Activities</u>	9/438	10/223
Benefits	2/38	2/5
Challenges Faced by the Clinician	6/58	4/55
<u>*Strategies for Collaboration</u>	3/136	3/59
Other	7	10

\*Themes are further elaborated

# *Key Decision Making Factors*



Apraxia of Speech: 4 Subthemes

Dysarthria: 6 Subthemes

*“Part of this decision is largely driven by the parents’ desire for their child to speak so desperately and also largely by the majority of children with apraxia that I have worked with who see themselves as verbal communicators (i.e., their initial attempts to communicate are usually via speech first)”*



# Subtheme I: Client Specific Factors

➤ Client Skills: ? Verbal communicators

➤ Age

➤ Severity of AOS

➤ Speech intelligibility

➤ Concomitant conditions

➤ Attention span

➤ Motivation to communicate

➤ Communication needs

➤ Receptive & expressive language skills

➤ Recognizing attempts at communicating

➤ Age

➤ Duration for which natural speech was worked on & +/- improvements

➤ Intelligibility to familiar & unfamiliar listeners and in connected speech tasks

➤ Severity of the child's dysarthric speech

- Established based on the word repertoire

- Positioning needs of the child

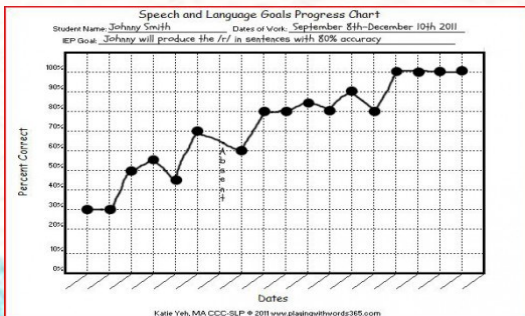
*“However, when thinking about how I’m going to use my precious therapy hours, I typically consider this, “What’s the age of the individual? How intelligible are they to familiar listeners right now using their speech alone? How intelligible are they to unfamiliar speakers right now using their speech alone?”*



## Subtheme II: Factors related to Prognosis

- If limited success is observed with traditional speech therapy in 6 to 12 months
  - Focus on AAC while supporting existing speech skills
- Time spend on natural speech skills
  - Progress exhibited in functional communication skills

- Focus on augmentative communication
  - Limited improvement in speech intelligibility
  - Natural speech targeted over time / regression – speech skills



*As an AAC specialist, by the time I see most children, natural speech has already been targeted for 6-12 months with limited success. Therefore, my priority is to provide the child with an immediate means to functionally communicate."*

### Subtheme III: Recommendations & input from the team

- Parental preferences for verbal communication
- Parental involvement in take home activities
- Team meetings or conferences

*“The decision of how much dysarthria vs. AAC intervention was highly driven by my recommendation as the SLP and the parent’s desire. Other members of the multidisciplinary team were consulted for their input as well.”*

### Subtheme IV: Factors related to the mode of communication

- Child’s preference for a specific mode of communication
- Speed of AAC vs. natural speech



## Subtheme V (Dysarthria): Assessment findings

- Meeting with the family & child
- Documenting & evaluating communication modalities
- Use of an assessment tool
  - Profile communication skills in different environments
  - Effectiveness & intelligibility of natural speech

## Subtheme IV: Situational & Contextual Factors

- Special events that required specific skills
  - Example: Using the device in a school play or using natural speech for a conversation over the telephone

# *Theoretical Goals and Approaches in Therapy*



Apraxia of Speech : 7 Subthemes

Dysarthria: 7 Subthemes

*"I tend to be very functional in my approach to intervention. I try to work with natural speech along with AAC"*

*"I follow a total communication approach where the child is exposed to all modes of communication including speech, AAC, which might include low/high tech or manual signs."*



## *Subtheme I: Dual Paradigm Approach*

- *Provided* the child with a means to communicate with AAC while working on natural speech skills
  - Focus on AAC while supporting the child's natural speech skills
- *Increase* functional communication
  - Targeting the mode of communication easiest for the child and then incorporating speech targets

*"We worked primarily on functional language in both natural speech and AAC."*

## Subtheme II & III: Rationale & Treatment philosophy

- Interest & training in AAC
- Early understanding of benefits of AAC

*“I think having an interest in AAC have shaped my approach to treatment of children with apraxia of speech and then also an early in my career an understanding of the benefits of AAC.”*

## Subtheme IV: Choosing Therapy Goals & Approaches

- Client driven, highly individualized process which spans over several sessions

## Subtheme V: Total communication approach

- *Modeled* using signs, verbalizations, gestures, picture communication, & imitation therapy
  - Used for a child with severe AOS



## Subtheme VI: Natural speech goals

### ➤ *Targeted: Words & sounds*

- Most meaningful in daily functioning
- Provides the best chance of success

### ➤ *Added*

- Syllable shapes to expand phonetic repertoire
- Sound classes absent from repertoire

### ➤ *Enhance functional verbal language*

- Based on the sounds the client is capable of producing

### ➤ *Created & targeted a functional word list*

- Sounds that the child produced, in collaboration with family & school
- Functional phrase list

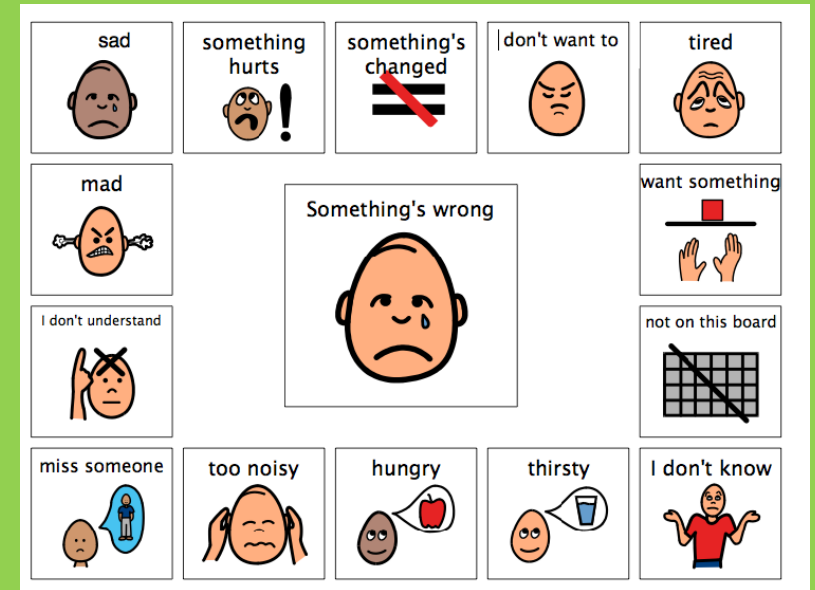
## Subtheme VII: AAC goals

- AAC strategies for
  - Repair of communication breakdowns
  - Enhanced self-expression when challenging behaviors occur
- *Expand* vocabulary, phrase length, & grammatical output
  - Match child's expressive language capacity
- *Focused* on core words combined with key fringe vocabulary
  - Enhance motivation for communication
- *Combined* words into 2-3 word utterances using core words together



## Goals / Approaches

- Knowledge of *strategic competence*
  - Knowing which unaided / aided communication is most effective
  - Repairing communication breakdowns
  - Applying repair strategies when unaided means fail



## *Goals / Approaches for AAC users*

### ➤ *Client-driven*

- Supported client's preferred mode of communication

### ➤ *Used*

- Multi-modal communication
- Dual paradigm approach in the initial sessions
  - ❖ Establishing rapport
  - ❖ Rewarding successful communication
  - ❖ Functional approach
- Total communication approach
- Focus on communication goals & speech goals

*“My approach is largely client driven , play based, and low pressure.”*



## *Goals / Approaches for AAC users*

- *Used* high tech tools for specific purposes
  - ❖ Writing, giving presentations, telling stories
- *Determined* the most important repair strategy
  - ❖ Depending on communication partner / communication environment
- *Improved* ability to predict harder phonemes for partners to interpret
  - ❖ Used AAC for harder phonemes
- *Improved* intelligibility of speech with an AAC strategy
  - ❖ First letter alphabet cueing



*AAC Goal: “One of my goals was to improve the intelligibility of this student’s dysarthric speech via an AAC strategy called first-letter alphabet cueing.”*

# *Therapy Strategies & Activities*

Apraxia of Speech: 9 subthemes

Dysarthria: 10 Subthemes

*“Typically, with a less severe case, I will focus primarily on targeting natural speech and intermix AAC as needed”*

*“We worked together on making a chart of various ways of interacting with partners and listed out no-tech, mid-tech, and high tech devices.”*



# Subtheme I: General Strategies

- Built on existing communication skills
- Evidence-based strategies
- Kept therapy fresh
- Followed the child's lead during the sessions
- Was aware of the child's personal needs & motivation during the session
- Practiced daily: "200 opportunities a day"

- Most functional mode of communication [unfamiliar listeners]
- *Identifying* challenging aspects of communication
- Chart of various ways of interacting with partners
- Oral motor function: Snack & play
- *Identified*: Barriers to staying in conversation & best times to use strategies
- Set goals for the next day: Based on what worked & did not work in the previous sessions
- *Used* extension activities

## Subtheme II: General AAC Strategies

### ➤ *Used AAC*

- Establish effective communication & isolate speech issues
- Increase speed of communication
- Extend communication opportunities

### ➤ Paired pictures with initial sound productions

### ➤ Discovered topics to initiate function

### ➤ Created a functional word & phrase book

### ➤ Frequency & duration of AAC goals [Examples]

- AAC - 70% of the time/session
- AAC - 20minutes/30 minutes session

### ➤ Aided language stimulation with AAC

### ➤ *Listed* no tech, low tech, & high tech communication devices

### ➤ Limited AAC intervention to one, powerful activity to show immediate benefits of AAC



# AAC Strategies Focusing on Language & Literacy

## ➤ *Developed* literacy skills: Intellikeys® with a key guard

- Spelling the target word to facilitate success
- Naming each letter as it was touched
- Repeating the full word as the space bar was hit



## ➤ Classroom Suite software, Tech/Talk, Unity®, Step-by Step programmer™

*“I just learned of an application for an iphone / ipad that transforms a written word/message (typed) into a video of speech production to give visual cues for persons with apraxia, to assist in expressive language. Designed for persons with aphasia, I could see possibilities for one 10 year old that I worked with who watched other people’s lips but had difficulty consistently producing the pattern himself.”*



# AAC Strategies Focusing on Language & Literacy

- *Introduced* speech generating devices & communication boards
  - To demonstrate receptive language skills as well as build expressive vocabulary, & syntax
- *Provided* visual cues to assist in expressive language
  - iphone® / ipad® app
- *Apps* (not discussed in the focus groups)
  - Small Talk Aphasia
  - Geek SLP.com
  - Speech Sounds on Cue





# AAC Strategies Focusing on Language & Literacy

## ➤ Used

- AAC for targeting story comprehension
- Small ABC board
  - ❖ Cue listeners regarding the phonemes

A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z	SPACE	1	2	3
4	5	6	7	8	9	0	YES	NO	I'LL START OVER

*“For children who were considered less severe, I often made them a low tech communication “ring” to carry with important messages such as their name, photos of family members or events that had taken place with descriptions of the events on the backside of the card .”*

## ➤ Used

- Low tech “communication ring”
- AAC as a tool for maintaining or gaining communication success
  - ❖ Fade as speech skills improve



## Subtheme III: Strategies Focusing on Improving Natural Speech Skills

- *Provided* meaningful responses to child's initiation, verbal models of target word
  - Functional natural speech skills with familiar partners
  - Re-address speech goals: Every 4 to 6 months
  - Targeted natural speech early in the session
  - *Used*: Functional & high occurrence messages, Combination of tactile, verbal, & visual cues
  - *Judged* progress on a sliding scale
- Frequent repetitions of tasks
  - Focused on: Speech production, breath support, positioning, & functional word vocabulary
  - PROMPT training
  - *Taught* self-awareness & understanding of how client's sounded to others



## Subtheme III (Cont'd)

- Opportunities for imitation within natural play activities
  - Structured tasks
- *Adopted*: Kaufman approach, intense repetitions, tactile cues, syllable shaping, visual cues, PROMPT, sound discrimination & oral motor activities
- *Targeted* : Syllabification by clapping the number of syllables in words, Sound production - Phonological processes
- Multiple word lists for practice
- Targeted words based on feedback / input from caregiver(s)

- Frequency & duration of goals targeting natural speech skills
  - Verbal speech: 20 to 30 minutes / 60 minute session
  - Targeted to achieve 50+ repetitions/20 to 30 minutes
  - Natural speech goals: 15 minutes in the session (mild dysarthria)
  - Speech production goals: Once /week for 6 months

## Subtheme IV & V: Strategies for the Dual Paradigm Approach & Total Communication Approach

### ➤ *Used*

- Spontaneous use of AAC device to enhance natural speech
- Natural speech in conjunction with AAC [after client experienced success with natural speech goals]
- Natural speech first & integrated AAC as required or adopted AAC in instances of communication breakdowns

### ➤ *Shifted* focus from natural speech to AAC

### ➤ *Worked* on natural speech & aided AAC separately

- Then introduced integrated activities

### ➤ AAC interventions using the child's natural speech skills

### ➤ Different modes of communication: Preference for one or more modes of communication & followed the child's lead

### ➤ Consistent use of low tech /no tech AAC & speech in all environments



## Subtheme IV & V: Strategies for the Dual Paradigm Approach & Total Communication Approach

- *Encouraged* use of all means of communication for functional communication
- Chose an activity with the AAC device

- Activities for dual paradigm approach: Story book reading, Composed a message on the device & verbalized the message using natural speech
- Targeted both modalities: 30 minute session [x 2/week]
- *Practiced* a skill / strategy taught in the session: Attempted with familiar partners & peers

*“Students will sometimes spontaneously use the AAC device to enhance natural speech goals. For example, he often asks about a delivery truck that sometimes parks outside my window ‘where is the big truck’ --comes out ‘wehbigu.’ He has independently crafted this to verbally asking ‘where’ and using AAC device to articulate ‘truck’.*”

## Subtheme VI: Strategies for Generalization of Skills Taught in the Session

- *Provided*: Home programs & homework
- Mirrored approaches to ensure carryover
- *Maintained*
  - A notebook with a list of vocabulary targeted
  - “Smart chart”: Locate specific vocabulary on the device
- Carryover activity each week: Use of AAC device

- Specific environment requiring independent use of skills
- Taught new strategy:  
Incorporated role play / isolated practice & changed location of intervention
- Reverse inclusion opportunities
- Checked in frequently with the student
- Embedded goals & objectives into natural routines
- Checked with the school team



## Subtheme VI: Strategies for Generalization of Skills Taught in the Session

- “Card ring” for speech / verbal targets
  - Current words targeted written on each card
  - Client’s best approximations written on the back of the card
  - Encouraged daily review of the card ring at home
- *Communicated* regularly via email with team members
- *Promoted* practice of carryover skills in different settings

# Subtheme VII: Recommendations to New Clinicians



*“Wow! There is so much I could say. Most importantly, I would say to keep up with the research, make sure you are using evidence -based practices, and know how to share that information appropriately to different members of the team.”*

*“I would advise clinicians not to be afraid to use various AAC strategies in conjunction with natural speech. Know that it’s not an either. Use AAC as a supplement”*



# General Recommendations



- *Use of: Evidence-based practices & research showing that AAC does not hinder the development of natural speech skills*
- *Do not hesitate to ask for help*
- *Ask for support & resources from other SLPs*
- *Provide a rationale for choosing an intervention strategy*

*“Research evidence-based practice for your client. This will give information on how to implement strategies and provide rationale for why you have chosen the path of intervention”*

- *Keep up with research*
- *Adopt evidence-based practices*
- *Follow your best judgment*
- *Look into the future when considering goals*
- *Provide many options while communicating with the child to encourage multimodal communication*
- *Be open minded to new techniques and suggestions*
- *Do the best you can!*

# *Recommendations regarding the Client & Session*

- *Use AAC as a supplement*
- *Experience success in communication before targeting speech goals*
- *Interpret messages accurately & sensitively*
- *Be caring communication partners*
- *Establish meaningful relationships with the client*

- *Support the most comfortable methods*
- *Encourage new, effective, & efficient strategies*
- *Be thorough with expectations of when & how to use AAC*

*“I tell beginning therapists to not think of it as speech or AAC, but rather work on both together . Its not the device or the communication versus speech. It’s having the communication book /device available.”*



# Recommendations regarding the Client & Session

## ➤ *Teach*

- Reading & writing
- Increasingly complex sentence structures & vocabulary
- Language that helps resolve conflicts

## ➤ *Create opportunities & reduce barriers to increase use of AAC across environments*

## ➤ *Model speech & thought processes*

## ➤ *Remember that*

- Aided & unaided AAC can be used simultaneously
- Duplications: Waste of time, energy, & space on a communication board
- Change the strategy or focus on a specific skill area
  - ❖ Not the student's failure if progress is not being made towards the goals

# *Recommendations regarding the Client & Session*

- Frequent re-evaluation
- *Know* the client's strengths & weaknesses
- Be patient & flexible & listen

- Assessment tools
  - Social Networks, Framing a Future
- *Incorporate* data from assessment of linguistic, motor, sensory skills, & QOL indicators in the intervention plan
- Keep good data
  - On intelligibility
  - On speech & AAC simultaneously
    - ❖ Assess whether speech or AAC has the most +ve effect on functional communication



# *Recommendations regarding Team Work*

- Involve the family meaningfully
- Determine cultural & personal preferences
- Provide light tech solutions [if the family is not ready to accept SGDs]
- Contributions from team members: Alternate solutions, communication opportunities, & selecting priorities

- Be willing to be part of the team
- *Share* information with all team members
- If the team does not seem to accept AAC
  - Spend more time on speech intervention & keep AAC interventions short
- *Document* expectations in collaboration with the team & review them on a regular basis

# *Recommendations regarding Team Work*

- Develop a workable treatment plan
- Day-to-day team participation:  
Practicing AAC strategies, taking notes, & measuring progress

- Client is the most important member of the team
- Get a clear picture of what each member of the team considers as a priority
- Train team members to carryout goals & objectives when engaging in daily routines

*“Each member of the team is expected to contribute alternative solutions, name communication opportunities, and participate in selecting priorities for the child’s participation.”*



## SUBTHEME VIII & IX: RECOMMENDATIONS REGARDING THE FREQUENCY & DURATION OF GOALS TARGETING NATURAL SPEECH

### ➤ *Mild-Moderate AOS*

- More time on goals focusing on natural speech skills
- Developed home programs
- Focused primarily on natural speech
  - ❖ Integrated AAC as needed [1hour/session]

### ➤ *Severe AOS*

- Targeted : Speech goals every session /Speech goals during the 1st session & AAC goals in the 2nd session; Natural speech goals - 50% of the time; Natural speech in repetitive segments
- Did not spend > 3-5 minutes for a task [Client with short attention span]

# *Strategies for Collaborating with the Team Members*



Apraxia of Speech &  
Dysarthria: 3 Subthemes

*“I like to query parents on vocabulary that are particularly meaningful for them and/or the child to identify targets for practice (and) suggestions for home activities.”*



## Subtheme I: Strategies for Collaborating with the Parents / Caregivers

- Educate parents: Why their child needed help & what they could do to help
- *Asked* parents to be accurate interpreters of child's nonverbal communication
- *Worked* with parents regarding
  - Family acceptance of AAC
  - Strategies used to ensure consistency among settings
  - Identification of strategies that worked best for the child & motivating topics for session

- Parent participation in the session
- *Discussions* with parents
  - Additional activities at home in which strategies could be incorporated
  - Different problem solving strategies
- Home visits
- Communicated via email or written notes
- *Taught* the families how to integrate goals and activities into the child's daily routines & play activities

## Subtheme II: Strategies for Collaborating with the School / EI Team

- *Met* to discuss goals & measured progress toward goals on a monthly basis
- *Collaborated* with the school SLP on natural speech goals & strategies
- *Communicated* with
  - Teachers & aides: Regarding carryover activities
  - Educators: Regarding classroom routines & curriculum needs
- Followed the interdisciplinary model described by

Prelock et al., 2003

- Exchanged information & ideas with the school/private SLP
- Encouraged feedback from the team members
  - Use & success of strategies in different environments
- Modeled activities for the classroom staff
- Participation plan /check list or chart

*“I also provide a participation plan, which designates for each regular/routine classroom activity which communication means will be utilized and how (specific vocabulary is stored)”*



## Subtheme III: General Strategies for Collaborating with Team Members



- *Understood & respected* different learning & teaching styles
- *Targeted* activities & vocabulary not focused on in school settings
- Offered specific solutions to concerns
- Set motivation priorities
- Agreed on meaningful goals
- *Willing to*
  - Adjust to new growth
  - Abandon a failed strategy
  - Accept success as a team rather than an individual triumph

- Maintained a 'communication binder'
  - Log of what was targeted in each session to share with the team
  - Communicate & get feedback from the team
  - Vocabulary and programming needs
- Developed a 'cheat sheet'

# *Benefits*

Apraxia of Speech & Dysarthria: 2 Subthemes  
(Benefits of AAC & Natural Speech)

*“It is often times the cases where the natural speech impairment is more severe, and it is clear that AAC will be the road to functional communication.”*





# *Challenges Faced by the Clinician*

Apraxia of Speech: 6 Subthemes  
Dysarthria: 4 Subthemes



*“A definite challenge in “targeting” natural speech in very young children with apraxia would be maintaining their interest in isolated motor patterns in producing consistent consonant and vowel sounds.”*

*&*

*“Couple of barriers that I have encountered are that intervention in the form of articulation therapy is extremely tedious for a young child , difficult, and often times uninteresting.”*



# *Other*

AOS: 7 Thought Units

Dysarthria: 10 Thought Units

*“We all adopt different modes of communication with different people.”*

*&*

*“I try to remind myself that all communication is multi-modal.”*



## *Case Study #1*

- Alex, 4.5 years old
- Diagnosed with CAS
- Mother: “Quiet baby, made very few sounds”
- First word: 22 months
- Family has difficulty understanding Alex
- Communicates in two to three word sentences
- Intelligibility decreases as length & complexity of utterances increases
- Frustrated with familiar & unfamiliar listeners



## *Case Study #1*

- Mild conductive HL in (L) ear, hearing WNL in (R) ear
- Age appropriate receptive language skills
- *Characteristics of speech*
  - Initial & final consonant deletions
  - Vowel & consonant distortions
  - Articulatory groping
  - Reduced stress & longer pauses
- Reported to have “reduced attention span”



## *Case Study #1*

- Frequently refuse to participate in classroom activities
- Younger brother: difficulties communicating, diagnosed with mild expressive language delay
- *Speech & language therapy focus*
  - Natural speech & AAC to improve communication skills

## *Case study #1: Discussion*

- *AAC strategies*: Immediate means of functional communication
- Alex was seen twice a week, 60 min/session
- ~ 45 minutes: *AAC augments* Alex's natural speech skills
  - AAC strategies modeled: Communication breakdown
  - Served to repair such communication breakdowns
  - Alex was taught to use AAC/ combine natural speech & AAC for functional communication



## *Case study #1: Discussion*

- *During sessions:* Use natural speech to pick an activity
- Instances of *communication breakdown/unintelligibility*: Request an activity using his device
- SLP models phrases about getting the activity "out," modeled target word associated with the activity using tactile cues & visual feedback
  - Repeat these steps, verbally repeat the target word 5 to 10 times
  - Completed play activity
  - Use of AAC for production of longer or novel phrases
  - Over time: Less frustration

## *Case study #1: Discussion*

- AAC strategies as an *alternate mode* of communication
  - Expand Alex's vocabulary, phrase length, & grammatical output
  - Combine core words with key fringe vocabulary
  - Increase variety of language functions
  - Enabled improvement of expressive language skills without demands associated with speech production



## *Case study #1: Discussion*

- Focus on natural speech development: ~ 10 to 15 min/session
  - Distributed, not in a single block
  - Initially, reduced motivation & increased frustrated
  - Targeted using structured tasks
  - Supporting/honoring any other natural speech attempts throughout the rest of the session
  - “*Speech time*” : Communication instances with reduced pressure with respect to time & language skills



## *Case study #1: Discussion*

- Focus on natural speech development: ~ 10 to 15 min/session
  - Initially: Sustain attention < 3 min during structured speech activities, increasingly withdrawn & avoided participation
  - Modification of natural speech activities: Short bursts & varied
  - Tasks not > than 5 minutes
  - Refusal to participate in activities for three to four consecutive sessions: Reassessment & modification of goals



## *Case study #1: Discussion*



- Home & school activities incorporating the dual paradigm approach
- Close work with parents: Ensure transfer of skills
- Counseled not to force a mode of communication on him
- Encourage the alternative/augmentative use of device or primary use of natural speech
  - Nature of the listener, & demands of the situation
  - Ensure access to AAC device at all times: Encourage spontaneous repair of communication breakdowns



## *Case study #1: Discussion*

- Examples of instances & communication partners with whom the dual paradigm was to be used
  - Familiar communication partners & in less demanding situations  
Natural speech as the *primary mode* of communication
  - Turn taking activities with parents/brother: Use AAC device as an *augmentative* mode of communication
  - When interacting with unfamiliar listeners/improving his expressive language skills at home: Use AAC device as an *alternative* mode of communication



## *Case Study #2*

- Tania, 6 years old
- Diagnosed with CAS
- “....did not make many sounds as a baby”
- First word: 18 months
- Receiving speech-language therapy since she was 38 months
- Mild expressive delay
- Age appropriate receptive language skills



## *Case Study #2*

- *Characteristics of speech*
  - Initial & final consonant deletions
  - Vowel & consonant distortions
  - Reduced stress patterns
  - Intelligibility decreases with longer utterances
  - Difficulty imitating sounds
  - Uses 5/6 word sentences to communicate
- Willingly participates in sessions, motivated, & focused



## *Case study #2: Discussion*



- *Natural speech skills* targeted by
  - Systematically shaping words and moving articulators from one placement to another
  - Creating sentence lists that progressively increased in length and complexity
  - Using mirrors for providing visual feedback
  - Repetition of target sounds, words and phrases, carryover & repeated practice were successful in improving intelligibility of natural speech



## Case study #2: Discussion

- 60-minute/session
- Dual paradigm approach: Focused on the *augmentative* role of AAC strategies
  - Use of picture boards & communication books
  - “...act as a catalyst for speech”
  - Used only for communication breakdowns
- Very beneficial AAC strategy
  - Development of a low tech “communication ring”
  - Consisted of important pictures, updated on a regular basis





## Case study #2: Discussion



- Small alphabet board is used to build literacy skills
  - Later use as an AAC strategy to target initial consonant deletions
  - Also, to cue listeners as to what phoneme she was attempting to produce in instances of communication breakdown
- Home programs developed in conjunction with parents
  - Parents actively involved in her sessions
  - Focused primarily on the use of Tania's natural speech with familiar & unfamiliar listeners
  - *Augmentative* role of AAC: Used when communication breakdowns were experienced



### *Case study #3: Adapted from Dowden (1997)*

- Abigail, 8.5 year old girl with cerebral palsy
- Severely dysarthric speech
- Age adequate receptive and expressive language skills
- Willingly participates in sessions, motivated, & focused
- “Wants to speak like her friends and other children in her school”
  - Increasing circle of friends at school: Unfamiliar listeners
- Attending speech therapy for 3 -4 years
  - Inconsistent use of a VOCA
  - Unintelligibility with unfamiliar listeners: rate of speech



### *Case study #3: Adapted from Dowden (1997)*

- Dual paradigm approach: Aided AAC and natural speech
  - 50 minute session, 35 minutes using AAC strategies for communication breakdowns
- Creating a “chart” with strategies for familiar & unfamiliar listeners
  - Primary use of natural speech in accordance with client’s wishes
  - AAC strategies in instances of communication breakdown

### *Case study #3: Adapted from Dowden (1997)*

- First letter alphabet cueing
  - Slow down rate of speech
  - Contextual cues to listener
  - Abigail's ability to predict which phonemes would be more difficult for the listener
- Access VOCA for providing contextual cues
  - Phrases such as “I am talking about” or “I will repeat the sentence” (Dowden, 1997, p. 53)



### *Case study #3: Adapted from Dowden (1997)*

- Frequently updating VOCA with Abigail's interests/hobbies
  - "Smart chart:" Location of particular vocabulary word or how to find a specific morphological marker on the device
- Role play
  - Consistent use of AAC strategies in communication breakdowns
- Home training
  - Collaborating with parents and school team



# Thank you!

Questions??





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