Overview

- Rationale Behind AAC Narrative Intervention
- Pilot Study
- Discussion of Dissertation
- Research Challenges

Why Narrative Intervention for AAC

- The majority of AAC interventions have focused on early communication skills such as requesting (Light & McNaughton, 2015; Swell et al., 2010).
- Limited communication contexts limits participation in academic and social contexts.
- 90% of adults with CCN are functionally illiterate (Foley & Wolter, 2010). There is evidence that narrative skills are correlated with reading comprehension skills (Cams et al., 2002).
- Narrative skills is a strong predictor of future language impairment and academic difficulties in preschoolers with language delays (Bishop & Edmundson, 1987).
- Narratives are included in the Common Core Curriculum starting in Kindergarten.

Why Narrative Intervention for AAC

- Integrates skills to maximize communication
- Increases communication contexts which increases real-world contexts
- Addresses long-term outcomes of communication competence
- Addresses communication goals of increasing communication contexts and improving linguistic skills
Aims

Aim 1
Determine the effects of a narrative intervention on the narrative macrostructure (i.e., story structure) of individuals who use AAC to communicate.
• Measure: Narrative Macrostructure Scoring Scheme for AAC of story book retell narratives and probed generated narratives.

Aim 2
Determine the effects of narrative intervention on the narrative microstructure (i.e., linguistic skills) of individuals who use AAC to communicate.
• Measure: MLU, NDW, & frequency of story-related language of story book retell narratives and probed generated narratives.

Aim 3
Determine the effects of a narrative intervention on the everyday communication of individuals who use AAC to communicate.
• Measure: AAC Use Survey & language samples.

Pilot Study

• Participant
  • 11;1
  • Childhood Apraxia of Speech, ADHD
  • Communication Methods: LAMP words for life, sign language, word approximations
• AB design

Pilot Study

Labeled and Defined Story Grammar Markers
• Story grammar markers were labeled and defined
• Related vocabulary found on the AAC device

Clinician Model of a Story Book
• Used aided input while telling a story from a picture book
• Visual prompts to the Story Grammar Markers during the model

Participant Retelling of a Story Book
• The participant retold the story from the picture book
• Visual and verbal prompts to the Story Grammar Markers

Participant Telling of a Personal Story
• The participant told a story from a picture of himself that week
• Visual and verbal prompts to the Story Grammar Markers

Pilot Study - Results

93% Percent Nonoverlapping Data

*Slight break due to filled day at school.
Dissertation Study

- Multiple baseline across participants design
- 4 participants
  - 6-14 years old
  - AAC device for at least 2 years
  - Independently combines 2 words
  - Can request and comment

Baseline Sessions

- Clinician Verbal Model of a Story Book
- Participant Retelling of a Story Book
- Probed Self-Generated Narratives from a Book

Intervention Modifications

1. Labeled and Defined Story Grammar Markers
   - Story grammar markers are labeled and defined
   - Related vocabulary are found on the AAC device

2. Co-telling Story with Picture Sequence and Markers
   - Clinician and participant co-tell a story using a picture sequence
   - Each story grammar marker will be used through modeling or prompting

3. Participant Retells Story with Picture Sequence and Markers
   - Participant retells co-generated story
   - Clinician prompts for use of story grammar markers

4. Clinician Model of a Story Book
   - Uses aided input while telling a story from a picture book
   - Visual prompts to the story grammar markers during the model

5. Participant Retelling of a Story Book
   - The participant retells the story from the picture book
   - Visual and verbal prompts to the story grammar markers

6. Participant Telling of a Story from a Book (not every session)
   - The participant tells a story from a new picture book
   - Story grammar markers are visible

Baseline

67% Percent Nonoverlapping Data

*Child begin study due to field day at school
1. Labeling and Defining Story Grammar Markers

- Story grammar markers are defined.
  - "The kick off is an action that causes something else to happen in the story. It can cause another action or can cause the characters to have a feeling" 
  - Related vocabulary for the markers in found on the child's device.
  - "You can find characters under the people or animal buttons"

2. Co-telling Story with Picture Sequence and Markers

- Used to teach more complex story grammar markers.
  - Kick off, plan, resolution
  - Clinician and participant will tell the story together
  - The clinician teaches the participant how to use the story grammar markers.
  - "This man starts a fire to cook. That is the kick off of our story (points to kick off icon)."
  - What does the man do next? (points to action icon)
  - How does the man feel now? (points to feeling icon)" (If the child does not answer the clinician will open the feeling pages and point out a couple options "Does the man feel sad, mad or happy?"

3. Participant Retells Story with Picture Sequence and Markers

- Participant retells co-generated story
- Clinician prompts for use of Story Grammar Markers
  - "Don’t forget to tie the story up with the resolution" (points to resolution icon)
  - "Remember to include a feeling at the end of the story"

4. Clinician Model of a Story Book

- Uses aided input while telling a story from a picture book
  - 50% of the words in the clinicians story will be indicated on the device
  - Visual prompts to the Story Grammar Markers during the model
  - "There was a boy and a girl (points to character icon) walking in the park (points to setting icon)."
5. Participant Retelling of a Story Book

- The participant retells the story from the picture book
- Visual and verbal prompts to the Story Grammar Markers
- "Good job telling me about the characters (points to character icon) before we turn the page remember to include where the story happens (points to setting icon and the places icon on the AAC device)".

6. Participant Telling of a Story from a Book (not every session)

- The participant tells a story from a new picture book
- Only general prompts to stay on task and for more information
- Story grammar markers are visible

### Measurement

**Aim 1: Narrative Macrostructure**
- Narrative Macrostructure Scoring Scheme-AAC
- Adaptation of Index of Narrative Complexity
- Likert type scale, 0-3 point scale
- Total narrative score will be used to assess growth

<table>
<thead>
<tr>
<th>Narrative Macrostructure</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Character References a subject in the story.</td>
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<tr>
<td>Setting References a location or time of day in the story.</td>
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<tr>
<td>Initiating event An incident that triggers a response from a character in the story.</td>
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<tr>
<td>Internal response Reference to the character’s emotions or state of mind. This can include a character’s thoughts.</td>
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<td>Plan Uses a cognitive verb that shows a character is thinking about the initiating event and plans to act.</td>
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<td>Actions/attempts The character performs an action.</td>
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<td>Complication An event that stops the character from following through with the plan or action.</td>
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<tr>
<td>Consequence The result of the action that does or doesn’t resolve the problem.</td>
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<tr>
<td>Conclusion The final event that wraps up the story and talks about the character’s feelings.</td>
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**Aim 2: Narrative Microstructure**
- Mean Length of Utterance
- Number of Different Words
- Frequency count of story related vocabulary
  - Verbs, feeling words, linking words

**Aim 3: Ecological Validity**
- MLU and NDW of language samples conducted in the home
- AAC Use Survey
  - Given to the participants’ parents before and after the study
**Analysis**

- Visual Analysis
  - Level
  - Trend
  - Variability
  - Immediacy of Effect
  - Overlap
  - Consistency within phase
- Tau-U

**Language Measures**

- Currently proposing using MLU, NDW and story related vocabulary (verbs, feelings, linking words)
- Other considerations
  - Total number of utterances
  - Number of pages accessed
  - Segmenting utterances
  - AAC Use Questions for Parents

**Research Challenges**

- Language Measures
- Scripting the intervention
- Recruiting participants

**Graphs**

- Mean Length of Utterance
- Number of Different Words
- Total Number of Utterances
<table>
<thead>
<tr>
<th>Scripting Intervention</th>
<th>Recruitment</th>
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<tr>
<td>• Number of words to target during the model</td>
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<td>• Model all words or focus on the words that relate to story grammar elements</td>
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<td>• Following script versus individualizing it to the client</td>
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<td>• Vocabulary differences on devices</td>
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<td>• Need to base feedback on participant’s ability and responses</td>
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<td>• Recruiting participants that can complete the intervention tasks</td>
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<td>• Ensuring that participants have necessary preliminary skills of commenting and combining 2 words</td>
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<td>• Restrictions on vocabulary sets that are permitted</td>
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