Educationally Relevant Language Intervention for School-age Students with Language Disorders:

Narrative Intervention and Progress Monitoring

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Disclosures

• Sandi and Ron Gillam receive royalties from the sale of the *SKILL* program, which is distributed by Utah State University.

• Ron and Sandi Gillam are currently co-PI’s on R305A170111, Randomized Controlled Trial of the Supporting Knowledge in Language and Literacy (SKILL) Program for Children who are At-Risk for Language and Literacy Difficulties. US Department of Education, Institute for Educational Sciences.
Today’s Presentation

1. Explain the relevance of narrative intervention for supporting curricular goals
2. Discuss specific procedures that have been shown to result in positive discourse-level outcomes
3. Describe the Supporting Knowledge in Language and Literacy (SKILL) intervention
   - Phase I: Teaching Story Structure and Causal Language
   - Phase II: Teaching Strategies for Creating a Situation Model
   - Phase III: Teaching Strategies for Integration into Long Term Memory.
Narrative ability predicts

• Oral language skills in general (Bishop & Edmunson, 1987; Fazio, Naremore & Connell, 1996)
• Language comprehension (Bishop & Adams, 1992; Gillam, Fargo & Robertson, 2009)
• Reading (Cook & O’Brien, 2014; Lapp, Flood & Farman, 1989; Vandewalle et al., 2012; Zucker et al., 2013)
• Writing (Bain, Bailet & Moats, 1991; Koustsoftas & Gray, 2012; Montague, 1990; Scott & Windsor, 2000)
C (Um um the leaf) the leaves is coming out.
C Think it was fun (because because) because she just need to want to play leaf.
C And then she jump in the leaf.
C (And they) she was trash X.
C (And then) she play (in the)>
C (A a girl) a girl don't know that she want to go to the (um) leafs.
C (And then and then and then) the (trees) trees coming.
C (And then) she jumping.
C (And then) she will get it a little down.
What’s wrong with that story?

• There is not a clear event that motivates goal directed actions (the leaves coming out)
• The actions (jump, trash, play) are not causally related to a motivating event or to a specific outcome (the consequence)
• There is no information about the character (we don’t even know her name) or her emotional states
• Some information doesn’t make sense (doesn’t know that she wants to go to the leaves, trees coming, she will get a little down)
• Verb morphology errors (she just need to want; she jump in; she was trash; she play in,
What do we do?

Educationally relevant intervention

• Ask & answer questions about key details (with support)
• Retell stories w/detail
  • Identify characters, setting, major events in story
• Ask/answer questions about unknown words
• Tell stories w/detail & understand central message/gist
• Describe character, setting, and major events in story using key details
Curricular standards tied to narrative proficiency

• English language arts standards
  • Reading standards
    • Make inferences from information in text
    • Determine how and why characters, events and ideas develop over time
    • Interpret how words, phrases, and paragraphs fit together
    • Understand point of view
    • Integrate & evaluate content (visual, verbally and quantitatively)
    • Evaluate statements and reasoning in text
    • Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.
Curricular standards tied to narrative proficiency

• Speaking and listening standards
  • Participate in conversations with peers, teachers and other partners
  • Integrate & evaluate (visually, verbally and quantitatively) information
  • Evaluate different points of view
  • Use organized and cohesive language to express ideas
Curricular standards tied to narrative proficiency

• Language standards
  • Demonstrate proficiency in English grammar & syntax in oral and written language
  • Demonstrate proficiency in vocabulary acquisition and use (in general academic and domain specific words)
Curricular standards tied to narrative proficiency

• Writing standards
  • Write arguments to support statements
  • Write informational essays to convey complex thoughts and ideas cohesively and correctly
  • Write cohesive, organize narratives
  • With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing (2nd grade)
Theoretical Framework
Theoretical Framework

Construction Integration Model

• According to the construction-integration model (C-I model) of text comprehension, discourse requires
  • the **construction of a textbase**, which is a representation of what the oral or written discourse actually says;
  • and **integration**, which is the reader or listener’s interpretation of what the text means.
Construction Phase

• According to the C-I model, the learner uses his or her knowledge of words and language structures to create the microstructure of the textbase (Perfetti & Stafura, 2014).

• For example, in the book, “Little Croc and Whale” (Maddox, 2009), the first sentence says,

• “Little Croc was bored with swimming in the lake.”

• The reader or listener must first associate each word with a meaning and characterize it according to its syntactic role in the sentence.
• Little Croc was bored with swimming in the lake.
Theoretical Framework

- As the words in this sentence are associated with word meanings and the syntactic information that it is used to aid in understanding them, the listener or reader begins to form links between the meanings and structures in the sentences and a microstructure (part of the textbase) of what is said or read begins to be constructed.

Wouldn’t it be fun, he thought, to swim in the rapids, where the river runs fast and deep?
Kintsch believes storytellers and readers must also construct an overall model of the text called a *macrostructure* (another piece of the textbase) that represents the hierarchical relationships among key ideas.
Integration Phase

• As the listener or reader constructs the microstructure of the textbase he or she may begin to organize the information using an identifiable organizational pattern, which in this case is a narrative text structure.

• As the story unfolds the learner may realize that this is a fictional narrative that is predictably organized into common story elements (e.g., setting, initiating event, attempts, consequence) and the causal relations between them (goal directed actions taken by the character).
Theoretical Framework

• Integration involves the formation of a situation model.

• The situation model is the listener or reader’s mental representation or interpretation of what is going on in the text.

• It is formed by comparing background knowledge and experiences (from LTM) to the textbase (microstructure and macrostructure) that has been constructed.

• This results in an interpretation that is unique to the listener or reader.
To complete the integration process, the new information in the textbase is linked to old information and stored in long-term memory through strategic and conscious effort.
For example, The listener or reader may think, “This story is about a little crocodile who is in a calm pond and is thinking about going over to swim in the rapids because he’s tired of the little pond.

I’m thinking the pond is safe and rapids are not.

The rapids are probably fast like the river I fell in when I was little and Dad had to jump in and get me out. I was tired of sitting on the side of the river and that’s why I jumped in.

So I guess I was bored like Little Croc.

If the Croc goes to the rapids, I wonder if he will be OK or if someone will need to pull him out?
Theoretical Framework

• A failure to integrate the situation model into long term memory through a process like this may result in encapsulated knowledge that is isolated from the contents of world knowledge.

• When the student encounters the word “rapids” in another situation he or she may not recognize the word or be able to explain what it means unless he or she had actively and strategically linked it to the “fast river” that he or she had fallen into in the past.
Overview of Narration

• What is narrative proficiency?
  • The ability to comprehend and compose in the narrative genre

• Stories of real or make-believe events
  • Characters take actions directed toward specific goals
  • A sequence is established and maintained
  • Causal relationships are made (if not A then B)
  • Stories are predictable within cultural contexts
  • Characters have a perspective within the context of the story
Overview of Narration

• What are the component parts of a narrative?
  • Macrostructure (Story grammar + causal framework)
    • Character, Setting, Initiating Event, Internal Response, Plan, Attempts, Consequence, Reaction/Resolution
  • Microstructure
    • Language used to convey the information in the story
Literate language vs. conversational language

- "Irrespective of hour or season, whether viewed on clear days or stormy, the Tetons are so surpassingly beautiful that one is likely to gaze silently upon them, conscious of the futility of speech." - Fritiof Fryxell

- Boy those mountains sure do look pretty. Sandi Gillam
Microstructure of literate language

• Complex sentences
  • Coordinated conjunctions
    • FANBOYS (for, and, nor, but, or, yet, so)
  • Subordinating (adverbial conjunctions)
    • *Before she stole the candy,* she made sure nobody was looking.
    • You have to snowboard fast down the hill *if you want to catch Alex.*
• Infinitives
  • I ran *to look* at the beautiful sunset.
  • I want you *to come* with me *to see* that sunset.
Microstructure

• Clausal Complements
  • I knew she wouldn’t eat dinner with him after the argument.

• Relative Clauses
  • Subjective: The boy who told on you doesn’t have many friends.
  • Objective: I saw the boy who told on you.
Microstructure

• Literate language
  • Elaborated noun phrases
    • The mean, old goat...
  • Adverbs
    • When, after, if, since
• Metalinguistic verbs
  • Said, screamed, yelled, hollered, whispered
• Metacognitive verbs
  • Thought, decided, wanted, planned
Microstructure

• Linguistic markers for transitions and elaboration
  • Temporal – after, before, while
  • Causal – because, since, therefore
  • Words that indicate time or process – first, next, before, when
  • Words that indicate a comparison – also, but, in contrast, however, as well as
  • Words that are used to classify – type, parts, segments
  • Adverbs – quickly, luckily, warmly
Evidence based procedures for narrative intervention
(Boulineau, et al, 2004; Justice, Gillam & McGinty, 2012; Petersen, 2011; Reutzel, 1985)

• Use of cue cards, icons to represent story elements
• Use of story maps & graphic organizers to represent macrostructure (story grammar + causal framework)
• Story retelling
• Pictographic planning
• Story generation from single scene pictures
• Literature based language activities
• Meta-cognitive instruction (editing)
Literature based language activities
• Gillam, S., Gillam, R., & Reece, K. (2012)
• 16 students ages 6-9 with language impairments
• 8 received contextualized, literature based instruction
• 8 received decontextualized program
• 8 acted as controls
• 50 minutes, 3 x weekly in small groups, 6 weeks
Contextualized

• Pre-story presentation
• Word review
• Story elements introduction
• Preview what story is about
• Picture walk
• Read story
• Identify story elements
• Post-story presentation (answer questions)
  • 4 books used over 6 weeks
• Parallel story development

Decontextualized

• No glamor grammar
• Drill cards designed to target vocabulary, sentence complexity, and social language, categories and definitions, answering questions, making inferences
• Use of facilitative recasts
Parallel story
Dinosaurs scrubbed their necks and nails.
They played in rhythm, they sang in rhyme,
And they're still asleep, snoring deep in the swamp.
But the little dino says, "Dinosaur Stomp!"
Sunday Night at the Bowling Alley Party!

Written & Illustrated By:
Ashton, Jeremy & Preston
Sunday night, the snakes are getting ready for a party at the bowling alley.
They take a bath, brush their fangs, and scratch the scales.
The rattle snake, water snake, and dinosnake slither and crawl to the bowling alley.
They do the limbo, the choo choo, and macarena.
They bowl at the lane until the party is over.
The snakes are so tired they want to go home. They moan and mope.
They slither to their beds and go to ssssssleep.

THE END
• Both groups demonstrated improved performance in their narrative and language skills after instruction when compared to a no treatment control group.

• The students in the contextualized language intervention made greater gains than the students in the decontextualized language intervention group.
Critical aspects of literature based language instruction

- Explicit instruction in story structure (using wordless books first)
- Repeated, variable instruction in story structure
- Explicit instruction in vocabulary (student friendly definitions; whole, part, whole)
- Practice identifying and answering questions about story elements
- Practice creating parallel stories
- Whole, part, whole instruction
The National Reading Panel (National Institute of Child Health and Human Development, 2000), reports that there are eight effective or promising strategies for improving comprehension: comprehension monitoring, cooperative learning, graphic and semantic organizers, story structure, question answering, question generation, summarization, and multiple-strategy use.
• Significant variation in comprehension skill is accounted for by measures of text integration and metacognitive monitoring (Cain, Oakhill & Bryant, 2003)
  • One way to measure “integration” is to ask students to answer inferential questions about passages they hear or read
  • One way to measure comprehension monitoring is to present students with stories that contain inconsistent information and ask them to identify it when they hear or read it
    • Example: They were hungry. They saw a restaurant so they stopped and went in. The restaurant was closed. They were really full after they ate hamburgers and french fries.

• We are not aware of any other narrative intervention program that specifically addresses metacognitive skills such as comprehension monitoring or other strategies in a systematic set of lesson plans
Metacognitive instruction

• Comprehension monitoring (on-line decisions about one’s understanding of what has been read or heard) is said to be a component skill of comprehension.

• Comprehension monitoring begins to develop early and requires conscious effort and attention to meaning.

• Some researchers have suggested that poor comprehension monitoring may contribute to difficulties students have in generating cross-textual inferences which may interfere with overall comprehension performance.

• Build monitoring activities into your instruction and scaffold the student to becoming independent.
Review: Evidence based procedures for narrative intervention

- Use of cue cards, icons to represent story elements
- Use of story maps & graphic organizers to represent macrostructure (story grammar + causal framework)
- Story retelling
- Pictographic planning
- Story generation from single scene pictures
- Literature based language activities
- Meta-cognitive instruction (comprehension monitoring)
Supporting Knowledge in Language & Literacy

Phase I: Teaching Story Structure and Causal Language
Phase II: Teaching Strategies for Creating a Situation Model
Phase III: Teaching Strategies for Integration into Long Term Memory.

The three phases of the SKILL curriculum include multiple lessons on story structure or organization and the specific linguistic markers used to signal the temporal and causal relationships between propositions (meaning units).

These lessons support the development of a framework that may then be used to assist in the construction of an accurate and coherent representation of what was said or written that is organized locally (phrase, sentence, paragraphs) and globally (discourse, text structure).
Underlying Processes
Knowledge of narrative text structure

Underlying Processes
Oral language skills & composition of narratives

Intervention
Phase I: Teaching Story Structure & Causal Language for accurate text baseline representation
Phase II: Teaching Strategies for Creating a Situation Model
Phase III: Teaching Strategies for Integrating into LTM

Mediator
Working Memory

Moderator
SES

Primary Outcomes
Comprehension and Composition of Narratives

Secondary Outcomes
Reading Comprehension, Written Composition in Narrative Texts
Phase I: Teaching Story Structure and Causal Language (20 Lessons)

Explicit Instruction of Story Elements

- Story Element introduction (Whole)
  - Camping Trouble with dogs
  - Introduce the whole story with icons
  - Example: 3 Hungry Mice
- Lessons: (Part)
  - Character, setting, initiating event (take off), internal response (feeling), plan, action, consequence
- Co-telling (Camping Trouble) (Whole)
- Re-telling (with Bingo cards)
- Parallel story development
- Parallel story re-telling
- Literature Unit
- Mini-lesson (before, after)
Complication
Phase 1: Basic Storyboard
Literature Unit

- **Objectives:** To help children attend to and answer questions related to story elements and specific story details in authentic literature. To assist children in identifying story structure in authentic literature. To assist children in understanding the concepts of before and after.

- **Materials:** Selected literature book (*Mushroom in the Rain*), index cards with vocabulary words written on them (definitions on the back), large icons, and comprehension probe (previously administered).

- Review of the story
- Word review for unfamiliar vocabulary
- Picture walk
- Read book, highlighting story elements & microstructure
- Answer questions related to story elements
- Retell the story
- Develop a new story based on the one that has been read
In order to move to Phase II, a student must be able to:

- identify by name, all of the icons,
- give satisfactory examples and/or definitions for each one,
- be able to create a story (using a storyboard) that contains all of the elements with minimal assistance,
- and answer comprehension questions related to the story elements.
Phase II: Teaching Strategies for Creating a Situation Model (18 Lessons)

- Introduction to elaboration
- Comparison of simple & elaborated stories
- Dialogue
- Elaboration using Plan, Action, Complication, Sequences (PACS)
- Practicing complexity using PACS through parallel story development
- Parallel Story Retelling w/Icons
- Parallel Story Retelling w/No Icons
- Elaborating on Action with adverbs
- Action adverbs Mini-lesson
- **Literature Unit** - Tacky the Penguin
• Metacognitive instruction is the focus of Phase III

• The students engage in activities to
  • Practice using the skills they’ve learned,
  • Monitor the accuracy and completeness of their own stories and those that they hear or read
  • Independently correct their errors
  • Monitor their comprehension of the stories they hear and read
Phase III: Teaching Strategies for Integration into Long Term Memory (12 Lessons).

Literature Comprehension Unit (Miss Nelson is Missing)
  If- then with Miss Nelson
Using the self-scoring story board/rubric w/Miss Nelson

Co-creating sequenced stories
  Using the self-scoring story board/rubric to edit co-created stories from sequenced pictures

Co-creating stories from single scenes
  Using the self-scoring story board/rubric to edit co-created stories from single scenes

Creating independent stories from single scenes (or prompts)
  Using the self-scoring story board/rubric to edit independent stories
<table>
<thead>
<tr>
<th>Character</th>
<th>Setting</th>
<th>Take-off</th>
<th>Feelings</th>
<th>Feelings about take-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or more Names</td>
<td>Day or time Name of place (city, State, park, forest)</td>
<td>Problem or event</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan</th>
<th>Action</th>
<th>Complication</th>
<th>Feelings</th>
<th>Feelings about the complication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan because of take-off</td>
<td>Action because of take-off</td>
<td>Something got in the way of action</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plan Again</th>
<th>Action</th>
<th>Landing</th>
<th>Story Sparkle</th>
</tr>
</thead>
</table>
| Another plan because of the complication | Action because of the complication | Ending related to the take-off | 3 joining words for, and, nor, but, or, yet, so
| | | | 3 when/why words after, while, when, before, because
| | | | 3 dialogue/thinking words thought, said, decided, promised, forgot, wanted, asked, told, know
| | | | 3 whose/how how big/small, how sad, whose shoe, whose dog |
Executive Functioning

• Difficulty allocating mental resources in dual-processing tasks (Hoffman & Gillam, 2005; Montgomery, 1993)

• Difficulty using reasoning strategies that require multiple cognitive steps (Johnston, Smith, & Box, 1997)

• Difficulty answering inference questions that require integration of information (Crais & Chapman, 1987).
<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Setting</th>
<th>Program Description</th>
<th>Effect Size</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. S. Gillam, Olszewski, Fargo &amp; R. Gillam 2014 (n = 43)</td>
<td>Children At-Risk for Language Learning Difficulties</td>
<td>Whole classroom; 30 minutes, 2 times per week, 6 weeks; one experimental and one comparison class</td>
<td>Explicit training for SGEs, explicit and implicit instruction in microstructure using wordless books and literature; oral instruction only</td>
<td>.33 (moderately large; Lipsey et al., 2012)</td>
<td>TNLAI Composite Score</td>
</tr>
<tr>
<td>1. R. Gillam, S. Gillam, &amp; Fey, 2017 (n = 20)</td>
<td>Children with Language Impairment</td>
<td>Small group; 35-40 minutes, 6 weeks; groups of 3</td>
<td>Explicit training for SGEs, explicit and implicit instruction in microstructure using wordless books and literature; oral instruction only</td>
<td>1.45 (large)</td>
<td>TNLAI Composite Score</td>
</tr>
</tbody>
</table>
Summary

• Clinicians should focus on improving language skills in children with SLI using procedures with greater evidence for promoting efficient cognitive processing.

• Contextualized language instruction with a focus on organizational frameworks and metacognition, such as SKILL, should support changes in key executive functions (Fluid Reasoning, Attention, LTM, WM) shown to play a role in listening and reading comprehension.