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Story Generation in Four Children with Language Impairment

Monica Chamberlain

A thesis submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of  
Master of Science

Bonnie Brinton, Chair  
Martin Fujiki  
Barbara Culatta

Department of Communication Disorders

Brigham Young University

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## ABSTRACT

### Story Generation Ability in Four Children with Language Impairment

Monica Chamberlain  
Department of Communication Disorders, BYU  
Master of Science

This thesis project focused on the complexity of story generations produced by four children with language impairment across treatment sessions. Specifically, the participants' utterances were analyzed to determine if the children produced simple story elements and/or more complex cause/effect story elements. The children's utterances were also analyzed to identify emotion words in order to consider the children's awareness of the emotions experienced by characters in the stories. All participants approached the story generation task by describing characters and actions based on pictures from the book. Two participants did not express any causal relationships and two participants expressed some awareness of causal relationships, suggesting an emergence of this ability. Furthermore, participants' ability to recognize emotions varied. All of the children were able to label at least one emotion across sessions, and two participants increased production of emotion words across sessions. None of the participants linked character actions/reactions to the overall theme of the story. Further research is needed to determine effective ways to help children bridge the gaps between simple descriptions and more complex causal relationships.

Keywords: language impairment, story generation, narrative, story elements, intervention

## ACKNOWLEDGMENTS

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I would also like to express gratitude to my family members. My parents and in-laws were always supportive and encouraging, cheering me on through the tough times. My children bore the brunt of my schooling, and yet continued to be supportive and encouraging. It is for them that I have pushed myself to succeed in this program and hopefully be an example to them.

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## DESCRIPTION OF CONTENT

This thesis was part of a larger research project focusing on a social communication intervention targeting emotion understanding. This current project focused on four participants and the story generations they produced within the larger project. Portions of this thesis may be published as part of articles listing the thesis author as co-author. The body of this thesis was written as a document appropriate for submission to a peer-reviewed journal in speech-language pathology. The analysis coding system, raw data, and annotated bibliographies are presented in Appendices A, B, and C.

## Introduction

Why look at a child's narrative ability? Reilly, Losh, Bellugi, and Wulfeck (2004) explain that narratives are found throughout various contexts, cultures, and times. Retellings of stories and daily events occur at the dinner table, in school classrooms, and in some of our very oldest records (e.g., the Bible and Aesop's fables). Narratives continue to serve as a way to convey culturally significant information. Narratives are so ingrained into the language experience that children as young as three years have some notion of what a story is (Appleby, 1978).

There are many aspects of a narrative that culminate to make a good story. Reilly et al. (2004) explain that the required skills needed for producing a good narrative include "complex, linguistic, cognitive and affective/social abilities" (p. 230). Pence and Justice (2008) further explain that narratives provide a setting for multiple language achievements that include syntax, morphology, semantics, phonology, and pragmatics. For a child to produce a narrative, the child must employ the following: syntax to arrange words, ideas, and concepts; verb morphology to signify time of events; vocabulary to signify persons and events; phonology to articulate words correctly; prosody to convey intonational cues; and pragmatics to manage interaction with a listener. According to Brown (1973), typically developing children are generally competent with the majority of the morphosyntactic structures of their language by age five. Understanding how and when to use these structures in discourse, however, continues to develop into adolescence. Therefore, narratives provide a rich framework for evaluating multiple aspects of language development in school-aged children (Reilly et al., 2004).

Narratives are a good mix of both informal conversational language and more formal literate discourse. Narratives differ from conversations in that conversations are carried out

between two or more persons, whereas narratives are generally continuous streams of speech. Children who produce narratives take on the responsibility for the effectiveness of the communication (Pence & Justice, 2008). Furthermore, the understanding of stories requires more than just repeating information heard or read. Literal comprehension involves recalling explicitly stated information, while inferential comprehension requires understanding of what is occurring “between the lines” of the story (Paul & Norbury, 2012).

Narratives are important for successful educational learning. School-age children and adolescents use narration in both classroom and social settings. Klecan-Aker (1993) explains that oral narratives require children to organize content and express thoughts into utterances, all while considering the listener in the conversational exchange. Teachers instruct in a narrative manner to convey educational information about academic subjects such as mathematics, social studies, science, and language arts. Children are frequently assessed according to their skill in oral expressions, and this skill may affect the quality of their interactions with teachers and peers. Newman and McGregor (2006) discovered that laypersons and teachers were able to perceive differences in quality of narratives between children with and without specific language impairment (SLI). Narratives produced by children with SLI were briefer, less grammatical, and less complex. Because narratives are important in a child’s everyday life, these skills should be prime targets for intervention.

Because of the complex language requirements needed to compose an oral narrative, many children with language impairment (LI) have a difficult time generating a story. Children with LI may have deficient oral narrative skills as a result of their poor ability to use language in an organized and consistent manner (Klecan-Aker, 1993). Additionally, children with LI have difficulty understanding both literal and inferential information making a task like generating a

story very difficult (Norbury & Bishop, 2002). Furthermore, children with LI have more difficulty organizing their narratives and employing cohesive conjunctive words across sentences than do typically developing children. Children with LI have difficulty forming complete episodes to organize their narratives and sequencing their narratives appropriately (Luo, 2008). Gillam and Cowan (1995) performed a study explaining that children with LI present with temporal sequencing problems. They concluded that children with LI extract higher-level representations more slowly. Because of this, each interaction with the child with LI was at risk because the surface representations of speech codes appeared to be the ones the children were more dependent on.

Because children with LI have such a difficult time with narratives, story generation can be an important tool to assess a child's language. Ukrainetz and Gillam (2009) researched expressive elaboration of narratives from children with SLI and found that expressive elaboration of narratives was related to age of the child and language level. Other researchers suggest that children with SLI need guidance on artful storytelling, even for simple stories. Petersen, Gillam, Spencer, and Gillam (2010) found that the use of narratives as an intervention tool may be beneficial for improving functional macrostructural and microstructural language in children. Klecan-Aker (1993) suggests that story-telling can be a successful therapy tool for children struggling with language development. Problems with narrative performance will most likely grow and become more significant as the child progresses in age (Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004).

Because children with LI have a difficult time with story structure, providing the children with a picture book may provide support. Children with LI have more difficulty processing and remembering information they hear and may be better at remembering stories they tell (Dodwell

& Bavin, 2008). Dodwell and Bavin (2008) explain that children with SLI had a difficult time maintaining information in working memory and processing the information at the same time. Furthermore, elicitation method influenced the child's ability to organize and produce narratives. When sufficient story structure was provided, children with LI were able to produce stories that were as organized as typically developed peers. When structure was limited, children with LI displayed difficulty organizing their thoughts (Luo, 2008). Additionally, Gillam and Carlile (1997) concluded that children with SLI were less flexible in their use of print cues than were reading and age matched peers.

The purpose of the current study was to examine the narrative ability in four children with language impairment by analyzing story generations across multiple sessions. It was recognized that young children with LI may have limited narrative abilities, especially in story generation. The current work was designed to illustrate how children with LI approached the task of story retell using a storybook. According to C. Westby, (personal communication, April 10, 2014), immature story generations are best assessed by posing the following questions: (a) Across sessions, did the child label/describe or interpret pictures? (b) Did the child indicate awareness of causal relationships? (c) Did the child label emotions experienced by characters? (d) Did the child explain the relationships between characters' emotions and events in the story?

## Method

This thesis was part of a larger project focusing on the effectiveness of an intervention targeting emotion understanding in six children with deficits in social communication. This larger study was constructed using a single subject, multiple baseline design. Four participants with LI from the larger project participated in the current study.

### Participants

This project focused on three boys and one girl, all of whom had been identified with LI. The participants ranged in age from 5:3 (years:months) to 6:10. At the time this study began, three of the children attended general education kindergarten classes and one attended a general education first grade class. All participants passed a pure tone hearing screening administered either by an audiologist or a speech language pathologist employed by the school district. Each child was receiving pullout speech-language intervention services targeting expressive and receptive language deficits for 20 minutes twice a week. Prior to intervention, each child was administered two assessments: the *Comprehensive Assessment of Spoken Language* (CASL; Carrow-Woolfolk, 1999) and the *Universal Nonverbal Intelligence Test* (UNIT; Bracken & MaCallum, 2003). Results are presented in Table 1.

Table 1

*Comprehensive Assessment of Spoken Language (CASL) and Universal Nonverbal Intelligence Test (UNIT) scores*

Participant		CASL Scores					UNIT Scores
Age	Core Composite	Antonyms	Syntax	Paragraph	Pragmatic	Full Scale IQ Score	
P1	6:10	69	76	74	80	65	88
P2	5:08	77	91	89	64	78	83
P3	5:10	75	82	79	78	81	88
P4	5:03	80	88	92	60	96	91

Participant 1 (P1), age 6:10, was a Caucasian male with LI. At the age of four he was identified with mild dysarthria and dysphagia, which qualified him for admittance into a special needs elementary preschool program. During this time, he was referred for speech services due to poor articulation. During his course of therapy, language goals were added when it was observed that P1's language skills were falling behind those of his peers. At the time of this study, P1 was enrolled in the first grade and was no longer receiving intervention for articulation, dysphagia, or dysarthria. Speech and language services continued to target language deficits which included sequencing of narratives, production of regular past tense verbs, and appropriate use of pronouns (Harris, 2011).

Participant 2 (P2), age 5:8, was a female Caucasian originally presenting with a diagnosis of developmental delay. General intellectual disability was ruled out based on evaluation from the school psychologist and a UNIT score of 83, which was near the typical range for cognitive functioning. At age three, P2 participated in the school's special needs preschool program. At the time of the study, P2 was enrolled in a mainstream kindergarten class, and she received pullout services for resource, adapted PE, occupational therapy (OT), and speech-language services. P2 attended a special reading class in which she received further instruction on upper



and lower case letters, high frequency sight words, and rhyming. She also attended a special math class where she received further instruction and help with patterns, counting, and identifying and writing numbers. Language goals for P2 included answering comprehension questions, story retell, and expanding general and receptive vocabulary (Harris, 2011).

Participant 3 (P3), age 5:10, was a male Caucasian who originally presented with a developmental delay. The special education team determined, however, that he did not have general intellectual disability. He earned a UNIT score of 88, which was within the typical range for cognitive functioning. P3 was originally tested at age three. At that time, it was reported that vocalization was limited to vowel production only, and he used hand gestures to communicate. Delays were noted in comprehension of some vocabulary and verbs. At this age, he was enrolled in a special needs preschool program where he received speech and language services. It was also noted at this time that P3 did not interact with his peers although he enjoyed being around them. At the time of the study, P3 was enrolled in a mainstream kindergarten class. He continued to receive pullout services for OT for difficulties with fine motor skills. He also received speech and language services and goals targeted language deficits and elimination of phonological processes. Although he continued to have communication difficulties, it was noted that P3 enjoyed interacting with his peers (Harris, 2011).

Participant 4 (P4), age 5:3, was an African American male identified with LI. At age four he qualified for a special needs preschool program based on low scores in all areas of development, the lowest being that of communication. He presented with a restricted vocabulary, and he relied on general vocabulary words and familiar scripts to communicate. It was noted that he was able to combine words, but he had a difficult time producing creative, original sentences. P4 had academic difficulties, and it was reported that he was falling farther

behind his typically developing peers. At the time of the study, he was enrolled in a mainstream kindergarten class with pullout support being provided in resource and speech-language services. Language goals for P4 included increasing receptive and expressive vocabulary, answering questions, and understanding basic concepts (Harris, 2011).

### **Materials**

Two books were used from the Mercer Mayer book series to elicit story generation in the intervention sessions: *A Boy, A Dog, and A Frog* (Mayer, 1967), and *A Boy, A Dog, A Frog, and A Friend* (Mayer, 1971). These books were selected because the subject matter seemed interesting for participants (e.g., a young boy having adventures while making friends with animals). Both books are wordless and illustrated with portrayals of people and animals expressing clear emotions identifiable by facial expressions and body language. Although the books did not have written text, each provided a strong story structure. Because of the lack of text, participants were required to comprehend the story content based on events and emotions occurring in each picture. The lack of text also provided the opportunity for participants to generate original story retellings given multiple individual opportunities (Harris, 2011).

### **Procedures**

The larger project targeting a social communication intervention program was administered by two graduate student clinicians supervised by the school's speech-language pathologist and directed by two researchers specializing in clinical research concerning children with LI. The main goal of the larger intervention project was to determine whether or not the devised intervention would result in increased emotion understanding as well as improved teacher perceptions of various social skills (Harris, 2011).

Each participant was seen two to three times a week for a total of 20 one-on-one intervention sessions lasting 20 minutes each. The Mercer Mayer wordless books *A Boy, A Dog, and A Frog* (Mayer, 1967) and *A Boy, A Dog, A Frog, and a Friend* (Mayer, 1971) were selected as the backdrop for intervention activities. Intervention activities included a variety of activities targeting emotion understanding, including book sharing, story enactment, story generation, and journal writing. All sessions were video recorded for future analysis (Harris, 2011).

This thesis project focused on a story generation activity conducted within this intervention project. The story generation activity was administered at the beginning of approximately one session per week. For this activity, the following procedure was followed. The child was presented with the book and instructed by the clinician to generate a story with minimal prompts. The child then attempted to tell a story in his/her own words. The child was able to flip through the pages of the book at his/her own pace to generate a story of the book. Minimal cueing from the clinician was permitted, as independent story generation was the target.

Each session was video recorded using digital camcorders. The story generation segments were edited according to when the story generation activity began and when the child completed the story generation task. Segments in which the therapist provided too much prompting were either stopped at the point of excessive prompting or excluded from analysis. Using the video recordings, each story generation was transcribed utterance by utterance.

### **Analysis**

Utterances were analyzed according to an analysis system designed to address the research questions. Each utterance was categorized according to the analysis system detailed in Appendix A, and the number of occurrences for each coding category was recorded across

sessions. Utterances produced within each transcribed story generation were analyzed to address the research questions. Utterances were assigned to the following categories:

Labeling, description or interpretation of pictures including

- an attribute or action expressed in single words or simple constructions
- an action expressed in a phrase or simple utterance

Cause/effect relationships including

- an event presenting a potential issue or conflict in which the situation elicits a response or requires action or an action that is causally related to another action or character
- internal intent expressed as a statement of what the character planned or wanted to do or have happen
- a result expressed as a statement about what happened because of an action pictured in the story (consequences of events and resolutions of actions). Statements contain connective words such as *because, so, if-then, so-then*

Expression of emotion context including

- emotion words used in labeling, describing or interpreting the story
- emotion words used in association with cause and effect relationships

Emotion words were always double coded. That is, the child's contribution was also coded according to the story element it expressed to analyze the child's understanding of the character's emotions relating to the events in the story.

All other child utterances were coded but not considered for the current analysis. These categories included:

- Questions about book content: questions relating to characters/events in the story.  
This category also includes requests for clarification
- Housekeeping: statements or questions about the task (e.g., *Is this the same book?*)
- Off topic: comments/questions that do not have to do with the story task
- End/refuse: statements/gestures indicating the child is finished with the task or the child refuses to talk about the book, also includes *I don't know* statements
- Announcement of end: statement/gesture that indicates the end of the story (e.g., *The end*, child closes the book after story generation)
- Response to direct prompts: answers to *why*, *yes/no* questions
- Minimal: brief statements or interjections (e.g., *huh*, *oh*, *hmmmm*, *wow*)
- Other: unintelligible, odd, or other comments not categorized elsewhere

Adult prompts were also coded to determine support required for the child's completion of the story generation task. Categories of coding elements for the clinician included:

- Initial prompt: indicated the beginning of the task (e.g., *Tell me about this book*)
- Minimal prompts: statements that encouraged the child to continue on with the story generation task and indicated to the child that the clinician was listening to the story (e.g., *uh-huh*, *go on*, *what else*).
- Direct prompts: prompts needed to get the child redirected back on task, request for information not already stated, or to elaborate the child's response
- Clarification: statements to request further explanation—such as the instructor's inability to hear or understand the child's soft voice or unintelligible speech

- Housekeeping: statements relating to the task (e.g., *You skipped a page*)
- Off topic: statements relating to the child's off topic remarks

A more detailed description of the coding system used for analysis is provided in Appendix A.

### **Interjudge Agreement**

To establish interjudge agreement for transcriptions of the story generation video segments, the graduate student heading this thesis project, along with two undergraduate students, each independently transcribed an unrelated video segment from the original intervention project. After completion, transcriptions were compared for accuracy. Interjudge agreement was 93%. Because agreement was established, the two undergraduate students proceeded to transcribe all video segments needed to analyze this project. Ten percent of the video segments were transcribed by both undergraduate students to further obtain agreement, in which interjudge agreement was 94%.

To establish interjudge agreement of analysis for coding of the transcriptions, the graduate student heading this project trained an undergraduate student in the coding process. After training, both the graduate and undergraduate students coded a transcript to determine interjudge reliability and accuracy. After comparison of both attempts, interjudge agreement was 91%. The undergraduate student then proceeded to code 10% of the data in the transcripts to further obtain agreement, after which accuracy was compared and interjudge agreement was 92%.

## Results

The number of utterances identified within all categories is presented for both child and adult participants in Appendix B. For the purposes of this study, the primary focus of interest was the utterances children produced that fell within the Description, Cause/Effect, and Emotional Content categories of the story generation analysis.

Utterances identified as Description included both simple descriptions and descriptions of action. These utterance types represented a similar level of complexity (a description of objects, characters, attributes, or action portrayed in the story books). Similarly, utterances identified as Cause/Effect included description of causally related events or attempts, expressions on internal intents of characters, and results of actions (as described in Appendix A). In addition, utterances containing emotion words were identified within the category of Emotional Content. Each of these utterances was double coded in that individual emotion words (e.g., *happy*, *mad*, *sad*) were considered as well as the category of the utterance that contained the words. Results for each participant will be discussed individually.

### Participant 1 (P1)

Figure 1 displays the story elements (utterance categories) generated by P1. As Figure 1 illustrates, the majority of P1's responses were simple word utterances describing a character (e.g., *A frog*; *The dog*) or action (e.g., *He's catching*; *He's digging a hole*). P1 did not produce more complex story elements expressing cause/effect (event/attempt, result, and internal intent). Across multiple sessions, results indicated that P1's story generation skills remained at a prenarrative level in which the participant primarily labeled and/or described pictures from the text.

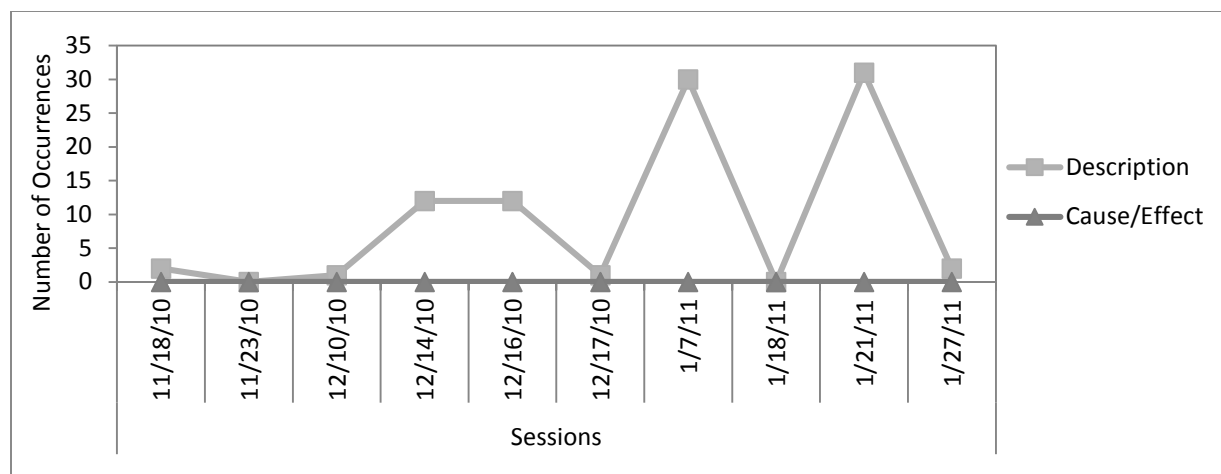


Figure 1. Analysis results for participant 1 (P1).

Table 2 represents the emotion words that P1 produced across sessions and the types of utterances that contained these words. As Table 2 indicates, P1 typically used emotion content words as descriptors (e.g., *He is mad*), and once used an emotion content word in a response to a direct prompt. Emotion words expressed included *happy, mad, sad, scared, tired, and surprised*. Results also show that P1 increased usage of emotional content related words across sessions, beginning with no expression of emotion words recorded in the first session and having 11 emotion words recorded by session 7.



Table 2

*Emotion Words within Utterance Categories for P1 Across Sessions*

Coding Element	Sessions by Date									
	11/18/10	11/23/10	12/10/10	12/14/10	12/16/10	12/17/10	1/7/11	11/18/11	1/21/11	1/27/11
Description (SD)			happy	mad sad	mad scared		sad mad(3) happy(5) tired(2)		happy surprised	
Response Direct Prompt (R-DP)			mad							

**Participant 2 (P2)**

Figure 2 displays the story elements (utterance categories) generated by P2. As Figure 2 illustrates, P2's utterances revolved around the more simple story elements of Description and Action in which P2 primarily labeled and/or described pictures from the text. P2 had a difficult time staying on task across sessions. In some sessions, P2 flipped through the book without producing any utterances. In other sessions, P2 produced frequent utterances coded as a refusal (e.g., *I don't know; I don't want to*), housekeeping (e.g., *I'm just gonna look at it; I'll do this page*), and/or off topic (e.g., *Tomorrow I'm gonna bring a book; I got braids*). When on task, the majority of P2's responses were simple utterances naming a character (e.g., *The doggy; The boy*) or an action (e.g., *They jumped in the water*). P2 did not produce more complex story elements expressing cause/effect (event/attempt, result, and internal intent). Across multiple sessions, results indicated that P2's story generation skills remained at a prenarrative level in which the

participant primarily labeled and/or described pictures from the text.

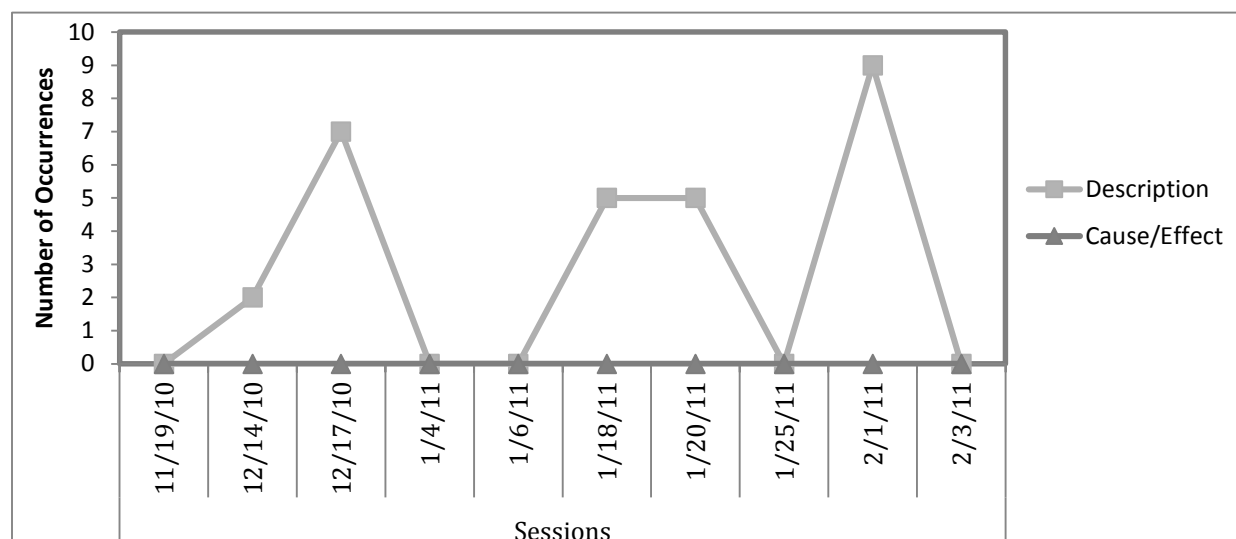


Figure 2. Analysis results for participant 2 (P2)

Table 3 presents the emotion words that P2 produced across sessions and the types of utterances that contained these words. As Table 3 indicates, P2 used emotional content words as descriptors (e.g., *He's happy*), and twice in a response to a direct prompt. Expression of emotion content words across story generations was limited, as P2 only produced the word, *happy*, a total of five times in all story generations.

Table 3

*Emotion Words within Utterance Categories for P2 Across Sessions*

Coding Element	Sessions by Date									
	11/19/10	12/14/10	12/17/10	1/4/11	1/6/11	1/18/11	1/20/11	1/25/11	2/1/11	2/3/11
Description (SD)							happy		happy(2)	
Response Direct Prompt (R-DP)									happy(2)	

**Participant 3 (P3)**

Figure 3 displays the story elements (utterance categories) generated by P3. As Figure 3 illustrates, the majority of P3's responses were utterances describing a character (e.g., *Boy and dog*) or action (e.g., *And he climbing a tree*). Across sessions, P3 produced more complex story elements expressing cause/effect. These instances included three expressions of event/attempt (e.g., *A frog jump in and save him*), two expressions of a causal result (e.g., *The dog happy turtle let go*), and four expressions of internal intent (e.g., *A boy and a dog wanted to catch a frog*). Although P3's story generation skills were largely on the prenarrative level, P3 showed immergence of complex narrative skills involving cause/effect.

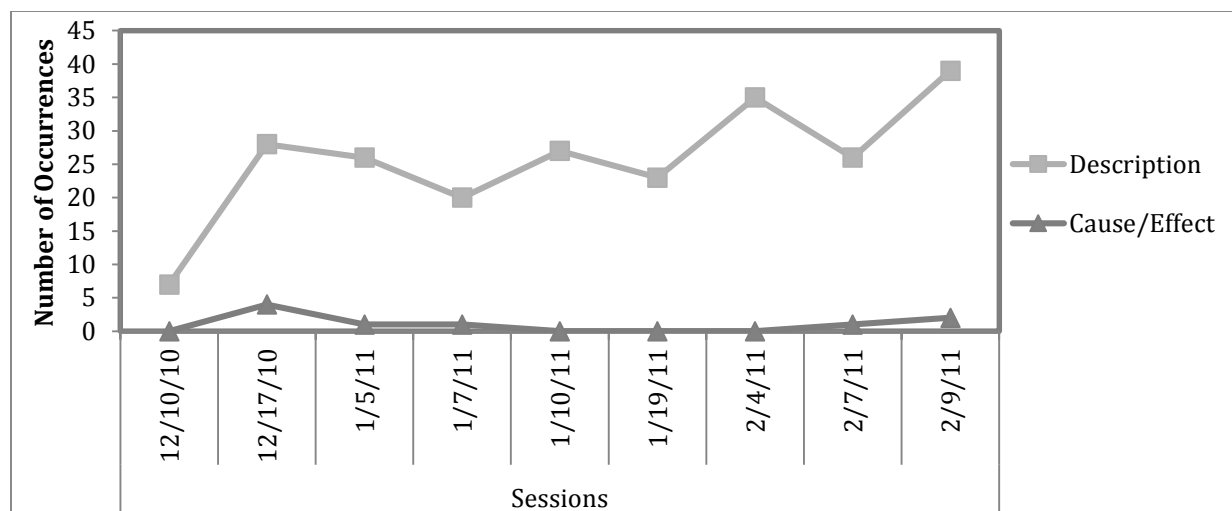


Figure 3. Analysis results for participant 3 (P3)

Table 4 presents the emotion words that P3 produced across sessions and the types of utterances that contained these words. As Table 4 indicates, P3 increased the use of emotion content words across sessions. Emotion words expressed included *happy*, *mad*, *worried*, *sad*, and *angry*. Emotion words were primarily used as descriptors (e.g., *The boy happy*), however two emotion content words were used within descriptions (e.g., *And him said, 'I'm mad at you'*), and two were used to express causal results (e.g., *Then frog happy turtle open his eyes*). Expressed emotion words varied from session to session, however, P3 began with no words expressed in a story generation the first session, to expressing 16 emotion words in a story generation in the last session.

Table 4

*Emotion Words within Utterance Categories for P3 Across Sessions*

Coding Element	Sessions by Date								
	12/10/10	12/17/10	1/5/11	1/7/11	1/10/11	1/19/11	2/4/11	2/7/11	2/9/11
Description (SD)		happy(2) worried mad(4)	happy mad(2) sad			happy mad(2)	happy(5) mad sad(2)	worried happy sad(2)	worried(2) mad(2) angry sad(7) happy(2)
Action (A)		mad					mad		
Result (CR)									happy(2)

**Participant 4 (P4)**

Figure 4 displays the story elements (utterance categories) generated by P4. As Figure 4 illustrates, the majority of P4's responses were utterances describing characters (e.g., *The boy*; *That's a frog*) and actions (e.g., *Fell in the water*; *He catch the dog*; *He's taking a bath*). Across sessions, P4 produced three complex story elements expressing cause/effect, two of which were expressions of causal result (e.g., *The frog jumped away he was going to catch it*; *The boy was mad at his friends cause they made the turtle die*), and one as internal intent (e.g., *His friend wanted to get him*). Across multiple sessions, results indicated that P4's story generation skills remained in the prenarrative level in which the participant primarily labeled and/or described pictures from the text. However, P4 showed some immergence of complex narrative skills involving cause/effect.

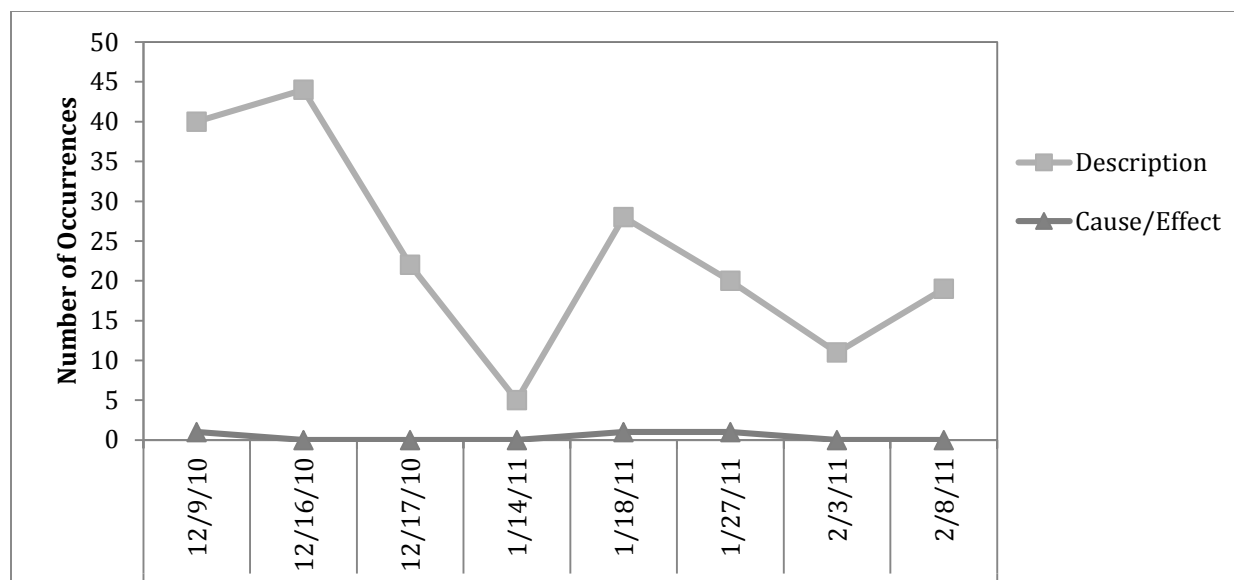


Figure 4. Analysis results for participant 4 (P4)

Table 5 presents the emotion words that P4 produced across sessions and the types of utterances that contained these words. As Table 5 indicates, P4 typically used emotion content words as descriptors (e.g., *Frog sad*) or as actions (e.g., *Then he was mad at him*). However, emotion content words were used once to ask a question about the book (e.g., *Why's that frog be mad?*), once in response to a direct prompt, and once in a concluding result utterance (e.g., *Then the boy was mad at his friends cause they made the turtle die*). Emotion words expressed included *happy*, *mad*, *worried*, *sad*, and *angry*.

Table 5

*Emotion Words within Utterance Categories for P4 Across Sessions*

Coding Element	Sessions by Date							
	12/9/10	12/16/10	12/17/11	1/14/11	1/18/11	1/27/11	2/3/11	2/8/11
Description (SD)	mad sad(2)	mad(3) sad happy	mad sad(2) angry		sad	worried		
Action (A)					mad	mad	mad	mad(2)
Result (CR)						mad		
Questions About Book (Q)	mad							
Response Direct Prompt (R-DP)		mad						

## Discussion

The story generation task proved to be demanding for all of the participants. The performance of each child is summarized below.

### P1

P1 seemed to approach the story generation as a picture description task. He produced simple utterances that described characters and actions based on the pictures from the books, but he did not produce any utterances expressing cause and effect relationships or internal intents of characters. P1 showed an increase in descriptive responses across sessions, however. In the first three sessions combined, P1 expressed a total of three descriptions relating to characters. By the ninth session, P1 expressed 12 descriptions relating to characters, and 19 expressions relating to actions, for a total of 31 descriptions for that session. Descriptions across sessions were variable, which may have been due to P1's occasional difficulty attending to task. Analysis of sessions in which P1 produced few or no descriptions revealed that the majority of his responses were related to refusal of task, off topic remarks, or housekeeping.

Although his performance was variable, P1 showed some awareness of the emotions experienced by the characters in the book as indicated by his increased use of emotion content words across sessions. P1 used a variety of emotion content words across story generations, including *happy*, *mad*, *sad*, *scared*, *tired*, and *surprised*. P1 was the only participant to use emotion words not specifically targeted in the original treatment (*scared* and *tired*). P1 did not explain relationships between character's emotions and events in the story, however. All of P1's responses containing emotion content words were used as descriptors (e.g., *He is mad*).



## P2

Results were most variable for P2. Although P2 labeled and described pictures when she was on task and involved in the story, she did not do so as frequently as did the other participants. In addition, P2 did not produce complex story elements expressing Cause/Effect (event/attempt, result, and internal intent) across story generations. Of the four participants, P2 seemed to be the least engaged in treatment tasks, including the story generation tasks. In some sessions, P2 only flipped through the pages of the book without describing anything in the book, even when prompted by the clinician. In these sessions, P2 produced some utterances that were off topic, as well as refusals, and housekeeping utterances. P2's variable behavior in the treatment and story generation task seemed reflective of her behavior in her classroom as well.

Describing emotion seemed particularly difficult for P2. She produced no expression of emotion content words until session seven, in which she identified one emotion word, *happy*. In fact, *happy* was the only emotion word that P2 produced, and she did so a total of five times in all story generations. When she did express emotion words, P2 did not explain relationships between character's emotions and events in the story. Once again, P2's story generation reflected her general performance in treatment. That is, she had difficulty with a variety of tasks requiring emotion understanding, including labeling emotions that she experienced herself. P2's generally flat affect, frequent non-compliance, and poor performance on emotion-related tasks suggested that her emotion regulation and emotion understanding were limited.

## P3

Of all the participants, P3 showed the most skill with the story generation task as evidenced by the relatively high number of utterances across sessions describing both characters and actions. Although the results were variable, P3 showed an increase in descriptive responses

across sessions, suggesting that he gained some faculty with the story generation task as the intervention progressed. P3 expressed a total of seven descriptions relating to both characters and actions in the first session, and by the last session, P3 expressed a total of 39 descriptions (combined total for Description and Action) for that session. Although P3's story generation skills were largely at a descriptive level, P3 showed immergence of more complex narrative skills involving causal relationships. This was evidenced by instances including three expressions of event/attempt (e.g., *A frog jump in and save him*), two expressions of a causal result (e.g., *The dog happy turtle let go*), and four expressions of internal intent (e.g., *A boy and a dog wanted to catch a frog*).

P3 showed a growing recognition of emotional feelings of the characters in the book as indicated by his increased use of emotion content words. P3 expressed no emotion words in the first session but expressed sixteen emotion words in a story generation in the last session. Emotion words P3 expressed included *happy, mad, worried, sad, and angry*. Furthermore, P3 showed an immergence of recognition of relationships between character's emotions and events in the story. This was evidenced during the last session in which P3 used two emotion words to express causal result (e.g., *Then frog happy turtle open his eyes; Then dog happy turtle get up*).

#### **P4**

The majority of P4's responses were simple descriptions of characters and actions based on the pictures from the books. The results for P4 were variable, indicated by higher numbers in these categories at the beginning of the study when compared to lower numbers at the end. Variability may be attributed to occasional difficulty attending to task, as suggested by responses that were related to refusal of task, off topic remarks, or housekeeping statements. Although P4's story generation skills were largely at a descriptive level, P4 showed immergence of

complex narrative skills involving causal relationships. For example, P4 expressed two complex story elements coded as causal result (e.g., *The frog jumped away he was going to catch it; The boy was mad at his friends cause they made the turtle die*).

P4 seemed to recognize some emotions of the characters in the book as indicated by the consistent use of emotion content words across sessions. P4 expressed emotion content words in all sessions except one, dated 1/14/11, in which he did not seem to attend to the task and said very little about the story. Emotion words that P4 expressed included *happy, mad, worried, sad,* and *angry*. Although P4 primarily used emotion words as descriptors of characters and actions, he showed an emergence of recognition of relationships between character's emotions and events in the story. In one instance, P4 used an emotion content word in a concluding result utterance (e.g., *Then the boy was mad at his friends cause they made the turtle die*).

### **Conclusions and Interpretations**

Research suggests that narrative tasks, such as story generations, prove to be difficult for children with LI (Dodwell & Bavin, 2008; Fey et al., 2004; Gillam & Carlile, 1997; Gillam et al., 1995; Hayward, Gillam, & Lien, 2007; McFadden & Gillam, 1996; Navarro-Ruiz & Rallo-Fabra, 2001; Norbury & Bishop, 2002; Pearce, McCormack, & James, 2003; Reilly, Belluigi, & Wulfeck, 2004; Ukrainetz & Gillam, 2009). That was certainly the case for the four children in this study. All of the participants approached the story generation task by describing characters and actions based on pictures from the book. Expressing causal relationships seemed particularly difficult. Two participants (P1 and P2) did not express any causal relationships. It was not clear if they did not understand the causal elements of the story or if they simply approached the story generation as a description task. P3 and P4 expressed some awareness of causal relationships in their story generations, suggesting that this ability was emerging. None of

the participants seemed to link the characters' actions and reactions to a more over-reaching goal or plot of the story, however.

The performance of the children with regard to recognizing the emotions of the characters of the story varied. It was encouraging, however, that all of the children labeled at least one emotion in some of the story generations, and two of the participants increased their production of emotion words as the sessions progressed. This may well reflect the emphasis that the intervention program placed on the emotions of characters in stories.

The difficulty of this task for the participants in the current study might be expected considering their LI. Children with LI are limited in their abilities relating to expressive language (Guo, Tomblin, & Samelson, 2008; Navarro-Ruiz, 2001), and in their ability to make connections in story content (Hayward et al., 2007; Norbury & Bishop, 2002; Petersen et al., 2010). It may well have been the case that structural language limitation constricted the children's ability to express complex relationships. For example, utterances such as *The dog happy turtle get up* suggested difficulty formulating linking constructions that clarify causal relationships. In addition to structural deficits, many children with LI have limited emotion understanding which could preclude the awareness of the emotion content of stories as well as the intention and motivation of characters (Brinton, Fujiki, & Higbee, 1998; Brinton, Fujiki, & McKee, 1998).

Results of this study are reminiscent of Ukrainetz and Gillam's (2009) finding that expressive elaboration of narratives is related to age of the child and language level differences. Ukrainetz and Gillam (2009) also suggested that children with SLI need guidance on artful storytelling, even for simple story elements. These conclusions support the current study results

in that the intervention program was relatively short term. The participants in this study seemed to require additional support to improve their ability both to understand and to generate stories.

### **Limitations**

There were a number of potential limitations to this study. The given nature of LI could be considered a limitation. Since the population with LI is heterogeneous it would be unrealistic to expect that one intervention activity would affect all children with LI in the same way. The current intervention activity was the least successful for P2, who did not perform well on the story generation task. This child, however, presented with the most challenges in motivation, emotion regulation, and emotion understanding. In contrast, P3 responded well, showing improvement in expressing cause/effect story elements as well as in identifying and expressing emotional content in story generations. The fact that two participants demonstrated so much variability underscores the need to adjust treatment methods and intensity to meet the needs of individual children.

Furthermore, the intervention project in which the story generation activity occurred was a short-term treatment. The participants may have needed more than 20 sessions in order to learn more complex concepts involving causal relationships in story generations. P3 and P4 showed emergence in expressing cause/effect elements, indicating that these children were beginning to understand the intended story generation concepts but may have needed more time in order to solidify generation of more complex story elements.

Another limitation may have been the storybook accessibility. The Mercer Mayer books (Mayer, 1967, 1971) used in this study are relatively subtle in terms of character motivations and intention, and thus may have been too complex for the participants. These books (Mayer, 1967, 1971) required a level of social inferencing that may have been difficult for the children with LI

to understand (Brinton, Spackman, Fujiki, & Ricks, 2007). Participants may have had greater success with generating stories given a text with a simpler story structure in which the characters would be more transparent.

A final limitation involved the variation of clinician prompting. Incidences of direct prompting interfered with intent of the current study, which was to obtain independent story generations with minimal cueing. Some of the sessions were not analyzed because of excessive direct prompting from the clinician, thus limiting the data for analysis.

### **Future Research**

Story generations can be important to educational success (Newman, 2006) and may be employed as an effective therapy tool for children struggling with language development (Klecan-Aker, 1993). Because story generation tasks are difficult for children with LI (Dodwell & Bavin, 2008; McFadden, 1996; Norbury & Bishop, 2002), additional research is needed to determine effective ways to help children bridge the gap between simple descriptions to expressing causal relationships, and from expressing causal relationships to understanding the overall theme and structure of stories.

Ukrainetz and Gillam (2009) suggested that children with SLI need guidance, even with the simplest story elements, to develop artful story-telling. Additional research analyzing effects of various types and levels of prompting required for story generations may be helpful to clinicians and beneficial for children with LI.

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## Appendix A

### Analysis Coding System

#### Elements to code: Child

#### 1. Description

##### a. Simple Description (SD)

- i. Attribute/action described in isolation
- ii. May include nouns, adjectives, gerunds
  1. Can be in isolation
    - a. *A dog – Boy and a dog and a frog – a turtle*
    - b. *Fishing*
    - c. *Bite*
  2. Can be a simple phrase but is limited to labeling or describing

##### b. Action (A)

- i. May include 2 elements that describe an action
  1. *Boot in the water* (the boot fell in the water)
  2. *Turtle let go*
  3. *Frog jump in*
- ii. A phrase or simple sentence describing an action without commenting on intentions, planning, or conflict

#### 2. Cause/Effect

##### a. Event/Attempt to solve problem (E)

- i. Event
  1. Potential issue or conflict
  2. A situation that might elicit a response or require an action
  3. A simple description following event(s) will be considered an event.
- ii. Action
  1. Action pictured in the story that is related to another action or character (*The frog runs away from the boy*)

2. The intent or point of the action is evident as stated explicitly (*He wants to...*, *He plans to...*)

b. Internal Intent (I)

- i. Statement of what a character wants to do or have happen
- ii. Plan or idea of character to address.
  1. Key words = *want, plan*
    - a. *The frog wants to jump in*
    - b. *The boy wants to catch the frog*
- iii. Shows intent, desire, or plan for action or state

c. Result (CR)

- i. Consequence of attempt
  1. What happened secondary to action to solve problem
  2. What happened because of action pictured in the story
    - a. Must follow an action and be causally linked
    - b. Must have some indication of linkage
    - c. Grammatical—*and, if, so then, because, etc.*
    - d. Meaning—words or repeated reference
- ii. Resolution of action
  1. Final state or situation triggered by an event or action—causally linked
  2. End of action—resolution
- iii. Must be in complex sentence form, or phrases conjoined with cause and effect terms
  1. May be conjoined with: *because, so, if—then, so-then*
  2. Conjoining forms must express causal relationship (*and* or *then* are not adequate)

3. Emotional Content (EC) \* *Double Coded* \*

- a. Emotions of characters
- b. Any emotion words go here
  - i. Examples: *mad, sad, angry, happy, excited, worried*

- c. May be linked with an event/attempt (A), or a simple description (SD), or other story element.
  - i. Double code both elements (E-EC), (SD-EC)
    - 1. Example of A-EC
      - a. *Then dog happy turtle get up*
      - b. *Dog sad fall down*
    - 2. Example of SD-EC
      - a. *Them all sad*
      - b. *Them both mad*
      - c. *Turtle angry*
      - d. *The boy feel sad*

#### 4. Questions about book content (Q)

- a. Questions about characters or events in story
- b. Questions may be rhetorical
- c. Request for clarification
  - i. *What?*
  - ii. *Is that his boot again?*

#### 5. Housekeeping (H)

- a. Talking about task
- b. Questions about task: *Is this the same book? Have I seen this before?*
- c. Comments like *I just want to look at it*

#### 6. Off topic (OT)

- a. Off task
- b. Comments or questions that don't have to do with the story retell task

#### 7. End/Refuse (R)

- a. Child refuses to talk about the book
- b. *I don't know*

- c. *Uh uh*
- d. Child indicated he/she is finished (not the story, the child)
- e. Shakes head “no” (DO NOT count shrugs, or child turning pages as refusal)

#### 8. Announcement of End (END)

- a. Sum up or announcement of finish
  - i. *That's all*
  - ii. *The end*
  - iii. Child closes the book after retelling
  - iv. Child shoves book away from self after retelling
- b. Scripted: *And they lived happily ever after*

#### 9. Response to Direct Prompts (R-DP)

- a. Answer to *Why* questions
- b. *Yes/No* questions
  - i. *Why is the boy sad?*
  - ii. *Do you like the turtle?*

#### 10. Minimal (M)

- a. Back channel
- b. Interjection *huh?*
- c. Brief reaction *oh, hmmm, wow*
- d. *Let's see*
- e. *Wait a minute*

#### 11. Other (O)

- a. Comments not categorized elsewhere
- b. Odd or uninterpretable comments
- c. Unintelligible comments
- d. False starts (alone) (Disregard false starts that are followed by a phrase that can be coded)

Note: child' response to adult question or probe will be scored as are other contributions in one of the categories above.

### Adult Coding:

#### a. Initial prompt (IP)

- a. Introduction of book
- b. *Tell me about...*
- c. May consist of more than one utterance

#### b. Minimal prompt (M)

- a. *Uh huh, hmmm* or other back channel response
- b. *Oh wow, oh no*, brief comment such as *That's not good*
- c. Repetition of child
- d. *Go on*
- e. *Then what?*
- f. *Keep going*
- g. *What else?*
- h. *Can you take a guess?*
- i. *You tell me the rest*
- j. *Tell me more*
- k. *What's next?*

#### c. Direct prompt (DP)

- a. May follow silence or non compliance
- b. *What's this book about?*—following an Off Topic (OT), housekeeping (H), or long pause to get child back on task
- c. Question requiring new information not already stated.
  - i. *Why* questions
  - ii. *Why did he do that?*
- d. Request for elaboration: *Probably came from the mud, huh?*

#### d. Clarification (C)

- a. Request for clarification
  - i. Instructor didn't hear, or couldn't understand, what the child was saying.

- ii. Follows child utterance
- b. Any type of request for repair
- e. Housekeeping (H)**
  - a. Talking about the task
  - b. Questions about task
  - c. Comments relating to the task
    - i. *You skipped a page*
    - ii. *Here's the black thing* (meaning black paper to cover picture)
- f. Off topic (OT)**
  - a. Comments relating to child's Off Topic (OT) remarks
  - b. Off task
    - i. *You love Batman, don't you?*
    - ii. *Right, you do have a red shirt on*



## Appendix B

### Raw Data

#### PARTICIPANT 1

##### Story Elements

Child	Sessions									
	11/18/10	11/23/10	12/10/10	12/14/10	12/16/10	12/17/10	1/7/11	1/18/11	1/21/11	1/27/11
<u>Coding Elements:</u>										
Description (SD)	2		1	7	4	1	15		12	2
Action (A)				5	8		15		19	
Event/Attempt (E)										
Result (CR)										
Internal Intent (I)										
Emotional Content (EC)			2	2	2		11		2	
Questions about Book (Q)										
Housekeeping (H)	1	2	4	2	2		1	2	4	1
Off Topic (OT)				3			2	2		2
End/Refuse (R)		3		3			1	2	9	4
Announcement of End (END)	2				4	1		1	1	1
Response to Direct Prompt (R-DP)			1	2	2		3		2	
Minimal (M)	1	1		1	1	2	4	2	2	
Other (O)			4	8	2		1			2
<b>Adult</b>										
Initial Prompt (IP)	1	1	1	1	1	1	1	1	1	1
Minimal (M)	2	2	6	8	7	2	22	8	30	3
Direct Prompt (DP)	3	2	3	13	7	3	7		10	5
Clarification (C)							1			
Housekeeping (H)	2	1	7	7	5			2	4	3
Off Topic (OT)				2			2			3

##### Emotion Content

	11/18/10	11/23/10	12/10/10	12/14/10	12/16/10	12/17/10	1/7/11	1/18/11	1/21/11	1/27/11
<u>Coding Elements:</u>										
Description (SD)			happy	mad sad	mad scared		sad mad(3) happy(5) tired (2)		happy surprised	
Response to Direct Prompt (R-DP)			mad							

**PARTICIPANT 2****Story Elements**

Child	Sessions									
	11/19/10	12/14/10	12/17/10	1/4/11	1/6/11	1/18/11	1/20/11	1/25/11	2/1/11	2/3/11
<u>Coding Elements:</u>										
Description (SD)		1	5			2	2		5	
Action (A)		1	2			3	3		4	
Event/Attempt (E)										
Result (CR)										
Internal Intent (I)										
Emotional Content (EC)							1		4	
Questions about Book (Q)						2				
Housekeeping (H)		1	3	1		6	8	1	3	7
Off Topic (OT)						1	9	4	5	2
End/Refuse (R)			1	1		1	3	1	4	5
Announcement of End (END)			1			1				
Response to Direct Prompt (R-DP)						2	2		10	1
Minimal (M)			4			5	8	1	8	3
Other (O)			2	1			4		1	1
<b>Adult</b>										
Initial Prompt (IP)	1	1	1	1	1	1	1	1	1	1
Minimal (M)		2	8	2		7	14	4	18	7
Direct Prompt (DP)		1	5	8	4	8	11	2	22	8
Clarification (C)							3			1
Housekeeping (H)			1			4	8	2	1	5
Off Topic (OT)						2	6	3	1	

**Emotion Content**

	11/19/10	12/14/10	12/17/10	1/4/11	1/6/11	1/18/11	1/20/11	1/25/11	2/1/11	2/3/11
<u>Coding Elements:</u>										
Description (SD)							happy		happy(2)	
Response to Direct Prompt (R-DP)									happy(2)	

**PARTICIPANT 3****Story Elements**

Child	Sessions								
	12/10/10	12/17/10	1/5/11	1/7/11	1/10/11	1/19/11	2/4/11	2/7/11	2/9/11
<u>Coding Elements:</u>									
Description (SD)	5	10	15	6	15	9	14	7	23
Action (A)	2	18	11	14	12	14	21	19	16
Event/Attempt (E)		1	1					1	
Result (CR)									2
Internal Intent (I)		3		1					
Emotional Content (EC)		8	4			3	9	4	16
Questions about Book (Q)								4	2
Housekeeping (H)			2	5		4		4	4
Off Topic (OT)							1	3	2
End/Refuse (R)									1
Announcement of End (END)									
Response to Direct Prompt (R-DP)				2		2	3	2	4
Minimal (M)	3	4	5	5	6	7	2	3	5
Other (O)	3	1	6	2	6	2	4	2	1
<b>Adult</b>									
Initial Prompt (IP)	1	1	1	1	1	1	1	1	1
Minimal (M)	8	21	26	19	25	21	26	25	33
Direct Prompt (DP)		5	2	4	10	7	8	11	11
Clarification (C)		1	2					2	
Housekeeping (H)			3	1	1	3	1	4	1
Off Topic (OT)								2	1

**Emotional Content**

Child	Sessions								
	12/10/10	12/17/10	1/5/11	1/7/11	1/10/11	1/19/11	2/4/11	2/7/11	2/9/11
<u>Coding Elements:</u>									
Description (SD)		happy (2) worried mad (4)	happy mad(2) sad			happy mad(2)	happy (5) mad sad (2)	worried(1) happy (1) sad (2)	worried(2) mad (2) angry (1) sad (7) happy (2)
Action (A)		mad					mad (1)		
Result (CR)									happy (2)

## PARTICIPANT 4

## Story Elements

Child	Sessions							
	12/9/10	12/16/10	12/17/10	1/14/11	1/18/11	1/27/11	2/3/11	2/8/11
<u>Coding Elements:</u>								
Description (SD)	7	8	6	1	3	3		1
Action (A)	33	36	16	4	25	17	11	18
Event/Attempt (E)								
Result (CR)	1					1		
Internal Intent (I)					1			
Emotional Content (EC)	4	6	5		2	3	1	2
Questions about Book (Q)	5							
Housekeeping (H)	2	2	4		5	1		
Off Topic (OT)					1	6		2
End/Refuse (R)	1					1	1	2
Announcement of End (END)							1	1
Response to Direct Prompt (R-DP)		6	1	1	1	2	1	
Minimal (M)	34	3	3	4	8	2		1
Other (O)	3	4	4		7	1	4	1
<b>Adult</b>								
Initial Prompt (IP)		1	1	1	1	1	1	1
Minimal (M)	36	31	19	3	24	20	10	11
Direct Prompt (DP)	2	7	3	3	5	7	3	6
Clarification (C)	1	1			1	1		
Housekeeping (H)			2		3	1	1	2
Off Topic (OT)						3		2

## Emotion Content

Child	12/9/10	12/16/10	12/17/10	1/14/11	1/18/11	1/27/11	2/3/11	2/8/11
	<u>Coding Elements:</u>							
Description (SD)	mad (1) sad (2)	mad (3) sad (1) happy (1)	mad (1) sad (2) angry (1)		sad (1)	worried(1)		
Action (A)					mad (1)	mad (1)	mad (1)	mad (2)
Result (CR)						mad (1)		
Questions about Book (Q)	mad (1)							
Response to Direct Prompt (R-DP)		mad (1)						

## Appendix C

### Annotated Bibliography

Appleby, A. (1978). *The child's concept of story*. Chicago, IL: University of Chicago Press.

**Purpose of the work:** The purpose of this book was to examine the interaction between children and stories—in particular how children's language usage relates to the child's development of concept of story.

**Summary:** The first two chapters describe a framework for organizing how children use language. Chapters three, four, and five discuss how and why primary school age children organize and tell a story. Chapters six and seven discuss children's responses to particular stories and how the responses relate to general development. Chapter eight relates back to the general concepts discussed in the beginning two chapters.

**Conclusions:** Tasks used for this research were designed to discover how children naturally respond in their encounters within the spectator role and determine developmental stages for direction of growth.

**Relevance to the current work:** Children as young as three years of age have some notion of what a story is.

Brinton, B., Fujiki, M., & Higbee, L. (1998). Participation in cooperative learning activities by children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 41*(5), 1193-1206.

**Purpose of the study:** The purpose of the study was to extend the work of Craig and Washington (1993) by examining attempts to access ongoing interactions of 8 to 12-year-old children with specific language impairment (SLI), their language similar (LS) peers, and their chronological-age (CA) peers. For children who gained access to interactions, further analysis was conducted to determine the extent of their verbal and nonverbal participation in the interaction.

**Method:** Participants included 54 children, divided into 18 triads, consisting of one target child and two partners. Target subjects included six children with SLI, six CA children, and six LS children. The procedure included informing the participants that they would be talking to two other students for approximately 20 minutes. During the first ten minutes, two students were instructed to interact with given toys to determine which were popular toys for children their age to play with. After ten minutes, a third student was introduced by name to the children. The third child was left to access the interaction (target child).

**Results:** Successful access to the interaction occurred in 16 of the 18 target subjects. All but one used verbal communication to gain access into the interaction. Two children with SLI did not gain access in a 20-minute time period. A two-way ANOVA was used to determine the

number of utterances addressed to each member. Results indicated that the target subjects with SLI were addressed significantly less than children grouped as partner 1 or partner 2. Results also indicated that target children with SLI produced significantly fewer utterances than did the comparison children.

**Conclusions:** Language problems and social deficits often co-occur in children with SLI. It is important to consider language ability and social skills when determining intervention for children with SLI.

**Relevance to the current work:** The current study investigated the way children with SLI use language in a social context and the importance of the connection between social deficits and language impairments.

Brinton, B., Fujiki, M., & McKee, L. (1998). Negotiation skills of children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 41*(4), 927-940.

**Purpose of the study:** Researchers sought to investigate the way children with SLI used negotiation and decision making skills when participating in a group negotiation task. Researchers studied how frequently children with SLI participated in the interaction and the types of negotiation strategies they used.

**Method:** Participants included 54 children, divided into 18 triads, consisting of one target child and two partners, between the ages of 8 and 12. Target subjects included six children with SLI, six CA children, and six LS children. After completing a toy selection task, each child in every triad earned three poker chips. The investigator presented a “snack shop” to the triad that consisted of nine treats, each of which required more than three chips to purchase the item. The instructor informed the children that they needed to work together to pick a treat to purchase with their tokens, and to inform the investigator of their decision.

**Results:** Negotiation strategies produced were primarily verbal, with an occasional pointing gesture or head nod to indicate a response. Target subjects with SLI in their group produced slightly fewer utterances, but not significantly fewer than their partners. Across all groups of children, subjects used a variety of negotiation strategies, although the children with SLI employed less sophisticated strategies when compared with peers.

**Conclusions:** The ability of children with SLI to negotiate with their peers was compromised by their lack of flexibility and age-appropriate strategies. Children with SLI would benefit from intervention procedures that use language in specific tasks, such as interpersonal negotiation.

**Relevance to the current work:** This study illustrated social behavior and language capabilities—especially negotiation skills—of children with SLI.

Brinton, B., & Fujiki, M. (2005). Social competence in children with language impairment: Making connections. *Seminars in Speech and Language* 26(3): 151-159. doi: 10.1055/s-2005-917120

**Purpose of work:** This article describes various factors that influence the relationship between language deficits and social difficulties. Case descriptions of Joseph (adolescent with language impairment) and Cari (six-year-old diagnosed with Asperger syndrome) illustrate the complexities between language deficits and social difficulties and how treatment may be designed to promote positive outcomes.

**Summary:** Children with ASD, Asperger syndrome, or mental retardation—as well as language-based disorders (i.e. LI and learning disability), often experience social difficulties in their lifetime. Many of these problems stem from limitations in social communication. Some characteristics of children with LI include: problematic social outcomes, exclusion from classroom groups and play, isolation at recess/free play, poor social acceptance, difficulty making friends, and reduced peer contacts inside and outside of school. Speech-language pathologists need to recognize the symptoms that may occur in children with language difficulties, how the symptoms are connected, and what aspects of development might be influential in the patterns of observed behaviors. Intervention can be designed to provide contexts that will facilitate growth across associated areas of functioning. Intervention should involve teams of professionals and individuals from multiple disciplines that will address language, academic, and social behavior.

**Conclusions:** Social communication goals should be central to the client's curriculum, and should involve the inclusion of parents, teachers, psychologists, and special educators. Intervention focusing on social communication is a necessity to help children establish and sustain relationships, gain access to education circumstances, and enhance their quality of life.

**Relevance to the current work:** This article describes social behaviors typically associated with children with language impairment and the importance of treatment strategies for social communication.

Brinton, B., Spackman, M., Fujiki, M., & Ricks, J. (2007). What should Chris say? The ability of children with specific language impairment to recognize the need to disassemble emotions in social situations. *Journal of Speech, Language & Hearing Research*, 50(3), 798-811. Doi: 10.1044/1092-4388(2007/055)

**Purpose of the study:** This study examined the ability of children with SLI to judge when an experienced emotion should be concealed in keeping with social display rules.

**Method:** Participants included 19 school-aged children with SLI, and 19 typically developing children. Children were presented with ten hypothetical social situations. These situations elicited five emotions including, *happiness, sadness, fear, anger, and disgust*. For each situation, a gender neutral character (Chris) experienced an emotion that should be

dissembled for social purposes. Each situation was followed by a comprehension question, an emotion question, a dissemblance question, and a display rule question.

**Results:** Children in both typical and SLI groups answered the comprehension questions correctly. Typical children selected more dissemble and fewer display strategies than the children with SLI. *Mad, sad, happy, and disgust* situations were more frequently dissembled than the *fear* situations. *Sad* situations more frequently elicited dissemblance responses, followed by *fear, happy, disgust, and mad*. The female participants indicated dissemblance rules more frequently than the male participants.

**Conclusions:** Children did not differ significantly in their judgments of the social display rules governing these situations, however the children with SLI indicated significantly fewer incidences in which the emotions should be hidden.

**Relevance to current work:** Results suggest that children with SLI differ from their typical peers in emotional understanding as it relates to the impact of emotion expression in communication interactions with others.

Brown, R. (1973). *A first language: The early stages*. Cambridge, MA: Harvard University Press.

**Purpose of the work:** The purpose of the work was to study the developing language of preschool children and how they use language to understand themselves and the world around them.

**Summary:** This longitudinal research project followed the language development of three children. Research studied both semantic and grammatical features of their early language production. Brown described five stages of linguistic development, which are measured by mean length of utterance rather than by chronological age. This volume focuses on the first two stages of linguistic development.

**Conclusions:** Stage one is when children begin to combine words to make sentences. Stage two includes the modulations of basic structural meanings with the gradual use of grammatical morphemes. The order acquisition of the fourteen morphemes is almost identical across children and is predictable by complexity of semantic and grammatical structure.

**Relevance to the current work:** To produce a narrative, a child must be able to competently arrange words syntactically to make sense of a story. According to Brown, typically developing children are generally competent with the majority of morphosyntactic structures of their language by five years of age.

Dodwell, K., & Bavin, E. L. (2008). Children with specific language impairment: An investigation of their narratives and memory. *International Journal of Language & Communication Disorders / Royal College of Speech & Language Therapists*, 43(2), 201-218.



**Purpose of the study:** This research provides support of preceding results regarding limited memory recall for children with SLI. This research indicated that children with SLI are less able to elicit information from narratives they hear than from narratives they generate on their own. The purpose of the study was to investigate the narrative and memory capabilities of six-year-old children with SLI and the association among narrative skills and memory.

**Method:** In the first study, examination of narrative generation, recall, and comprehension capabilities were compared between six-year-old children with SLI, typical developing peers (AM), and younger children (LM) who were comparative in expressive language. All children were asked to recall a single paragraph story, scored by the amount of provided relevant content. Comprehension was assessed by examining child responses to related questions. The children were also asked to retell a story based on a series of pictures, in which the child looked through a picture book before producing a story.

In the second study, children with SLI and AM children were tested on four working memory tasks: two phonological memory tasks; an episodic buffer task; and a dual processing task in which the child judged each sentence in a group and then recalled the final word of each sentence in the group. Also included were inhibition and attention tasks.

**Results:** Study 1: Children with SLI performed like the AM group on some narrative tasks, and similar to the LM group on other tasks. Children with SLI had difficulty with inferencing and performed worse than the AM children when answering story questions, and resembled the younger LM age group—indicating a two-year delay in inferencing skills for children with SLI. Children with SLI scored significantly higher than the LM group when they were asked to make up their own story using picture guides as an aid.

Study 2: The children with SLI had significantly shorter Digit and Word Spans, and findings from the phonological memory assessments indicated that memory development was delayed. Children with SLI made more attention task errors than did typically developing peers. Results showed that children with SLI had problems establishing representation in memory while at the same time processing auditory information.

**Conclusions:** Children with SLI had more difficulty processing and remembering information they heard. These children were better at remembering the stories they told. The quality of recall ability was closely associated with the quality of encoding of information, suggesting that the auditory processing structure of children with SLI might not be as efficient as that of typically developing peers. Furthermore, limitations in memory might be a consequence of poor auditory discrimination. The main conclusion from this study was that children with SLI had a difficult time maintaining information in working memory and processing the information at the same time.

**Relevance to the current work:** This research studied the story retell skills of children with SLI—after hearing a story read to them, and with picture aids as a guide to retelling their own story. This study also looked at various contributions that related to the children's performance concerning these tasks.

Fey, M. E., Catts, H. W., Proctor-Williams, K., Tomblin, J. B., & Zhang, X. (2004). Oral and written story composition skills of children with language impairment. *Journal of Speech, Language, and Hearing Research, 47*(6), 1301-1318.

**Purpose of the study:** The purpose of the study was to follow 538 children representing four groups: typical language (TL), specific language impairment (SLI), nonspecific language impairment (NLI), and low nonverbal IQ (LNIQ). Researchers followed these groups as they transitioned from kindergarten to second and to fourth grade. Researchers wanted answers to the following questions: (a) do story composition results for children in second and fourth grade differ depending on the child's language and nonverbal IQ skills? (b) How do the groups differ on the gains made in story composition from second grade to fourth grade? (c) Do story composition outcomes differ depending on the persistence of the child's spoken language impairment (LI) from kindergarten into second grade?

**Method:** Participants included 538 children who were divided into four groups: typical language (TL), specific language impairment (SLI), nonspecific language impairment (NLI), and low nonverbal IQ (LNIQ). Children were asked to create a story using four sets of laminated picture cards. The examiner laid out the picture sets and prompted the child to identify all of the key elements of the story. The examiner instructed the child to tell/write a story using all three picture cards without intervention—only allowing for two specific types of prompting to be used only once. The child wrote on paper with a pencil with no adult assistance. Upon completion of the task, the child read it back word for word. Stories were transcribed and analyzed using Systematic Analysis of Language Transcripts (SALT).

**Results:** Children identified with LI in kindergarten composed stories in second and fourth grade that overall contained shorter and less complex C-units, fewer different words, and more grammatical errors when compared to stories composed by typically developing peers. Story content, organization, and style were judged to be of a weaker quality as well. By fourth grade stories were less like typically developing children and more like those of with LI. Oral stories were generally stronger than written stories in both grades, although greater gains were made when comparing written stories. Females told stronger stories than males at both grades, despite group assignment.

**Conclusions:** Evaluation of LI should include assessment of oral and written narrative composition assessments. Clinicians should not assume, especially in early educational stages, that oral narrative retell will accurately reflect written narrative retell. Problems with narrative performance will most likely grow, and become more significant as the child progresses in age.

**Relevance to the current work:** This research analyzes both oral and written narrative skills in children with LI.

Gillam, R. B., & Carlile, R. M. (1997). Oral reading and story retelling of students with specific language impairment. *Language, Speech & Hearing Services In Schools, 28*(1), 30.

**Purpose of the study:** Researchers wanted to answer four questions regarding story retell in children with SLI: (1) Do children with SLI significantly differ from typically

developing peers in capabilities when reading stories out loud? (2) Are there differences between these groups in information that is retained in their retelling? (3) Are there differences between groups in the overall quality of story retellings? (4) What is the relationship between reading miscues and story retelling in children with SLI?

**Method:** Participants included 24 school-aged students divided into two groups. The group with SLI consisted of seven boys and five girls ranging in age from 8:5 to 11:7. The gender and ages of the twelve typically developing children (READ-M) in this group were not specifically mentioned. Prior to reading, students were asked general questions to activate background knowledge relating to the subject of their assigned story. Each participant was asked to read aloud a short story that was approximately one grade level above their reading capability in order to elicit reading miscues. Students were instructed that they would be asked to retell the story in their own words upon completion of the story, and that the examiner could not assist with deciphering words while reading. The examiner only interrupted to encourage the student to continue reading when they stopped, lost their place, or perseverated on a word in the text. Oral reading was analyzed by the percentage of total words that were miscued; the percentage of miscues that were self-corrected; the percentage of sentences with uncorrected miscues that were found to be syntactically unacceptable; the percentage of sentences with uncorrected miscues that represented no, partial, or significant changes to the meaning of the story; and the percentage of miscues that had high, some, or little similarity to the graphophonemic structure of the target word. Story retell was analyzed by the percentage of words, story constituents, and story dyads that were retained in the retellings.

**Results:** Children with SLI had significantly more oral reading miscues than typically developing peers when presented with a text that was approximately one grade level above their reading ability. Children with SLI had miscues that were less graphophonemically similar to the text, grammatically incorrect, and frequently resulted in changes that altered the authors' intended meaning. Self-correction of these miscues occurred less frequently in children with SLI. Although there was a significant difference between groups for oral reading capabilities, story retell ability proved to be similar between groups. Results indicate that students in both groups had similar percentages in words, story constituents, and problem-resolution pairs from the original stories in their retellings. Retention measures were low across both groups, indicating that stories were difficult for the children to remember regardless of the number of miscues that occurred during the oral reading.

**Conclusion:** This study supports hypothesis that children with SLI are less flexible in their use of print cues than reading and age matched peers. Children with SLI produced more graphophonemic, syntactic, and semantic-pragmatic errors when orally reading. Lack of prior knowledge may have affected prior knowledge, language processing, and working memory to aid in comprehension and oral reading task.

**Relevance to the current work:** This article discusses printed story retell ability in children with SLI, and analyzes various aspects of oral reading, as well as story retelling.

Gillam, R. B., & Cowan, N. (1995). Sequential memory in children with and without language impairment. *Journal of Speech & Hearing Research*, 38(2), 393-402.

**Purpose of the study:** Because children with language impairment have known deficiencies in language comprehension and production, this study investigated (a) whether the magnitude of the suffix effect in children with language impairment would differ from other children, and (b) whether a response modality (speaking vs. writing) would affect recall ability by of children with language impairment.

**Method:** Participants included 16 children with language impairment (LI), 16 typically developing children matched for age to children with LI, and 16 typically developing children matched for reading ability and digit span to the children with (LI). Each group contained 11 boys and five girls. The main experiment included two types of items (lists of digits that were or were not followed by a suffix word) and two types of responses (speaking or writing). Information was presented in eight blocks, with each block containing 12 lists. Within each block, six trials contained the suffix, and six trials did not. Speaking and writing responses were involved on interchanging blocks.

**Results:** Performance of all children was variable due to the response modality. For all three groups, writing supported better recall for digits in the first and second primacy positions; whereas speaking supported better recall at the three recency positions. Results suggest that response mode did not differentially affect the memory performance of children with language impairment. If speaking or writing processes are more difficult for children with language impairment, they do not appear to affect short-term memory functions in a pattern that is different from that seen in their age-matched peers.

**Conclusions:** Results support Stark and Tallal's (1988) hypothesis that children with language impairment present with temporal sequencing problems, but suggest that this problem may involve memory for the specific serial position and not just memory for temporal order. The suffix presented at the end of the list affected the information children with LI needed to preserve serial position, more than it did with other children. These results suggested that our interactions with children with LI are more at risk for interference. If these children extract higher-level representations more slowly, each interaction with the child is at risk because the surface representations of speech codes appear to be the ones these children are more dependent on.

**Relevance to the current work:** This research looks at sequential recall ability of children with language impairment.

Guo, L. Y., Tomblin, J., & Samelson, V. (2008). Speech disruptions in the narratives of English-speaking children with specific language impairment. *Journal of Speech, Language & Hearing Research*, 51(3), 722-738.

**Purpose of the Study:** This study examined the types, frequencies, and disruptions in the spoken narratives of children with specific language impairment (SLI) and their age-matched (CA), and language-matched (LA) peers. The study investigated the relationship between

language impairment and speech disruptions as well as the syntactic units that children with SLI may have difficulty encoding.

**Method:** Participants in this study included twenty fourth grade children with SLI, twenty typically developing CA children, and twenty younger (second graders) typically developing LA children. Participants were selected from a previous study by Fey, Catts, Proctor-Williams, Tomblin, and Zhang (2004) in which children produced narratives. The children were asked to describe pictures that represented a story that displayed key story elements (e.g., characters, conflict, and resolution). Speech disruptions (e.g., silent pauses and vocal hesitations) occurring in the narratives of these children were analyzed.

**Results:** Results indicated that children with SLI displayed speech disruption rates that were higher than those of their age-matched peers but not higher than those of their language-matched peers. The difference in disruption rates between the SLI and CA groups was restricted to silent pauses of 500-1000 ms. When compared to their peers, children with SLI produced more speech disruptions before phrases but not before sentences, clauses, or words.

**Conclusion:** These findings suggest that there is a relationship between language ability and speech disruptions. Higher disruption rates at phrase boundaries in children with SLI than in their age-matched peers reflect lexical and syntactic deficits in children with SLI.

**Relevance to the current work:** This study analyzed story retell and language ability in school-aged children with SLI.

Harris, J. (2011). *The effects of a literature based emotion recognition program on teacher report of sociability and withdrawal for 6 children with social communication difficulties.* (Master's degree), Brigham Young University, Provo, UT.

**Purpose of the study:** This study implemented an intervention program targeting emotion understanding and analyzed how the intervention affected teachers' perceptions of the child's social behaviors.

**Method:** Participants included six elementary school-aged children (5 boys, 1 girl) with language impairment. Each child received a total of twenty sessions targeting emotion recognition. The book series *A Boy, A Dog, and A Frog* (1967) by Mercer Mayer was used as a backdrop of all intervention activities, which included book sharing, story enactment, story retell, and journal writing.

**Results:** Prior to and following intervention, each of the participants' teachers completed the Teacher Behavior Rating Scale (TBRS) to measure changes in their perceptions of the child's social and withdrawal behaviors. Teacher responses on the TBRS indicated that one-third of the participants were reported to demonstrate general positive changes in behavior following intervention. One-half of the participants reported a decrease in solitary-active withdrawal, which was considered the most negative type of withdrawal behavior. Five out of six participants earned higher ratings of prosocial behavior following intervention.

**Conclusions:** It was concluded that the treatment was effective for influencing general behaviors related to social communication for the children participating in this study. Social intervention targeting emotion understanding may be most effective when attempting to reduce solitary withdrawal.

**Relevance to current work:** The current project analyzes the story retell activity from the larger project discussed in this research article.

Hayward, D. V., Gillam, R. B., & Lien, P. (2007). Retelling a script-based story: Do children with and without language impairments focus on script and story elements? *American Journal of Speech-Language Pathology*, 16(3), 235-245. doi:10.1044/1058-0360(2007/028)

**Purpose of the study:** This study used the script frameworks model (R. Schank, 1975) and causal network model (T. Trabasso & L. Sperry, 1985) to analyze script-based story retellings of children with and without language impairments (LI). When retelling scripts and stories, typically developing children generally include (a) more obligatory elements, with few temporal sequencing errors, and (b) story elements having numerous causal connections to other story elements. The purpose of this study was to ascertain whether children with LI exhibited a similar pattern of recall.

**Method:** Participants in this study included 44 school-aged children that were selected from a larger project on narrative development. Twenty-two participants were children with LI, and twenty-two were aged-matched children without LI. A script-based story retell about two children eating at a McDonald's restaurant was collected from both groups of children. Retells were analyzed for inclusion of obligatory and optional elements, elements with high and low causal connectivity, and temporal sequencing accuracy.

**Results:** Although the script-based story retells from the children with LI were shorter, results indicated that their responses contained proportionally more obligatory than optional story elements. Children with LI made significantly more temporal sequencing errors in their story retell, despite being familiar with the script of eating at a McDonald's restaurant. Lastly, children with LI included significantly fewer elements with high causal connectivity, focusing instead on specific details from the story.

**Conclusion:** The children in the AM group were able to apply script and causal connectivity elements when retelling a script-based story. The children in the LI group seemed to focus more on script elements than causal connectivity. The group of children with LI lacked success with this task may be a result of a less developed script framework, difficulty applying a familiar script framework, as well as difficulty accessing and organizing script knowledge and information.

**Relevance to the current work:** This study analyzed children with LI and their ability to retell a script-based story.



Hughes, D. L., McGillivray, L., & Schmidek, M. (1997). *Analysis of Narrative Language. Guide to narrative language: procedures for assessment* (pp. 111-159). Eau Claire, Wis.: Thinking Publications.

**Purpose of Work:** Chapter four reviews various ways to analyze narrative language. The author's goals are to study and practice four major macrostructure analysis procedures—Applebee's six levels, episodic analysis, high point analysis, and macroanalysis of scripts. They hope to determine which macrostructure analysis procedure to use for a given narrative sample.

**Summary:** Macrostructure level involves the comprehensive, general properties pertaining to a story. It consists of a combination of main ideas derived by processing both explicit and implicit meanings of many smaller units. Macrostructure of a narrative plays a role in both comprehension and production of narrative discourse. Applebee's six levels include: (1) Heaps: Few links from one sentence to another, and organization seems to be based on immediate perception. (2) Sequences: Stories in this stage have superficial but arbitrary sequence in time, and there are no discernible causal links between events. (3) Primitive Narratives: groupings are based on practical experiences, in which links are made by shared experiences. (4) Unfocused Chains: characterized by incidents that directly lead from one event to another, but the attributes that link them shift. They story as a whole may lose its point and drift off. (5) Focused Chains: the center is a main character that experiences a series of events, but with nothing abstract to indicate a true concept. (6) True Narratives: story begins to have a theme or moral. The core relies on concrete, perceptual, or abstract bonds that hold the story together.

Assigning a story structure level is another way to analyze story grammar parts. For example, one would identify: setting, initiating event or problem, internal response, internal plan, attempt, consequence, resolution or reaction, and ending. Glen and Stein developed a story structure levels, which are as follows: (1) Descriptive sequence: describes characters, surroundings, and actions with no causal relations. (2) Action sequence: lists actions that are chronologically but not causally ordered. (3) Reactive sequence: includes a series of actions, which automatically causes other actions, but with no planning involved. (4) Abbreviated episode: provide aims or intentions of a character but does not state the character's plan to achieve aim—planning must be inferred. (5a) Incomplete episode: states planning, but one or more of the three essential story grammar parts of a complete episode is missing. (5b) Complete episode: includes aims and plans of a character; reflect planning of a character; has minimum of initiating event, an attempt, and a consequence, uses words like decided to. (5c) Multiple episodes: chain of reactive sequences, or a combination of complete and incomplete episodes. (6) Includes elaboration of a complete episode by including multiple plans, attempts, or consequences within an episode. (7a) Embeds another complete episode or reactive sequence within an episode. (7b) Interactive episode: describes one set of events from two perspectives, with characters and goals influencing each other.

**Conclusions:** Applebee's method of analyzing narrative structure level is useful for evaluating stories produced by people with "less sophisticated language" (pg. 115). Analysis of narratives using story structure level is a simplified way to measure story structure levels in children.

**Relevance to the current work:** Applebee's method, as well as Glenn and Stein's story structure levels, are possible ways to analyze story structure, comprehension, and retell in children with language impairment.

Klecan-Aker, J. S. (1993). A treatment programme for improving story-telling ability: A case study. *Child Language Teaching and Therapy*, 9(2), 105-115.  
doi:10.1177/026565909300900202

**Purpose of the study:** The purpose of this study was to measure the effects of a treatment program on the story-telling ability of a male second-grade student with language impairment.

**Method:** The subject of this study is an eight-year-old male student (*A*) with a known language impairment. Elicitation of two oral and written stories were produced by *A* at the beginning of the study as a baseline and subjected to a t-unit analysis. It was determined that *A*'s story-telling and writing abilities were at a Level-2 ability. Treatment consisted of two one-hour sessions each week for 12 weeks targeting Level-3 stories, which include initiating events, attempts or actions, and consequence statements. Story-grammar definitions were reviewed at the beginning and end of each session. Next, *A* was presented with a series of multiple-choice activities to promote Level-3 stories. Following this, *A* was instructed with fill-in-the-blank activities in which *A* would be given a scenario targeting a language concept and asked to provide a solution or further description. After both of these activities, two spontaneous stories were elicited to determine progress and generalization.

**Results:** After comparing pre- and post-treatment data, *A*'s treatment program appeared to be successful. The number of t-units and clauses increased, as did his level of complexity including story-grammar components in narratives.

**Conclusions:** Story-telling can be a successful therapy tool for children struggling with language development. This study concludes that as complexity and organization of oral story-telling improves, the complexity and organization of written stories will also improve. Improvement in oral and written narratives will lead to further academic success.

**Relevance to the current work:** This article discusses a single-case study in which the success of a narrative treatment program was analyzed.

Luo, F., & Timler, G. R. (2008). Narrative organization skills in children with attention deficit hyperactivity disorder and language impairment: application of the causal network model. *Clinical Linguistics & Phonetics*, 22(1), 25-46. doi:10.1080/02699200701627430

**Purpose of the study:** Because language impairment (LI) frequently coexists with attention deficit hyperactivity disorder (ADHD), researchers wanted to examine language abilities and narrative organization skills in children with and without ADHD.

**Method:** Participants were divided into four groups: six children with ADHD-only, six children with ADHD+LI, five children with LI-only, and 13 children in a typically developing



group. Two sections from the *Test of Narrative Language* (TNL; Gillam & Pearson, 2004) were used to illicit narratives: the picture sequence task, and the single-picture task. In the picture sequence task, two sets of five pictures were presented to the child. The first set was used to assess narrative skills and provide a model of an appropriate story retell. The second set was used to illicit a narrative sample. In the single-picture task, two single pictures were presented. The first was to assess narrative skills, and provide a model. The second was used to elicit a narrative sample. Narrative samples were transcribed and entered into the Systematic Analysis of Language Transcripts (SALT; Miller & Chapman, 2000). Each narrative was segmented into T-units. T-units were further divided into complete or incomplete GAO units (goal, attempt, and outcome). Complete GAO units must have all three components. Incomplete GAO units if one or more of the three components are missing.

**Results:** Results of this study contradict previous findings. Performance between the ADHD-only group and the typical group reported no significant difference. Only children with ADHD and LI reported less organized narratives than typically developing children. Results from this study have two implications: (1) ADHD alone does not necessarily lead to difficulty organizing narratives; (2) children with ADHD and LI have difficulty with higher-level goal structures when organizing narratives.

**Conclusions:** The two types of task presented to the children differed in the amount of story structure support. Performance differences for each task suggest that elicitation method influences the child's ability to organize and produce narratives. When sufficient story structure was provided in the first tasks, children with ADHD and LI were able to produce stories that were as organized as typically developed peers. When structure was limited, as in the second tasks, children with comorbid ADHD and LI displayed difficulty organizing their stories.

**Relevance to the current work:** This study provides information about narratives in children with LI and associated comorbid disorders, such as ADHD.

McFadden, T., & Gillam, R. B. (1996). An examination of the quality of narratives produced by children with language disorders. *Language, Speech & Hearing Services in Schools*, 27(1), 48-56.

**Purpose of the study:** The purpose of this study was to examine and compare the overall quality of oral and written narratives produced by children with and without language disorders. Researchers also wanted to study the relationship between judgments of holistic quality and analytic measures of sentential and textual complexity of form and content discourse.

**Method:** Participants included 40 school-aged children divided into four groups of ten: the language disordered (LD) group, the age-matched (AGE-M) group, the language-matched (LANG-M) group, and the reading-matched (READ-M) group. All of the children produced two oral and two written stories based on a visual prompt. Samples were transcribed and segmented into t-units. Overall narrative quality was assessed using Myers (1981) holistic scoring procedure.

**Results:** Children in the LD received significantly lower holistic scores for overall quality of both spoken and written narratives than the AGE-M group. Holistic scores for the LD group were similar to the scores of their LANG-M and READ-M peers. Correlations between holistic scores and structural measures of language revealed that quality judgments were moderately related to textual-level measures of form and content but were unrelated to sentence-level measures of form and content.

**Conclusion:** Clinicians who want to impact the overall quality of their students' narrative skills may want to focus their intervention on textual-level narrative features. Furthermore, holistic scoring is a reliable means of assessing quality of narratives, and would be beneficial as a therapeutic tool.

**Relevance to the current work:** This research analyses children with language disorders and their ability to retell narratives.

Navarro-Ruiz, M., & Rallo-Fabra, L. (2001). Characteristics of mazes produced by SLI children. *Clinical Linguistics & Phonetics*, 15(1/2), 63-66. doi:10.1080/026992001461325

**Purpose of the study:** This study investigated the production of mazes produced by children with SLI. Mazes have three functions: (a) to control utterances so they are related to previous intention; (b) to control the context ambiguity of a message; and (c) to control the establishment of phonemic and syntactic patterns. Children with SLI have limited language skills, which make it difficult for them to express their communicative intentions, frequently using linguistic structures that are limited and poor for their age and knowledge of the world.

**Method:** Control participants included four disphasic and four normal-speaking school-aged children. A child with SLI was paired to a control child of the same age. First, the child participated in a guided conversation with the researcher. Second, the researcher told the child a story using pictures from a book. The child was then asked to retell the story using the pictures as a visual prompt. Third, the child had to retell a story of his/her own related to a previously watched. Interviews were transcribed using the SALT (Miller and Chapman 1982). Mazes were grouped according to three categories:

- (a) Mazes related to fluency (e.g., pauses, repetitions, hesitations, etc.)
- (b) Mazes related to the channel of communication and turn of talk (communication fillers)
- (c) Mazes related to morphologic, phonologic, syntactic and semantic self-repair and unfinished clauses

**Results:** Both groups of children produced a greater number of mazes in narrative style than in conversation style of communication. Pauses and repetitions were the highest occurring mazes—and mainly occurred in narrative contexts primarily due to skills associated with memory and planning. Children in the SLI group were less likely to make self-repairs, and produced more unfinished clauses.

**Conclusions:** Children with SLI have deficiencies in language skills that make it difficult for them to compose communication effectively in narrative style. Children with SLI

have a difficult time detecting the need to self-repair, representing their comprehension of language ability.

**Relevance to the current work:** This study discusses children with SLI, narrative retell ability, and mazes occurring in conversation and narrative styles of communication.

Newman, R. M., & McGregor, K. K. (2006). Teachers and laypersons discern quality differences between narratives produced by children with or without SLI. *Journal of Speech, Language & Hearing Research*, 49(5), 1022-1036. doi:10.1044/1092-4388(2006/073)

**Purpose of the study:** Previous research indicates that various listener groups can perceive poor communicative skills—and that poor communicative skills are perceived negatively. The overall purpose of this study is to examine the functional impact specific language impairment (SLI) has on school-age children by comparing objective and subjective measures of narrative quality.

**Method:** Two groups of adult listeners included 27 laypersons and 21 teachers. The adult listeners used interval scaling to rate the quality of narratives produced by 20 children (ten with SLI and ten age-matched peers). A wordless picture book, *Frog, Where Are You?* (Mayer, 1969) was used to elicit the narrative. The child would begin by looking at each page of the book. Then, the child would retell the story using the book as a visual prompt. No models or prompts were given to the children. Narratives were transcribed into utterances and segmented into C-units. The narratives were further analyzed for fluency, length, sentence-level syntax, and story grammar and themes.

**Results:** Laypersons and teachers judged narratives produced by children with SLI to be significantly poorer than narratives produced by typically developed, age-matched peers (ND). Structural differences between SLI group and ND group were also noted. Children with SLI told shorter stories, produced more ungrammatical C-units, and displayed fewer thematic story elements as compared to the ND group.

**Conclusions:** Both groups of adult listeners were able to perceive differences in quality of narratives between children with and without SLI. This is significant because manifestations of SLI are noticeable even to laypersons, and may limit the success of children affected with SLI. Differences noted between groups were narratives produced by children with SLI are briefer, less grammatical, and less complex. Because narratives are important in a child's everyday life, these skills should be prime targets for intervention.

**Relevance to the current work:** This study focuses on the importance of narrative skill in everyday life for all children, and how this skill when lacking can be detected by skilled and unskilled listeners. Researchers analyzed story retell ability in children with SLI. This study also used a Mercer Mayer wordless book to elicit story retell.

Norbury, C., & Bishop, D. M. (2002). Inferential processing and story recall in children with communication problems: a comparison of specific language impairment, pragmatic language impairment and high-functioning autism. *International Journal of Language & Communication Disorders*, 37(3), 227-251. doi:10.1080/13682820210136269

**Purpose of the study:** The purpose of this study was to investigate story comprehension and inferential processing capabilities of four groups of children who (1) have a typical language impairment (SLI-T), (2) have a pragmatic language impairment (PLI), (3) have high-functioning autism (HFA), and are (4) typically developing. Researchers were interested in answering four questions: (a) Are there distinct differences in inferential process (and therefore story comprehension in recall ability) amongst the target groups? (b) What can their errors tell us about the nature of their inferencing difficulty? (c) What fundamental skills are related to story comprehension and recall? (d) How does good comprehension support a child's ability to recall story elements?

**Method:** Participants in this study included children that were selected into four groups: 16 SLI-T, 24 PLI, ten HFA, and 18 typically developing children representing the control group. Five stories with familiar child-related themes were selected from Cain and Oakhill (1999). Each story was read aloud to all children, after which six questions were asked (two literal, two text-connecting inferences, and two gap-filling inferences). Responses were given a point value according to the amount of prompting required to stimulate a correct response. After answering the questions, the children were asked to recall the story given minimal prompting. The story retells were transcribed and awarded points for specific story elements (e.g., inferences)

**Results:** Results of this study indicated that the PLI, SLI and HFA groups had more difficulty answering both literal and inferential questions when compared to typical developing peers. Results indicated that all children could make inferences, but were not always relevant to the context of the intended story. There were no group differences in story recall—however, there was a strong relationship between story comprehension and recall ability.

**Conclusions:** Researchers concluded that comprehension aids in recall ability, and inferencing is an important and necessary skill that aids in story comprehension. In this study, inferencing ability was closely related with the ability to recall the story. In particular, children with autism and pragmatic deficits appeared to have more difficulty interpreting inferences.

**Relevance to current work:** This study analyzes children with SLI and their ability to comprehend and retell a story. This study also discusses inferencing difficulties commonly associated with SLI, autism, and pragmatic disabilities and how this can lead to difficulties with story comprehension.

Paul, R. & Norbury, C. (2012). Language, reading, and learning in school: What the speech-language pathologist needs to know. In Authors (Ed.), *Language Disorders from Infancy through Adolence: Listening, Speaking, Reading, Writing, and Communicating* (pp. 402-405). St. Louis, MO: Elsevier.

**Purpose of the work:** This text discusses topics related to child language disorders and includes information regarding developmental stages of children, as well as concepts relating to the practice of child language disorders including prevention, evaluation, assessment, and intervention.

**Summary:** Chapter ten highlights what a speech-language pathologist needs to know regarding language, reading, and learning abilities of children with language and learning deficits. In particular, this chapter identifies characteristics relating to phonology, syntax, semantics, and pragmatics of children with language learning disorders (LLD). This chapter further highlights reading, oral, and written skills of children with LLD.

**Conclusions:** Chapter ten states that success in school requires a vast amount of experience and proficiency with oral language. Much of what goes on in the classroom involves the ability to focus on and talk about language. In particular, the understanding of stories requires more than just repeating information heard or read. Literal comprehension involves recalling explicitly stated information, while inferential comprehension requires understanding of what is occurring “between the lines” of the story. SLP’s can help ensure that clients with LLD have a solid oral language base, and be aware of problems that can impede a child with LLD. Understanding various ways in which oral language supports and interacts with success in school can help SLP’s develop interventions that contribute to success for clients.

**Relevance to the current work:** This text defines characteristics regarding phonology, syntax, semantics, and pragmatics of children with language learning disabilities, and suggests strategies for assessment and intervention.

Pearce, W. M., McCormack, P. F., & James, D. H. (2003). Exploring the boundaries of SLI: findings from morphosyntactic and story grammar analyses. *Clinical Linguistics & Phonetics*, 17(4/5), 325-334.

**Purpose of the study:** The purpose of this study is to determine if there are areas of language difficulty that are unique to specific language impairment (SLI) or whether they are universal to a larger range of language impairments. Understanding these differences will be beneficial for differential diagnosis of SLI.

**Method:** Participants in this study included 25 school-aged children with language impairment, which were divided into two groups: 16 children with SLI; nine with low non-verbal cognitive abilities (LNVA). The control group consisted of 16 typically developing age-matched peers. All children were asked to orally tell two stories: one from the wordless picture book, *Frog Where Are You?* (Mayer, 1969), and another story from a single picture stimulus. Narratives were transcribed and divided into C-units.

**Results:** Children produced longer stories with the book stimulus than the picture stimulus. Both LI groups told narratives that were significantly less complex when compared to the control group. Both LI groups were not differentiated on measures of morphosyntax, indicating that this is not a deficit unique to SLI. The SLI group told more complex ‘frog’

stories than the LNVA group, indicating that the LNVA group had more difficulty utilizing the visual prompts provided from the book to aid in retell.

**Conclusions:** This study concluded that SLI cannot be distinguished by morphosyntactic characteristics alone. Differences between SLI and LNVA groups may be more distinguished by cognitive and pragmatic variables.

**Relevance to current work:** This study provides further understanding of narrative ability in children with SLI.

Peña, E. D., Gillam, R. B., Malek, M., Ruiz-Felter, R., Resendiz, M., Fiestas, C., & Sabel, T. (2006). Dynamic assessment of school-age children's narrative ability: An experimental investigation of classification accuracy. *Journal of Speech, Language & Hearing Research, 49*(5), 1037-1057. doi:10.1044/1092-4388(2006/074)

**Purpose of the study:** The purpose of the study was to investigate the results of two experiments. The first experiment researched the evaluation of the reliability of narrative measures. The second experiment studied the application of dynamic assessment of narratives across diverse ethnic/racial backgrounds.

**Method:** Participants in Experiment 1 included 58 children in first and second grade, who were from African American, European American, or Latino American backgrounds. Typical-developed groups were given the wordless picture books *Two Friends* (L. Miller, 2000b) and *Bird and His Ring* (L. Miller, 2000a) to retell. Participants were presented with one of the books, and instructed to think of the story that goes along with the pictures. The children then told the story while looking at the pictures in the book. Story retells were transcribed, analyzed, and segmented into C-units according to Systematic Analysis of Language Transcripts (SALT; J. Miller & Chapman, 2002).

Participants in Experiment 2 included 71 children in first and second grade who participated in a dynamic assessment that included three phases: a pretest phase, in which the children were asked to retell one of the wordless picture books mentioned in Experiment 1; a teaching phase, where the children participated in two mediation sessions instructing on storytelling abilities; and a posttest phase, in which children were asked to retell the alternate wordless story corresponding with Experiment 1. Examination between pretest and posttest storytelling's by children who received intervention was compared to a no-treatment control group consisting of typically developing children from Experiment 1.

**Results:** Results from Experiment 1 indicated that the two picture books used in this experiment proved to be reliable narrative measures across gender and racial/ethnic groups. Results from Experiment 2 indicated that typically developing children who received intervention displayed the greatest improvement when comparing pretest and posttest scores than did children with LI and in the control group.

**Conclusion:** The first experiment supported the use of the indicated wordless picture books to generate a reliable narrative response. The second experiment supported the use of dynamic assessment for accurately identifying language impairment in school-aged children.



**Relevance to the current work:** Dynamic assessment involving the use of narratives is a good way to identify language impairment in school-aged children

Pence, K., & Justice, L. (2008). *Language development from theory to practice*. Upper Saddle River, NJ: Pearson.

**Purpose of the work:** This text discusses topics related to language development including research methods, theoretical perspectives, major milestones, language diversity, and language disorders.

**Summary:** Chapter seven highlights the narrative skills of preschool aged children, and the language required to produce a narrative at this age.

**Conclusions:** Chapter seven states that for a child to produce a narrative, the child must employ the following: syntax to arrange words, ideas and concepts; verb morphology to signify time of events; vocabulary to signify persons and events; phonology to articulate words correctly; prosody to convey intonational cues; and pragmatics to manage interaction with a listener. Also, chapter seven states that narratives differ from conversations in that conversations are carried out between two or more persons, whereas narratives are generally continuous streams of speech. Children who produce narratives take on the responsibility for the effectiveness of the communication.

**Relevance to the current work:** This text defines narrative development of children of various ages and the appropriate language needed for a child to create narratives.

Petersen, D. B., Gillam, S., Spencer, T., & Gillam, R. B. (2010). The effects of literate narrative intervention on children with neurologically based language impairments: An early stage study. *Journal of Speech, Language & Hearing Research*, 53(4), 961-981. doi:10.1044/1092-4388(2009/09-0001)

**Purpose of the study:** Researchers wanted to determine the effect a narrative intervention would have on the macrostructural and microstructural language features of three children with a neuromotor impairment and a co-existing language impairment.

**Method:** Participants included three school-aged children who had both a neuromotor impairment and an expressive and receptive language impairment. After establishing baseline, these children underwent ten 60-minute individual narrative intervention sessions that were adapted from the Functional Language Intervention Program for Narratives (FLIP-N; S. L. Gillam, Gillam, Petersen, & Bingham, 2008) with the intent to gradually decrease supports so the child could independently retell a story by the end of each session. Colorful pictures were used as prompts to generate a narrative response. On two occasions, a verbal prompt was used to elicit a narrative response regarding a previously viewed movie or TV show in order to determine generalization and application across contexts. Maintenance of narrative ability was reexamined eight months following intervention.

**Results:** All three children showed improvement in the use of story grammar (macrostructure) and causation (microstructure). Improvement was noted in both picture-aided narratives as well as in verbally prompted narratives. Follow-up data gathered eight months later indicated the maintenance of some of the skills over time.

**Conclusion:** Results indicated that the use of narratives as an intervention tool may be beneficial for improving functional macrostructural and microstructural language in children.

**Relevance to the current work:** This study highlights the importance of narrative language and the usefulness of narratives as an intervention tool.

Reilly, J., Losh, M., Bellugi, U., & Wulfeck, B. (2004). "Frog, where are you?" Narratives in children with specific language impairment, early focal brain injury, and Williams syndrome. *Brain and Language*, 88(2), 229-247. doi:10.1016/S0093-934X(03)00101-9

**Purpose of the study:** The purpose of this study was to enhance understanding of language development by examining and comparing narratives across four groups of children: children with early focal brain injury, children with specific language impairment, and children with Williams syndrome.

**Method:** Participants included school-aged children ranging in age from three years to 12 years of age were separated into three experimental groups by diagnosis: 52 children with early unilateral focal brain damage (FL); 44 children with specific language impairment (SLI); 36 children with Williams syndrome (WMS); as well as a control group consisting 73 typically developing children. In the first experiment, children in the FL group, SLI group, and control group were given a wordless picture book and then were asked to tell the story to the instructor. Retells were transcribed and coded according to (1) grammar, skill, and production; (2) episodic and thematic narrative aspects; and (3) evaluative devices. In the second experiment, story retells were compared between children in the WMS and SLI groups and followed the same procedures.

**Results:** Results for experiment one indicated that children in the FL group performed poorly on the task in the youngest age range, but showed significant improvement and performed in normal ranges by mid age. The children in the SLI group made more errors than the FL group until age ten, then results indicate that they acquire language skills at a significantly depressed rate when compared to the FL and control groups. Results for experiment two indicated that children in the WMS and SLI groups appear to have similar profiles for morphology and syntax, but display differences in narrative profiles. When analyzing social aspects of narratives, the children in the WMS group showed significant differences in performance when compared to the SLI and control groups.

**Conclusion:** The conclusion based on results suggested that all groups show improvement with age, however the type of errors made across populations are similar, but the rate of acquisition is different.



**Relevance to the current work:** This study discusses the complexity of narratives and compares narrative retellings of children across populations to further investigate the difficulty of this task for children with SLI.

Stothard, S. E., Snowling, M. J., Bishop, D. V., Chipchase, B. B., & Kaplan, C. A. (1998). Language-impaired preschoolers: A follow-up into adolescence. *Journal of Speech, Language, and Hearing Research*, 41(2), 407-418.

**Purpose of the study:** This is a longitudinal study reevaluating the language and cognitive outcomes of children at age 15 who were originally diagnosed with a speech-language impairment as a preschooler. Researchers are hoping to evaluate whether children out-grew early speech-language impairment without any lasting negative consequences.

**Method:** Participants included 71 adolescents (age 15) who participated in the original 1982 study by Bishop and Edmundson. A control group consisted of 49 age-matched, normal-language children who were given the entire test battery including spoken language and literacy skills in order to provide normative comparisons. The 71 participants were also given the same battery of tests.

**Results:** Children whose language concerns resolved did not differ from the control group in vocabulary and language comprehension skills. However, these same children scored significantly less on phonological processing and literacy skills. Children who had significant language difficulties at age five, as well as children classified as having a general language delay, continued to demonstrate significant impairments in all aspects of spoken and written language.

**Conclusions:** The majority of adolescents in this study who had a history of speech-language impairment experienced academic difficulties, and over half received special education. Researchers concluded that if a child has a noted language deficit at the age of 5:6, that child will be at a high risk for continued language, literacy, and educational difficulties throughout childhood and into adolescence.

**Relevance to the current work:** This study evaluates the relation between language impairment and educational success in language, literacy, and school academics.

Ukrainetz, T. A., & Gillam, R. B. (2009). The expressive elaboration of imaginative narratives by children with specific language impairment. *Journal of Speech, Language & Hearing Research*, 52(4), 883-898.

**Purpose of the study:** Researchers wanted to explore the expressive elaboration of narratives from children with specific language impairment (SLI).

**Method:** Participants in this study included 48 children with SLI and 48 children with typical language (TL). Two elicitations of story retells were obtained from two sets of pictures used for administration of the Test of Narrative Language (TNL). Children were asked a series

of questions relating to each story before they were asked to construct a narrative. Narratives were recorded, transcribed, and segmented into T-units.

**Results:** All children with SLI, as well as the younger TL children, produced stories with significantly less appendages, orientations, and evaluations when compared to older TL children. These same children also displayed poorer performance even on simple elements such as character names and repetition. Children with SLI did show improvement from the first to the second story task.

**Conclusions:** Results indicated that expressive elaboration of narratives is related to age of the child and language level differences. The results suggest that children with SLI need guidance on artful storytelling, even for simple story elements.

**Relevance to current work:** This study looks at narrative ability of school-aged children with SLI.