



2016-07-01

# Story Retell Narratives in Five School-Aged Children with Language Impairment

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Story Retell Narratives in Five School-Aged Children with Language Impairment

Megan Bradshaw Deere

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

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July 2016

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## ABSTRACT

### Story Retell Narratives in Five School-Aged Children with Language Impairment

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Master of Science

Many children identified with Language Impairment (LI) demonstrate difficulty comprehending and producing narratives. Their narratives are often structurally less complex and of overall poorer quality than those produced by their typically developing peers. These difficulties may negatively impact the academic and social success of children with LI. This thesis evaluates the performance of five school-aged children with LI on a story retell probe embedded within an intervention designed to address their social and emotional language abilities. During the 10-week intervention, participants completed a series of story retell probes using wordless picture books. The story stimuli were taken from the Edmonton Narrative Norms Instrument, which included six stories (divided into two story sets), elicited twice (12 total story retells). The production of story grammar (SG) categories was analyzed for each story retell. The results for each participant and SG category varied greatly, but all participants had difficulty producing the more complex SG elements. Although each participant demonstrated some improvement from the first retell to the second on at least one story, overall performance remained fairly stable over the 10-week period. Future research is needed to determine effective ways to support more complex story narratives in children with LI.

Keywords: language impairment, narrative, story retells, story grammar, social communication intervention, school-age children, Edmonton Narrative Norms Instrument

## ACKNOWLEDGMENTS

I would like to express my gratitude to my committee members for their tremendous support and guidance throughout this project. I would especially like to thank my thesis chair, Dr. Brinton, for her direction, encouragement, and generous feedback during the writing and editing process, and for her assistance in completing this project at an expedited rate. I thank Dr. Fujiki for serving on my thesis committee and providing insight into the participants involved in this study. I would also like to thank Dr. Culatta for her thorough feedback regarding story grammar and the organizational aspects of my thesis during the writing process.

I wish to thank the participants in this study, the clinician who administered the treatment sessions, and those who assisted with recording each session, for their invaluable role in this project. I owe a special thanks to Maille Coombs for her incredible support as my go-to for any minor crisis related to this project, and also to Molly Alldredge for her assistance in transcribing, coding, and establishing reliability. I also wish to express gratitude to my cohort for their friendship and unending encouragement. These amazing women were my supporters, study companions, project partners, and celebrators, who helped me to find joy and hope throughout graduate school.

Lastly, I would like to thank my wonderful family for their love, support, and faith in my abilities as a graduate student and a future SLP. I express my deepest gratitude and love for my husband Jackson, who bolstered me through my lowest points with a firm belief that I could accomplish great things. Above all, I give thanks to my Heavenly Father for the many tender mercies, blessings, and answered prayers He provided, which carried me through difficult times and tasks that seemed mountainous.

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## DESCRIPTION OF THESIS CONTENT

This thesis, *Story Retell Narratives in Five School-Aged Children with Language Impairment*, is part of a larger research project and is presented in journal article format. This includes updated university format requirements for submission. Parts of this work may be included in future presentations or articles where the author is listed as a coauthor. Appendix A contains an annotated bibliography. Appendix B contains the results of the *Clinical Evaluation of Language Fundamentals-5* (CELF-5) administered to the participants, and Appendix C contains the *Edmonton Narrative Norms Instrument* story grammar scoring sheets.

## **Introduction**

American writer and cultural anthropologist Mary Catherine Bateson observed, “The human species thinks in metaphors and learns through stories” (Bateson, 1994, p. 11). Stories are an integral and ubiquitous part of daily life and communication. Stories can be heard, read, viewed, created, imagined, and experienced. Stories are deeply social events found in every culture with varying structure and context (Ukrainetz, 2015). Page and Stewart (1985) explained, “a child’s world is full of stories. They serve to entertain, to socialize, and to educate” (p. 29). All people, including children, are continuously exposed to stories, which provide important information about language and the world. Because of the extent to which stories are essential parts of everyday life, it is necessary to understand their role in academic functioning of typically developing children and children with language impairment (LI).

### **Role of Narratives in Academic Functioning**

The ability to produce and comprehend narratives matters for academic success (Ukrainetz, 2015). In the early elementary years, most academic information is taught using narrative language and text (Paul & Norbury, 2012). Narrative texts typically follow a familiar sequence and contain familiar content. The language within these texts is similar to “the everyday language experienced by children because it involves face-to-face interaction between characters” (Sáenz & Fuchs, 2002, p. 32). Despite the use of familiar content and structure, producing and understanding narratives is a high-level task that “requires integration of linguistic, cognitive, and social skills” (Norbury & Bishop, 2003, p. 288). Narratives connect oral and written language. Children who have difficulty comprehending narratives may face challenges with reading, writing, telling, recounting, or understanding narratives and narrative-based material.

When children reach intermediate grades, the instruction format changes from narrative to mainly expository text, which is complex and difficult for children with language and learning disabilities to read and comprehend (Sáenz & Fuchs, 2002). Expository reading is more difficult than narrative reading due to text structure, conceptual density and lack of familiarity with underlying concepts, technical vocabulary, and limited prior knowledge (Sáenz & Fuchs, 2002). Expository language ability is critical for academic success in the intermediate and secondary grade levels, and beyond into adulthood.

Clearly, narratives are important for daily and academic functioning. Therefore, it is important to understand the nature of narratives, systems for analyzing narratives, and the development of narratives in typically achieving children as well as those with language impairments.

### **Nature of Narratives**

A story is a type of narrative, which is a verbal summary of a past experience, either fictional or biographical (Ukrainetz, 2015). Narrative language is used in everyday social, educational, and recreational interactions. Narrative language provides a common organization of experience, knowledge, and feelings. A narrative involves specific past events that occurred at a specific point in time and the participants' reactions to those events (Ukrainetz, 2015). The reactions may vary depending on the narrator's perspective or purpose for telling the story. Narrative language differs from conversational language, which is highly contextualized. Narrative language typically focuses on temporally removed events that require the speaker to create a context using primarily descriptive language (Peterson, 2011). The focus of this project is story narratives, although the terms narrative, story, and story narrative will be used interchangeably.

**Role of narratives in language assessment.** Within the field of speech-language pathology, narrative tasks are a common feature of clinical assessment and intervention. Narrative “provides an arena within which to investigate theoretical issues about the relationship between language and social cognition” (Norbury & Bishop, 2003, p. 288). Narrative assessment examines how an individual combines words and sentences for a specific purpose, thus providing information about the individual’s ability to communicate using discrete language skills (Schneider, Hayward, & Dubé, 2006). In contrast, many tests used to evaluate language development rely heavily on the use of individual words and sentences in isolation. Norbury and Bishop (2003) asserted, “narrative assessment provides a wealth of information about a child’s linguistic, pragmatic and cognitive abilities and is far more entertaining than most standardized language tests” (p. 310). One framework for assessing narrative language is story grammar analysis, which is described in the following sections.

**An episodic framework for analyzing stories.** Episodic analysis (EA) is a cognitive narrative analysis perspective designed to analyze aspects of children’s narrative coherence and structural organization (Celinska, 2014). EA attempts to describe the use of story grammars (setting and episodes) in guiding narrative comprehension and recall. Celinska noted that, “EA asserts that narratives reflect the narrator’s cognitive structures and, consequently, emphasizes the referential function of narratives in the form of episodic organization” (p. 656), and that EA is “particularly well suited to evaluate the child’s knowledge of human intentionality and causally organized problem-solving behavior” (p. 654). Many researchers have utilized various story grammar frameworks to explore children’s comprehension and production of basic story narratives, and EA has “provided the most prominent framework to examine a variety of narrative skills in children with language disabilities and/or [learning disabilities] across a wide

range of ages in communicative interactions with both peers and adults” (Celinska, 2014, p. 655).

Assessing the organization of story elements is one tool for measuring narrative content. Story grammars have been widely used to analyze how typical school-age children construct or retell a story (Merritt & Liles, 1987). General narrative organization is enhanced through elements of macrostructure. Narratives contain an internal plot structure with “multiple cause-effect relations and descriptions of entire behavior sequences of events and actions” (Stein & Glenn, 1979, p. 53). Within the plot structure, the main ideas are presented through sequentially related categories, with each category containing key information that plays a specific role in the story (Schneider et al., 2006). The type and order of these categories, or structural units, within a narrative are often described as story grammars. Story grammars describe the universal rule-governed parts of a story and the relationship between those parts, which define the internal plot structure (macrostructure) of a story and assist the reader or listener in organizing story information (Page & Stewart, 1985).

Story grammar (SG) units contain the important information included in a story and help children develop a sense of a well-formed story. The most basic SG elements are the setting and the episode. The setting statement typically occurs at the beginning of a story and creates the necessary conditions for the story to occur by introducing the main character(s) and describing the context for the remainder of the story, but does not directly cause the subsequent episode system to occur. The episode system, a higher order category, incorporates the rest of the story structure and may consist of one or more related episodes. An episode “consists of an entire behavioral sequence” and episode structure contains an inherent causal chain of events between

categories (Stein & Glenn, 1979, p. 62). A complete episode includes the following: initiating event and/or internal response, internal plan, attempt, and resolution.

The initiating event (IE) can be an external or internal event, which functions to cause an immediate response in the main character. The IE may refer to novel actions or changes in habitual states. The internal response (IR) “refers to the psychological state of a character after an event” and functions to motivate the character to develop a plan (Stein & Glenn, 1979, p. 64). The IR may explicitly or implicitly indicate a character’s feelings, goals, and thoughts. According to Stein & Glenn, the internal response may contain an affective response (referring to a character’s emotional response), goal statement (referring to a character’s intentions or desires), and/or cognitions (referring to a character’s thoughts). The internal plan (IP) functions to motivate the character’s following action or behavior. The attempt refers to the “character’s overt actions to obtain a goal and the resolution includes the remainder of the story sequence” (Stein & Glenn, 1979, p. 65). Attempt statements function to create the conditions that lead to the resolution. The resolution contains the direct consequence and a reaction. The direct consequence has three main functions, which are: “(1) to express the attainment or nonattainment of the character’s goals, (2) to mark any other changes in the sequence of events caused by the character’s actions, and (3) to initiate or cause a character’s reaction to the direct consequence” (Stein & Glenn, 1979, p. 66). The reaction can include affective and cognitive responses to the consequence or goal attainment, and/or an action caused by an emotional response (e.g., “she began to cry”).

Many written stories omit one or two of these SG categories in an episode, most frequently the IR, the IP, and/or character reactions (Stein, 1979; Stein & Glenn, 1979). However, it is assumed that these categories “are inferred during the encoding process, and are

represented in the underlying cognitive structure” of the story, rather than in the text structure (Stein, 1979). If more categories are omitted, the episode may be considered incomplete.

Story grammar creates a familiar structure that aids comprehension of narrative discourse. Although narrative structure may change depending on culture, the structure outlined above is typical of narratives told by “members of mainstream North American society” (Paul & Norbury, 2012, p. 403).

**The story grammar model.** The SG model outlined by Schneider et al. (2006) describes the basic components essential to ‘good’ stories, which older children and adults typically include in storytelling. Within this model are two major components, structural patterns and SG units. Structural patterns (e.g., a Complete Episode) describe a story’s overall content and organization, and SG units (e.g., Initiating Event) constitute the sequences of information provided within episodes. SG units can be considered core story content, but some are included more often than others. The SG model represents the way individuals organize information to encode, comprehend, and retrieve stories (Schneider, Dubé, & Hayward, 2005). The SG model includes a central character motivated by some goal, that character’s attempts to carry out some type of goal-directed action, and an outcome (usually when the goal is successfully achieved).

**Story grammar analysis systems.** There are multiple systems for analyzing narrative macrostructure, or story grammar. Many of these systems are based on the work of Applebee (1978) and Stein and Glenn (1979). For example, Stein and Glenn’s story grammar model is a frequently used system in story grammar (or episodic) analysis. This system assumes a logical, hierarchical organization of story schema (categories). As previously discussed, the basic story consists of a setting and an episode. Stein (1979) described a complete episode as a behavioral sequence which must contain “(1) some reference to the motivation or purpose of the character’s

behavior; (2) an overt goal-directed action; and (3) the attainment or nonattainment of the goal” (p. 266). These three components are crucial to the complete episode structure, and are identified as the following categories: (a) the IE or an IR; (b) the attempt; and (c) a direct consequence. If a behavioral sequence does not contain a purpose, goal-directed behavior, and the attainment or nonattainment of the character’s goal, it is defined as an incomplete episode. Stein and Glenn’s (1979) story grammar analysis is a useful clinical tool for analyzing the complex narratives of children with greater language capacities (Hedberg & Stoel-Gammon, 1986).

Klecan-Aker and Kelty (1990) modified and expanded the work of Applebee (1978) and Stein and Glenn (1979) to devise “a hierarchy of developmental levels based on the number and type of story grammar components found within the story” (Klecan-Aker & Kelty, 1990, p. 209). This adapted system was created with the advantage of being reliable and appropriate for older children, and it may be used in story grammar analysis to rate narrative organization.

There are a number of additional story analysis systems, (a) Lahey’s (1988) scheme for analyzing narrative chains; (b) Westby’s (2004) decision-tree structure for assessing the maturity of narrative organization; (c) Norbury and Bishop’s (2003) modified story macrostructure assessment using Mayer’s frog stories; and (d) Heilmann, Miller, Nockerts, and Dunaway’s (2010) Narrative Scoring Scheme for reporting children’s narrative structure development in a story retell task. In addition, the Edmonton Narrative Norms Instrument (ENNI) (Schneider et al., 2006) is an illustration-based instrument to analyze story grammar elements produced by children in response to a sequence of pictures. In general, story analysis systems are based on developmental expectations for children.

## Development of Narrative Skills

Based on his observations of the narratives of preschool children, Applebee (1978) proposed that children develop narrative skills in a series of six organizational stages: heaps, sequences, primitive narratives, unfocused chains, focused chains, and true narratives. Applebee asserted that each stage “represents a progressively more complex combination of two basic structuring principles” (p.72), which are centering and chaining. Klecan-Aker and Kelty (1990) adapted Applebee’s work and described the following developmental levels. *Heap stories* (Stage 1) are used by typically developing children around 2 to 3 years old. In these stories, children mainly label and/or describe events or actions, but without organization, relationships, or a central theme. *Sequence stories* (Stage 2), used by typical children at age 3, consist of describing or labeling events about a central theme without following a plot or organization. *Primitive narratives* (Stage 3), used by typically developing children at age 4 to 4;6 years, include a central theme and three textual components described as story grammar elements (initiating event, attempt or action, and consequence). These stories, however, lack character motivation and real resolution. *Chain narratives* (Stage 4), used by typically developing children of 4;6 to 5 years old, include the three story grammar elements found in primitive narratives, plus some notion of plan or character motivation. Stories at this level lack a strong plot and clear resolution, but may exhibit temporal and cause-effect relationships. *True narratives* (Stage 5) are used by typically developing children at age 5 to 7, and contain a main character, plot, and theme while following a logical sequence. Stories at this level have at least five story grammar elements, including character motivation and clear resolution. This modified system of narrative stages has also been used in research on narrative development of children with language and learning disorders.

Glenn and Stein (1980) also conceptualized a developmental sequence for the acquisition of story structures. This sequence consists of seven major story structure types, from descriptive sequences (least complex) to interactive episodes (most complex). Each structure type builds upon the preceding one, and includes all of the previously established categories and relationships plus an additional one. The first structure type is a *descriptive sequence*, which incorporates descriptions of setting, characters, and habitual actions but without establishing causation or conflict. The second type is an *action sequence*, which adds a chronological order for the actions but still lacks causal relationships. The third level, the *reactive sequence*, introduces causal relations between actions (i.e., one action automatically leads to the next), but without goal-directed behavior. The fourth structure, the *abbreviated episode*, includes goal-directed behavior, although it may be implied rather than explicitly stated. Stories at this level include an event or an internal response followed by a consequence. A *complete episode* describes an entire goal-directed behavioral sequence and emphasizes a plan or motivation behind the behavior. These stories appear better developed than the previous type, and include an initiating event or internal response, plan or attempt, and consequence. The complete episode serves as the basis for the final two types of story structure. The sixth type, *complex episode*, incorporates an embedded partial/complete episode, or contains multiple action plans to attain the goal, or both. The seventh and final type, *interactive episode*, includes the development of two characters with separate goals and actions that influence each other. Specific structural properties make a distinction between these seven structural levels, beginning with a descriptive sequence that includes only related statements, each stage adding another structural component, up to an interactive episode which contains related statements, temporal order, causal relations, goal, plan, complications, and interaction (Hedberg & Stoel-Gammon, 1986). In addition, Glenn

and Stein (1980) found that many children generated stories that consisted of two or more structures, which they classified as multiple structure stories.

As children mature, their stories increase dramatically in structural complexity (Glenn & Stein, 1980; Stein, 1979). The stories produced by young children are often simple reactions to ongoing events, however, children “begin to include complex goal structures, social interactions among characters and dialogues between characters” as they develop (Stein, 1979, p. 285). Stein and Glenn (1979) found evidence to support the hypothesis that children as young as 6 years old are capable of sequencing simple story information and recalling the central theme or essence of a story. An older child or an adult may infer a direct causal link between the episodes within a story, however, a young child may not have the ability to perceive the direct connection between behavioral sequences (Stein & Glenn, 1979).

### **Story Grammar Development**

Young children (under 5 years of age) generally provide few, if any, adequate components of these essential SG elements. By age 9, typically developing children are able to generate, retell, and comprehend narratives with the primary components of story grammar (i.e., IE, attempt, outcome), although these skills are not fully developed (Merritt & Liles, 1987; Norbury & Bishop, 2003). To illustrate, a study by Stein and Glenn (1979) revealed significant developmental differences between first and fifth graders on total recall, recall of internal responses, and number of inferences added to recall. They found that the older children included more of each type of information on recall and produced more statements per importance judgment than did the younger children.

Children acquire the knowledge and skills needed to create and understand stories from their life experiences as well as through direct instruction and incidental learning in school

(Ukrainetz, 2015). Through repeated exposure, typically developing children gradually learn to grasp narrative structure and to use that structure to process and produce narratives (Page & Stewart, 1985). However, children with language and learning disabilities have difficulty acquiring narrative structure.

### **Narratives in Children with LI**

It has been well documented that children with LI struggle to understand and produce narratives (Dodwell & Bavin, 2008; Fey et al., 2004; Klecan-Aker & Kelty, 1990; McFadden & Gillam, 1996; Schneider, et al., 2006). Children with LI produce narratives that are both structurally less complex and of overall poorer quality than those of their age-matched peers, in both spoken and written modalities (Klecan-Aker & Kelty, 1990; McFadden & Gillam, 1996). Dodwell and Bavin reported that children with LI have difficulty with simultaneously maintaining information in working memory and processing the information, particularly when the cognitive load is high; they linked those memory limitations to narrative skills. Fey et al. summarized:

Compared to children developing typically, children with LI tend to compose stories that contain fewer words and utterances, fewer story grammar components and episodes, reduced sentence complexity, fewer and less complete cohesive ties, more grammatical errors, and poorer overall story quality. (p. 1302)

Children with LI have deficits in narrative ability and difficulty formulating and producing spoken language, and they may struggle in classroom activities to produce narratives with goal-directed behavior and a problem-solution schema. These students may also struggle with personal narratives to link their goals, thoughts, and feelings to the chronological sequence of events, which obligates the listener to infer the causality of their actions (Celinska, 2014).

These narrative deficiencies may lead to “reduced access to, and participation in, classroom narrative-based learning” as well as in social interactions with teachers and peers (Celinska, 2014, p. 670).

Children with LI may experience difficulties in using story grammar to process and produce narratives (Page & Stewart, 1985). Merritt and Liles (1987) found that children with LI produced fewer complete episodes and fewer story grammar components than their peers in both story generation and story retelling tasks. Although both groups of children in their study produced complete and incomplete episodes in both story narrative tasks, the children with LI organized their episodes into incomplete units more often than the control group. Generally, the children with LI generated stories with multiple initiating events, few causally linked attempts, and without a logical ending or direct consequence information (thus creating an incomplete episode). The lack of causal links made it difficult for listeners to understand “who did what to whom and with what motivation” (Merritt & Liles, 1987, p. 546). Merritt and Liles’ findings indicated that children with LI organize SG components less effectively during story generation and story retell. Hedberg and Stoel-Gammon (1986) illustrated these organizational difficulties:

Children and adults who lack knowledge of how factual and fictional events are organized will be limited in their understanding of the world and the people who live in it. They will be hampered in appreciating or learning from stories regardless of the forms in which they are presented: real-life events, the oral tradition, literature, or movies; or even comic books. They will have difficulty reconstructing their own experiences and sharing them with others. (p. 68)

The problems that children with LI experience with oral and written narratives are likely to grow and become more significant as the child matures (Fey et al., 2004). Therefore, language

intervention focusing on narratives may be beneficial for children with LI during the early elementary ages and beyond.

### **Narrative Intervention in Children with LI**

There is evidence that narrative-based language intervention can improve narrative performance. In a systematic review of narrative language intervention studies for preschool and school-age children with LI, Peterson's (2011) review of nine different group and single-subject controlled studies found significant improvements in response to common procedures of narrative retelling and narrative generation using varied materials and approaches. Peterson found moderate to large effect sizes for both macrostructure and microstructure in narratives. In addition, Peterson suggested that narrative proficiency may "transfer to other academic skills such as writing and reading comprehension" (p. 218). Peterson noted multiple threats to internal validity and advised caution in interpreting the results of these studies. However, these positive findings hold promise and encourage further research to assess the outcomes of narrative-based language intervention.

Fey et al. (2004) proposed that story composition tasks are educationally relevant and evaluation of children with LI should include assessment of oral and written narrative composition. Narrative tasks predict academic achievement and discriminate between typical children and children with impairments in a functional language context (Schneider et al., 2006). Because narratives make for naturalistic targets and are prominent in children's academic curriculum, "embedding language intervention within the context of narration may have many benefits for children who have language impairment" (Peterson, 2011, p. 208).

In summary, as Hedberg and Stoel-Gammon (1986) explained, "knowledge of story structure contributes to people's understanding of how the world functions, facilitating

predictions of actions and consequences, causes and effects” (p. 58). Children with LI experience difficulty with the comprehension and production of narratives, in both spoken and written modalities. These challenges impact the academic and social success of children with LI, and continue as they grow into adulthood. Narrative assessment and intervention evaluate and target the integration of linguistic, pragmatic, and cognitive abilities. Some evidence suggests that narrative-based language intervention can improve narrative performance, which in turn may improve the academic and social success of children with LI. Further investigation of the specific aspects of story grammar is needed to improve intervention and to increase these children’s knowledge of and participation in narratives, and thus the world around them.

### **Purpose of Current Study**

The current study focused on the ability of five elementary school-age children with LI to retell stories using wordless picture books. Specifically, the purpose of this thesis was to characterize the story retell abilities of five children with LI and to describe any incidental changes in story retell performance over a 10-week period of a social communication intervention. The following questions were posed: (a) What story elements would each of the five children with LI produce in a series of story retell tasks, and (b) would the children demonstrate any change in the production of those elements of story grammar over a 10-week period of social communication intervention?

## **Method**

### **Overview of the Intervention**

This thesis was part of a larger intervention project, designed to implement and evaluate the efficacy of a social communication intervention approach for children with LI. The larger research project included a series of single-subject multiple baseline measures, an intervention

segment, periodic probes, and follow-up measures. These measures were used as part of various investigations to examine whether this intervention produced changes across various social communication abilities. In the larger project, participants initially received three to six baseline sessions, which consisted of a series of tasks that probed aspects of social and emotional learning such as recognizing facial expressions of emotions and inferring emotions elicited by various scenarios. During the intervention segment, each participant received two 20-minute sessions each week, which replaced the participant's regular pullout speech and language therapy sessions. Each participant met individually with a graduate student clinician, and session activities focused on enhancing language processing and social and emotional learning. The intervention consisted of various activities including story sharing, story enactment, and making journal entries.

This thesis focused on the production of story narratives for each of the five participants. The current study describes a series of story retell probes administered over the 10 weeks of the intervention. Specifically, elements of story grammar based on the ENNI were evaluated in order to consider any incidental changes associated with the social communication intervention.

### **Participants**

The five participants in this study included three girls and two boys ranging in age from 7;0 to 11;7 (years;months). The participants were attending the same elementary school and had been recruited based upon referral from the school speech-language pathologist. All participants were native English speakers and had been identified with LI. All participants passed a pure tone hearing screening (administered by a school district speech-language pathologist) and received IQ scores within the typical range according to standardized measures (administered by a school district psychologist). Each participant was receiving speech and language intervention on a

pullout basis for 20 minutes twice a week, which targeted expressive and receptive language deficits.

The school speech-language pathologist selected and recruited participants from her caseload who were currently enrolled in intervention for LI and displayed difficulties with social communication. The speech-language pathologist contacted the students' parents and those who were interested provided written consent for their child to participate. The five participants were evaluated using the *Clinical Evaluation of Language Fundamentals-5* (CELF-5; Semel, Wiig, & Secord, 2013) and the *Children's Communication Checklist-2* (CCC-2; Bishop, 2006). The CELF-5 was administered to obtain a standardized measure of the participants' language abilities. The CCC-2 was administered to each child's teacher in order to document and evaluate each child's social communication strengths and difficulties. The results of these evaluations are presented in Table 1. The subtest scores for the CELF-5 are included in Appendix B.

Table 1

*Children's Communication Checklist-2 (CCC-2; Bishop 2006) and Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel, Wiig, & Secord, 2013) Percentile Scores*

Instruments	Participants and Percentiles				
	JS(7;0)	MG(10;0)	ALK(11;2)	SS(10;7)	JRS(11;7)
CCC-2 <sup>1</sup> Subtests					
Speech	16	25	16	25	1
Syntax	5	16	25	16	16
Semantics	16	9	25	5	5
Coherence	9	2	50	1	5
Initiation	16	25	37	1	16
Scripted Language	25	25	25	16	16
Context	9	16	16	37	1
Nonverbal Communication	25	25	25	9	1
Social Relations	16	25	37	16	5
Interests	75	84	63	9	9
GCC <sup>2</sup> Percentile	9	10	21	5	2
SIDI <sup>3</sup>	9	12	4	-1	1
CELF-5 <sup>4</sup>					
Core Language Percentile	7	2	8	2	0.2

*Note.* <sup>1</sup>Children's Communication Checklist-2 (CCC-2). <sup>2</sup>General Communication Composite. <sup>3</sup>Social Interaction Difference Index. <sup>4</sup>Clinical Evaluation of Language Fundamentals-5 (CELF-5).

**JS.** JS was a Caucasian female, age 7;0 at the beginning of this study. Prior to age 3, JS was initially diagnosed with developmental delay (DD)<sup>1</sup>, LI, and attention deficit hyperactivity disorder (ADHD). At age 4, JS was attending a special needs preschool when testing revealed significant delays in cognition, receptive and expressive language, and social and emotional development. Intellectual disability was ruled out, and at the time of this study she was again identified with LI and was enrolled in a mainstream kindergarten classroom. She was receiving

<sup>1</sup> According to the school district policy, children who qualified for early intervention services received an initial diagnosis of developmental delay, which was later changed as appropriate.

resource services for reading as well as speech and language therapy for language and articulation. JS's CELF-5 core language score fell within the 7th percentile. According to ratings by her teacher, JS received a General Communication Composite (GCC) in the 9th percentile. JS's scores on the CCC-2 demonstrated difficulties in the syntax, coherence, and context subtests.

According to both her teacher and clinician, JS displayed limited sustained attention and difficulty with expressive language. Preliminary probes indicated that JS demonstrated difficulty in recognizing and inferring emotions of sadness, fear, anger, surprise, and disgust, from pictures of facial expressions and verbal descriptions of characters in stories. In social interactions, JS provided inconsistently appropriate responses and off-topic comments. In play and during academic tasks, JS preferred to work independently and avoided approaching her peers.

**MG.** MG was a Caucasian female, age 10;0 at the beginning of the study. MG attended a regular education classroom from kindergarten through second grade. At age 7, MG was identified with specific learning disability (SLD). In third grade she attended a specialized, small-group classroom for children with learning disabilities. She transitioned back to a regular education classroom for fourth and fifth grades. A phonological awareness screening identified MG with mild to moderate difficulty with phoneme segmentation and manipulation of words. She was enrolled in speech and language services to address receptive and expressive language deficits. MG received the maximum amount of three hours of resource support per day throughout her elementary years.

MG's CELF-5 core language score fell within the 2nd percentile. According to teacher ratings on the CCC-2, MG achieved a GCC in the 10th percentile. Her subtest scores demonstrated severe deficits in semantics and coherence, and mild deficits in syntax and context.

In preliminary testing, MG demonstrated difficulty in recognizing emotion in facial expression in pictures (i.e., disgust, surprise, anger). She also demonstrated difficulty with inferring emotions from stories (i.e., anger, fear, disgust, surprise). Her teacher reported that while MG did not demonstrate withdrawn behaviors, she demonstrated poor sociability when interacting with peers.

**ALK.** ALK was a Caucasian female who had a history of difficulty with language and articulation. She was age 11;2 at the beginning of this study. ALK was identified with LI and sound production deficits in preschool. At age 8;0, ALK began receiving resource services for reading when academic testing indicated specific learning disability (SLD). ALK was also receiving speech and language services to address articulation and syntactic language deficits at the time of this study. ALK's CELF-5 core language score fell within the 8th percentile, and her GCC from the CCC-2 was within the 21st percentile. Her subtest scores demonstrated difficulties with speech and context.

Preliminary probes indicated that ALK also demonstrated difficulty in recognizing emotions from pictures and inferring emotions from stories, including fear, disgust, and surprise. The school speech-language pathologist described ALK as a child who had friends and participated in social interactions. ALK was also observed to be reticent, often choosing to play independently. Her teacher also reported that her peers enjoyed being around her and did not object to being placed in the same group. Further evaluation revealed that ALK had difficulty inferring the topic as well as the emotional reactions of her conversational partners in social situations. Structural language deficits (particularly semantic, syntactic, and morphological errors) impeded ALK's ability to communicate effectively.

SS. SS, age 10;7, was a Caucasian male identified with SLD. He was previously diagnosed with autism spectrum disorder (ASD) at 5 years old by his pediatrician and again at age 8 by a neuropsychologist at a children's medical hospital. SS was homeschooled until the age of 8;3 when he was enrolled in a mainstream second grade class at a public school. His educational team disagreed with the diagnosis of ASD and the school speech-language pathologist identified him with LI shortly after his enrollment. He began receiving speech and language services for language and articulation intervention as well as special education services for math, reading, and writing. At age 9;5 he was evaluated by the school psychologist and identified with SLD.

At the beginning of this study, SS was enrolled in a mainstream third grade class and receiving continued services in math, reading, and written language in a resource class. His speech and language therapy focused on fluency, appropriate topic manipulation, and language structure. His CELF-5 core language score fell within the 2nd percentile. According to his teacher ratings on the CCC-2, his GCC fell within the 5th percentile. His scores demonstrated difficulties in the areas of semantics, coherence, initiation, and nonverbal communication. Parent ratings on the CCC-2 were consistently lower than teacher ratings.

In preliminary testing, SS demonstrated difficulty with recognizing emotions from pictures and inferring when one might experience various emotions (i.e., fear, surprise, disgust). SS's clinician reported that he was motivated to interact socially but had difficulty interpreting nonverbal cues, including facial expressions, voice inflections, and body language. SS sometimes behaved impulsively and demonstrated difficulty appropriately adapting his behavior to different social settings, including appropriately responding to topics introduced by others. He often played independently and his attempts to join his peer group were often disruptive. SS

demonstrated the ability to self-monitor and appeared mildly aware of his inappropriate behaviors, but struggled to monitor his behavior in the moment.

**JRS.** JRS was a Caucasian male, age 11;7 at the beginning of this study. JRS had chronic otitis media as an infant and, according to his parents, was “deaf” until age 3 or 4. Tubes were placed at age 3;6 and audiometric testing revealed normal hearing at age 7;4. At this same age, JRS was identified with severe articulation and expressive language deficits. At age 11;3, testing showed mild articulation errors and low overall language scores. At the beginning of the study, JRS was receiving speech and language therapy for speech sound disorder and language skills, as well as resource services for reading, math, and writing. JRS was observed to have a short attention span, poor listening, and difficulty transitioning between activities.

JRS’ score language percentile rank on the CELF-5 was 0.2. According to ratings by his teacher on the CCC-2, his GCC was in the 2nd percentile and revealed deficits in speech, semantics, coherence, context, nonverbal communication, and social relations. Preliminary probes indicated that JRS demonstrated difficulty in recognizing emotions from facial expressions in pictures and inferring the emotional state of characters in stories (i.e., fear, disgust, surprise).

### **Measure**

Six stories from the ENNI (Schnieder et al., 2006) were employed in this study. The ENNI was developed for children aged 4 to 9, and norms for two stories used in the ENNI were established using a sample of 377 children from Edmonton, Alberta. The ENNI consists of designated story stimuli (pictures only) designed to include specific story grammar elements in retell. Although most of the participants in the current study were older than those used in the

development of the ENNI, the story retell tasks were employed considering that the children had language deficits.

## **Materials**

Two story picture sets of the ENNI were used to elicit and support story generation during approximately half of the intervention sessions. Each story set contained three wordless stories with detailed illustrations that presented the characters and story plot. The character illustrations depicted emotions identifiable by character facial expressions, body language, and story context. The first story in the set introduced the two main animal characters, a young male and a young female. These characters appeared in each of the three stories in their set. The first story was a single basic episode, the second story was two episodes, and the third was three episodes. The second story introduced a third character, an adult animal, and the third story introduced a fourth character (another adult) in addition to the previous three. The stories increased in referential and episodic complexity, and ranged in length from 5 to 13 pages. Shortened versions of stories A3, B2, and B3 were used to reduce the complexity of these stories. The shortened version of B2 left out one page, which did not change the number of episodes or characters. The shortened versions of A3 and B3 contained fewer episodes while still including all four characters.

The first story picture set contained the Giraffe/Elephant stories, which were: *Story A1 – Ball*; *Story A2 – Diving board*; and *Story A3 – Airplane*. The second story picture set contained the Rabbit/Dog stories, which were: *Story B1 – Sandbox*; *Story B2 – Picnic*; and *Story B3 – Balloon*. The authors selected this subject matter because the story events were recognizable to children, the pictures were simple and free of irrelevant detail, and the pictures structured the story while allowing for some inferencing. The individual story pages were put into plastic page

protectors and each story was put into its own binder, thus allowing each page to be presented separately.

## **Procedures**

The sessions were administered by a graduate student clinician under the supervision of the school's speech-language pathologist. The project was directed by two doctoral-level speech-language pathologists with a specialty in clinical research regarding children with LI. The aim of the larger intervention project was to examine whether the proposed intervention would increase participants' social and emotional competence.

This thesis project focused on one probe used as part of the larger intervention. This probe consisted of a story retell activity that was conducted periodically throughout the intervention program. The story retell activity (using the wordless ENNI story sets) was administered in approximately half of the intervention sessions. The participants were asked to generate a story narrative based only on the social and emotional content depicted in each illustration. The presentation of wordless stories also provided participants the opportunity to generate original story retellings of each story across multiple sessions. In accordance with the ENNI instructions, the stories were administered as the examiner held a binder up so that only the child could see the pictures. The examiner provided instructions to the participant as follows:

I have some pictures that tell a story. First I'll show you all the pictures. Then we'll go back to the beginning of the story, and then I want you to look at the pictures and tell me the story that you see in the pictures. I won't be able to see the pictures so you need to tell me the story really well so I can understand it. Okay? (retrieved from [http://www.rehabmed.ualberta.ca/spa/enni/administration\\_of\\_enni%C2%AD.htm](http://www.rehabmed.ualberta.ca/spa/enni/administration_of_enni%C2%AD.htm)).

The examiner turned the pages, allowing the child a few seconds to look at each page. The examiner then flipped back to the beginning and turned the pages as the child told the story, following the child's cues for when to turn the page. Set A was administered entirely before Set B was administered entirely, and then this sequence was repeated. Thus each story in both story sets was administered twice. The use of a naive listener ensured the need for maximum explicitness in storytelling. Only specified questions and/or prompts were allowed if the child had trouble starting a story. Neutral responses during the story were allowed (e.g., "oh," "okay"). The examiner was allowed to repeat the participant's previous utterance if the participant got 'stuck.'

Video recordings of each session were collected using digital camcorders and participants donned a microphone in most sessions to facilitate analysis of participant utterances. The story retell activities were transcribed from the video recordings into Word documents by the graduate student clinician heading this project. The recordings were transcribed noting useful nonverbal context (such as pointing and intonation). Interjudge agreement for the transcriptions was achieved prior to transcription analysis.

### **Interjudge Agreement**

Two graduate student clinicians randomly selected and transcribed 20% of the participants' story retells from the intervention sessions. Upon comparison, the interjudge agreement was found to be 98% (using the following formula:  $A/N \times 100$ , where A represents the number of word agreements and N represents the total number of words). Following this procedure, the remaining intervention sessions were transcribed independently, using the following training procedures.

After reading the scoring instructions from the ENNI website, the two graduate student clinicians discussed certain scoring conventions with the researcher heading the project. The two students then randomly selected and scored 20% of the story retells. When the agreement was less than 90% upon comparison, the clinicians discussed the discrepancy and randomly selected a new story to score. After several discrepancies with a particular item on the B3 scoring form, the students agreed upon a convention for that item and listed it as a footnote on the scoring form. This form can be found in Appendix C. Both students scored the transcribed samples until they achieved at least 90% agreement on 20% of the stories.

### **Analysis**

The transcribed utterances were analyzed by a graduate student clinician, using the ENNI Story Grammar analysis system to address the research questions. The ENNI website provides Story Grammar scoring sheets for stories A1 and A3. For stories A2, B1, B2, and B3, scoring sheets were created based on those provided for A1 and A3. That is, the same elements were considered. All stories were coded for information corresponding to a story grammar (SG) unit. SG units contain story information that is characteristic of “good” stories. The basic SG units and scores are described in Table 2.

Table 2

*Categories and Inclusion Criteria for Coded SG Units*

Category	Inclusion Criteria	Score
Characters	All main characters of the story that the participant identified. Pronouns were not included as valid character entries	1 point for each Character
Setting	Location, activity, and/or habitual state or characteristic	1
Initiating Event (IE)	Event that sets off the story's events; will cause the protagonist to respond in some way; evokes an immediate response	2
Internal Response (IR)	Reaction of a protagonist to the IE. It can be expressed in dialogue (e.g., "oh no!" expresses an IR), emotion words, or desire (e.g., "she wants the ball.")	1
Internal Plan (IP)	Of protagonist to deal with the IE	1
Attempt	To obtain goal	2
Outcome	Consequence of the attempt	2
Reaction	How the character(s) feel or think about the outcome, or how they react physically (e.g., run away)	1 point for Reaction of each Character or 1 point for Reaction of both/unknown

*Note.* Source: Adapted from ENNI website (<http://www.rehabmed/ualberta.ca/spa/enni>)

The ENNI SG scoring forms carefully outline how to score each SG unit. The scoring manual and the scoring forms for A1 and A3 may be found on the ENNI website. The scoring form for B3, which was created based on the given examples, is presented in Appendix C.

Initiating Event, Attempt, and Outcome were considered to be "core" units and were scored two points rather than one. Stories A1 and B1, both 2-character, single episode stories, received a score of 13 SG units. Story A2, a 3-character story with three episodes, received a score of 35 SG units. Stories A3 and B2, both 3-character stories with two episodes, received a

score of 25 SG units. Story B3, a 4-character story with two episodes, received a score of 26 SG units. The ENNI website describes three scoring conventions for particular SG units (Characters, distinguishing IP from Attempt, and differentiating between IR and Reaction).

The notion of goal-directed activity is an important aspect of story grammar, thus many of the SG units are coded with regard to goal-directedness (Schneider et al., 2005). The ENNI authors emphasize relating what the child says to the scoring system, even if the scorer may feel that a unit is being used as a different SG unit in the story. The scoring sheets offer typical acceptable responses for each SG unit; if another response was given credit, the scorer should note it.

## **Results**

Stories generated by each participant in treatment sessions were recorded and coded following the analysis system described above to determine whether the production of SG units increased over the course of the intervention probes. For each of the 12 treatment sessions that included the ENNI story probes, the SG units produced by each participant were coded according to the eight SG categories outlined above (see Table 2), using the ENNI score sheets. Results are presented in Tables 3 through 7, using one table for each participant. The table columns present the points earned for the eight SG categories per story retell in chronological order. Comparing the participants' productions of SG categories in each retell allowed for an examination of overall narrative performance over time. The table rows present the points earned per SG category across the 12 retells. The total points for each SG category across the 12 retells were calculated for each participant. Comparing the individual participants' productions per SG category across the 12 retells allowed for an examination of total use of SG categories in all story retells, and whether there were improvements or declines within a category over time.

**JS**

Table 3 presents JS's production of SG elements in retelling the stories. JS demonstrated some variability in the production of SG elements across the 12 probes. When her retellings were considered sequentially, she produced no SG elements in her initial retell of story A1, but she showed some improvement in the next two retellings of A2 and A3. Her performance declined in the initial retell of story B1 and then increased in the next three retellings. Her final five retellings leveled off. JS produced 22.3% of possible SG units across all 12 probes.

Table 3

*Points Earned Over Possible Points Per SG Category Across Story Retells for JS*

SG Category	First Retell						Second Retell						Total
	A1	A2	A3	B1	B2	B3	A1	A2	A3	B1	B2	B3	
Characters	0/2	1/3	0/3	0/2	1/3	0/4	0/2	0/3	1/3	0/2	0/3	0/4	3/34
Setting	0/1	1/1	1/1	1/1	1/1	0/1	0/1	1/1	0/1	1/1	1/1	1/1	8/12
IE	0/2	2/6	2/4	0/2	2/4	0/4	2/2	0/6	2/4	0/2	2/4	0/4	12/44
IR	0/1	0/3	0/2	0/1	0/2	0/2	0/1	0/3	1/2	0/1	0/2	0/2	1/22
IP	0/1	0/3	0/2	0/1	0/2	1/2	0/1	0/3	0/2	0/1	1/2	0/2	2/22
Attempt	0/2	2/6	0/4	0/2	0/4	0/4	2/2	2/6	0/4	0/2	0/4	0/4	6/44
Outcome	0/2	4/6	4/4	0/2	0/4	4/4	0/2	4/6	2/4	2/2	0/4	4/4	24/44
Reaction	0/2	0/7	2/5	0/2	0/5	1/5	0/2	1/7	0/5	0/2	1/5	0/5	5/52
% Total	0.0	28.6	36.0	7.7	16.0	23.0	30.8	22.9	24.0	23.1	20.0	19.2	22.3

As Table 3 shows, JS rarely received points for the Character category because she almost exclusively introduced Characters in the story sets using pronouns (i.e., he/she, we/they). According to the ENNI scoring system, acceptable responses to introduce characters include

gender (male/female, boy/girl) or animal type; pronouns were counted as unacceptable character introductions. JS provided a Setting in two-thirds of the stories, and included an Outcome for roughly half of the episodes across all stories. JS demonstrated most difficulty with Characters, IE, IR, IP, Attempt, and Reactions.

## **MG**

MG demonstrated variability in the production of SG elements across the 12 probes. When her retellings were considered sequentially, she demonstrated improvement in the first seven retells. Her performance in the last five retells was characterized by great variability with a greater production of SG elements for some retells when compared to her first retell, and for others a reduced production from her first retell. Her last five retells showed an overall decline in performance from her best retell (A1). MG produced 52.2% of possible SG units across the 12 probes.

Table 4 illustrates that MG typically introduced Characters appropriately and provided a Setting. MG included an IE, Attempt, and Outcome in roughly half of the episodes, and rarely included an IR or IP. MG demonstrated difficulty inferring or stating Reactions based on the characters' facial expressions and body language depicted in the story illustrations.

Table 4

*Points Earned Over Possible Points Per SG Category Across Story Retells for MG*

SG Category	First Retell						Second Retell						Total
	A1	A2	A3	B1	B2	B3	A1	A2	A3	B1	B2	B3	
Characters	2/2	3/3	3/3	2/2	3/3	4/4	2/2	2/3	3/3	2/2	3/3	4/4	33/34
Setting	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	0/1	1/1	1/1	1/1	10/12
IE	0/2	6/6	2/4	0/2	4/4	2/4	2/2	4/6	2/4	2/2	2/4	2/4	28/44
IR	0/1	0/3	1/2	0/1	0/2	1/2	1/1	0/3	1/2	0/1	0/2	0/2	4/22
IP	0/1	0/3	0/2	1/1	0/2	1/2	0/1	1/3	1/2	0/1	0/2	0/2	4/22
Attempt	0/2	4/6	2/4	2/2	2/4	2/4	2/2	2/6	4/4	2/2	0/4	2/4	24/44
Outcome	2/2	2/6	4/4	0/2	2/4	4/4	2/2	2/6	4/4	0/2	0/4	2/4	24/44
Reaction	1/2	1/7	4/5	1/2	1/5	1/5	1/2	2/7	2/5	1/2	0/5	1/5	16/52
% Total	46.2	48.6	68.0	53.8	52.0	61.5	84.6	37.1	68.0	61.5	24.0	46.2	52.2

### **ALK**

ALK also demonstrated variability in her production of SG units across session probes. When her retellings were considered sequentially, one story retell (B1) showed improvement in production of SG units from her initial retell of A1, while eight other retells declined from her initial retell of A1. ALK's strongest retells were the second trial of A1 and the first trial of B1, and her weakest was the second trial of A2. ALK produced 62.4% of possible SG elements across the 12 probes.

Table 5

*Points Earned Over Possible Points Per SG Category Across Story Retells for ALK*

SG Category	First Retell						Second Retell						Total
	A1	A2	A3	B1	B2	B3	A1	A2	A3	B1	B2	B3	
Characters	2/2	3/3	3/3	2/2	3/3	4/4	2/2	3/3	3/3	2/2	3/3	4/4	34/34
Setting	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	12/12
IE	2/2	2/6	4/4	2/2	2/4	2/4	2/2	4/6	2/4	2/2	2/4	4/4	30/44
IR	0/1	1/3	1/2	1/1	0/2	1/2	0/1	1/3	1/2	1/1	0/2	1/2	8/22
IP	0/1	0/3	0/2	0/1	0/2	0/2	0/1	0/3	0/2	0/1	0/2	0/2	0/22
Attempt	2/2	6/6	4/4	2/2	4/4	2/4	2/2	4/6	4/4	0/2	4/4	4/4	38/44
Outcome	2/2	6/6	4/4	2/2	2/4	4/4	2/2	2/6	4/4	0/2	4/4	2/4	34/44
Reaction	1/2	1/7	2/5	1/2	0/5	2/5	2/2	1/7	2/5	1/2	0/5	2/5	15/52
% Total	76.9	57.1	76.0	92.3	48.0	61.5	84.6	45.7	68.0	53.8	56.0	69.2	62.4

As indicated by Table 5, ALK included an acceptable introduction of all Characters and Setting in her story retells. ALK provided an IE, Attempt, and Outcome in over half of opportunities. She provided an IR infrequently and did not include an IP in any stories. ALK demonstrated some difficulty with including character reactions in her story retells.

## SS

The second B3 story retell was lost due to technical difficulties, and as such has not been included in the Table 6. SS demonstrated some variability in production of SG units across the 12 probes. When his retellings were considered sequentially, SS demonstrated a decline from the first A1 to A2, with the next four retells averaging between the first two. SS produced the same

amount of SG units in the second A1 retell as the first, and his next four retells declined and leveled off. His strongest retells were both trials of A1 and his weakest retell was the first trial of A2. SS produced 55.6% of possible SG elements across the 12 probes.

Examination of Table 6 shows that SS generally included adequate Character introductions in his story retells, and always included a Setting. SS included an IE, Attempt, and Outcome in slightly more than half of opportunities, but did not typically include an IR or IP. SS also demonstrated some difficulty with Reactions, which he included in about one-third of opportunities.

Table 6

*Points Earned Over Possible Points Per SG Category Across Story Retells for SS*

SG Category	First Retell						Second Retell						Total
	A1	A2	A3	B1	B2	B3	A1	A2	A3	B1	B2	B3	
Characters	2/2	3/3	2/3	2/2	3/3	3/4	2/2	3/3	2/3	2/2	3/3	n/a	27/30
Setting	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	n/a	11/11
IE	2/2	2/6	4/4	2/2	2/4	4/4	2/2	2/6	2/4	2/2	2/4	n/a	26/40
IR	0/1	0/3	0/2	0/1	0/2	0/2	0/1	1/3	0/2	0/1	0/2	n/a	1/20
IP	0/1	0/3	0/2	0/1	0/2	1/2	0/1	0/3	1/2	0/1	0/2	n/a	2/20
Attempt	2/2	4/6	4/4	0/2	4/4	4/4	2/2	2/6	4/4	0/2	4/4	n/a	30/40
Outcome	2/2	2/6	4/4	2/2	2/4	2/4	2/2	2/6	4/4	0/2	2/4	n/a	24/40
Reaction	2/2	0/7	1/5	2/2	1/5	2/5	2/2	4/7	1/5	1/2	1/5	n/a	17/47
% Total	84.6	34.3	64.0	69.2	52.0	65.4	84.6	42.9	60.0	46.2	52.0	n/a	55.6

*Note.* The second B3 retell was not available, therefore the opportunities for total points for all SG categories are less than for the other participants.

**JRS**

JRS also demonstrated variability in percent of possible points, with an average of about 50% inclusion. When his retellings were considered sequentially, his first A1 was his strongest story retell as indicated by production of SG units. He showed a steep decline on the next retell, with an increased production of SG units in the following five retells JRS's second A2 showed a decline, however his second B1 showed an improvement (his second best story). His last two retells showed a decline in SG units. JRS produced 52.2% of possible SG units across the 12 probes.

Table 7

*Points Earned Over Possible Points Per SG Category Across Story Retells for JRS*

SG Category	First Retell						Second Retell						Total
	A1	A2	A3	B1	B2	B3	A1	A2	A3	B1	B2	B3	
Characters	2/2	1/3	2/3	2/2	2/3	3/4	2/2	2/3	3/3	2/2	2/3	3/4	26/34
Setting	1/1	0/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	0/1	1/1	1/1	9/12
IE	2/2	4/6	2/4	0/2	4/4	4/4	2/2	4/6	4/4	2/2	2/4	0/4	30/44
IR	0/1	0/3	0/2	0/1	0/2	0/2	0/1	0/3	0/2	0/1	0/2	0/2	0/20
IP	0/1	0/3	0/2	0/1	0/2	0/2	0/1	0/3	0/2	0/1	0/2	0/2	0/20
Attempt	2/2	2/6	4/4	2/2	4/4	4/4	0/2	4/6	4/4	2/2	2/4	0/4	30/44
Outcome	2/2	4/6	4/4	0/2	2/4	4/4	2/2	2/6	4/4	2/2	4/4	4/4	34/44
Reaction	1/2	2/7	2/5	1/2	0/5	1/5	1/2	2/7	2/5	1/2	0/5	1/5	14/52
% Total	76.9	37.1	56.0	46.2	52.0	65.4	61.5	42.8	72.0	69.2	44.0	34.6	52.2

Table 7 demonstrates that JRS included Character introductions, Setting, and Outcome frequently in his story retells. He included IE and Attempt less frequently, but in more than half of his retells. JRS did not include an IR or IP in any of the 12 story probes, and demonstrated difficulty with character reactions.

### **Discussion**

Children with LI demonstrate difficulty understanding and producing narratives. They use fewer SG elements and fewer complete episodes in narrative production and retelling, and demonstrate a “less effective use of story grammar organization” (Merritt & Liles, 1987, p. 545). Children with LI demonstrate weak oral and written narrative skills compared to their typically achieving peers during the elementary school years, and the gap continues to widen as children advance in grade (Fey et al., 2004). Weak narrative skills may limit academic learning and involvement, as well as social interaction.

The current study examined a series of story retellings produced by children with LI over 10 weeks. The ENNI was used as story stimuli, and SG units were tracked using score sheets for each of the six stories, which were each administered twice. In general, the results were variable. The children with LI demonstrated difficulty with the more complex story elements, and there appeared to be little evidence of sustained narrative improvement as indicated by increased SG units in the participants. There was considerable variability of performance across participants and across stories. The performance of each participant is discussed individually below.

### **Individual Findings**

**JS.** Of the five participants, JS produced the lowest amount of possible SG units across the 12 story retells and she demonstrated considerable variability. However, despite her low scores, her last seven story retell scores were generally consistent and stable in her use of SG

elements. Overall, JS's story retells lacked appropriate character introduction, causal relationships between SG units, cohesion, and clear resolution. She demonstrated immature narrative ability and her stories were often difficult to follow and understand. JS frequently added extraneous or fabricated details, especially at the end of her story retells. JS also demonstrated delayed mastery of certain grammatical morphemes including irregular past-tense verbs (e.g., "flied") and past-tense regular *-ed* (e.g., "she blink her eyes").

**MG.** Although MG's first trials of the story retells were fairly consistent (and with a slight increase) in terms of production of possible SG units, her second trials demonstrated greater variability and with an overall decrease in the production of SG units. MG demonstrated the second highest usage of IR and Reactions in story retells among the participants. She demonstrated the highest inclusion of IP in her story retells. MG often used phrases like "once upon a time" and "the end" to introduce and conclude her story retells, and demonstrated some use of descriptive language for added detail. She frequently assigned names to the characters, although she occasionally confused or changed character names mid-story, and provided character dialogue. MG occasionally used noises to demonstrate rather than describe an action or reaction (e.g., saying "uhhh" while reaching to imply that the character was reaching for an object, or saying "and they both did {gasp}"). She occasionally produced stories with an unclear organizational sequence and weak resolution. MG attempted to fabricate the ending of the second trial of A3 until the clinician directed her back to task.

**ALK.** Overall, ALK's stories generally consisted of short, sequential statements without much added detail. Her stories demonstrated adequate sequential organization, but without strong evidence of goal-directed behavior. ALK occasionally struggled to provide a clear resolution to conclude the episodes/stories. However, compared to the other participants, ALK's

stories were the most sophisticated, as she produced the highest overall amount of SG units in her story retells. Among the participants, ALK demonstrated the highest inclusion of IRs and Attempts. She included appropriate Character introductions and Setting statements in all 12 retells. However, ALK never included an IP and only occasionally included characters' Reactions.

**SS.** Although SS produced the longest stories, which typically included elaborate details, he demonstrated difficulty with several SG categories in retell. He included IE, Attempt, and Outcome in greater than half but less than three-fourths of the opportunities during retell. SS included more Reactions in his retells compared to the other participants. SS included lots of character dialogue and references to social behavior. His story retells occasionally ended with the main characters becoming friends or "insta-best friends," or with a character statement about politeness (i.e., "You should really ask nicely to look at my airplane next time, okay?"). In his story retells SS demonstrated some difficulty interpreting nonverbal cues, but also some awareness of socially appropriate behavior and communication.

**JRS.** Although JRS was the oldest participant (11;7), he demonstrated difficulty with several SG units. He did not include IR or IP in any retells. JRS generally included Character introductions and Setting statements, however these categories were omitted in about one-fourth of opportunities in his retells. In addition, JRS included Reactions in only about one-fourth of opportunities. The SG category that he included most frequently in his retells was Outcome. JRS's story retells were composed of short, sequential statements and usually ended with a clear resolution. JRS demonstrated little to no affect during his story retells. He often appeared bored, and occasionally added fabricated details to his retells of the story B set, however reverted to the true story when encouraged by the clinician to do his "best work."

## **Conclusions and Interpretations**

The results of this study led to several conclusions. There was variability between and within the participants in the amount of SG units they included in story retells, however, in general it was the case that narrative tasks were difficult for these children. Additionally, the participants' narrative skills (including use of SG) did not show consistent change over the course of 10 weeks.

These narrative tasks were difficult for the participants, who were each identified with LI. The ENNI story sets were normed for children between 4-9 years old. With the exception of JS, the participants in the current study were older than the ENNI norms, however all participants demonstrated difficulty with the story retell probes. While typically developing children might be expected to produce stories with the basic elements of story grammar by 9 years of age, the participants in this study demonstrated difficulty with several elements of story grammar (Merritt & Liles, 1987). The SG categories that most participants appeared to have mastered (excluding JS) were Characters and Setting. Most participants demonstrated difficulty with IE, and several participants demonstrated some difficulty with Attempt and Outcome. The SG categories that participants appeared to have the most difficulty with were IR, IP, and Reactions. However, as stated earlier, these categories are omitted from many written stories and folktales. The lack of exposure to these SG categories in written form may correspond to the participants' frequent omission of these categories in their story retells.

Each of the five participants demonstrated performance variability in their use of SG units across the 12 probes. Generally, the results demonstrated group variability between all participants' stories over time. As a group none of the participants demonstrated consistent improvement or decline for any of the six stories. Three participants (JS, MG, ALK) produced a

greater amount of SG units from the first to second retell of A1, and three (JS, MG, JRS) produced a greater amount of SG units from the first to second retell of B1. These improvements may be due to story complexity, as A1 and B1 were the simplest stories in the sets with two characters and one episode. The variability between participants did not provide support for the efficacy of this specific story retell task as a means of increasing the use of SG elements.

Another conclusion was that the intervention sessions did not stress plot structure or SG elements, and the variability of results suggested that the participants did not tune into those elements over time through the story retell task. The overall intervention focused heavily on emotion understanding, however Tables 3-7 show that the participants did not demonstrate a significant increase over time in their inclusion of character reactions (i.e., the emotional piece). Additionally, the participants did not begin to use more SG units in their story retells based on the intervention probes. The participants did not receive direct instruction in SG elements, and although their story retells indicate some variability, the participants did not demonstrate a significant increase in the total percent of SG units used over time.

It may be the case that the story stimuli affected participants' performance. It was noted that the story stimuli did not seem to hold the attention or interest of several participants. Three of the five participants attempted to change the beginning or ending of the stories by adding fabricated details to attempt to "trick" the graduate student clinician and make the stories more exciting. This may have influenced the participants' performance during the story retell probe. However, this may also demonstrate some emerging narrative skills to create imaginary story details. This skill is something JS did not display prior to intervention, although this is anecdotal evidence for her individual success in response to the narrative intervention.

## **Limitations of the Study**

The current study was designed as preliminary work to probe participants' ability to retell stories and to determine if performance on the story retell probes would improve over the course of an intervention that focused on social communication. There were several limitations in this study. These include the variability of participant population, the nature of the probes, length of the intervention, and the lack of direct instruction within the intervention regarding SG elements.

Although each participant was identified with LI, each presented with unique language and social deficits. Because of these unique differences, the social communication intervention likely affected each participant's behavior and performance differently. For example, the participants varied in their degree of attentiveness and participation during the story retell probe, which influenced their performance. Many influential factors (e.g., behavior, fatigue, etc.) affected participant performance. For example, during the period of this study, JS had frequent behavioral difficulties. She was generally very energetic and dramatic during the intervention sessions, but she had considerable difficulty staying on task. During the probes, she occasionally grabbed the story binder from the clinician and yelled or roared unintelligible utterances during her story retells. The individual LI profiles and influential factors were difficult to account for while maintaining the consistency of an intervention.

With regard to the nature of the probes, the variability of performance between and within participants suggested that the story retell tasks were problematic. Although the ENNI stories were specifically designed for a story retell task, they did not seem to hold the interest of these participants. Participants seemed generally disengaged from the stories, and they sometimes indicated that they did not want to produce a story or they wanted to "get over with"

the task. It may have been the case that the story retell task was simply so difficult for the children that they were not eager to work with the stories.

Regarding the length of intervention, it may be that a 10-week period is not long enough or intense enough to support significant gains in narrative performance. Each intervention session lasted approximately 20 minutes. The specific probe examined in this study was presented in only half of the sessions, and amounted to less than 10 minutes per session.

It may have been the case that the participants needed more focused input on story generation per se. The intervention did not provide direct instruction regarding SG elements, and these narrative skills did not improve on their own. This was especially true with regard to the more complex SG units (i.e., IR and IP) and emotional inferencing (i.e., character reactions). During the intervention sessions, participants received instructions regarding the emotional elements of narratives but no instructions regarding how to structure a narrative. Instruction in story grammar can provide a framework to organize content and facilitate children's comprehension and production of stories (Merritt & Liles, 1987). It is possible that the participants may have responded better to a more specific probe with direct instruction regarding plot structure and SG elements.

### **Directions for Future Research**

Analyses of the children's performance did not yield noteworthy gains in narrative performance based on the inclusion of SG elements in retell. However, the school speech pathologist reported that the participants told better stories after participating in the intervention. This anecdotal evidence for the improvement of narrative skills is promising. To more effectively examine the impact of this intervention on the production of SG elements during narrative tasks, and further, its effect on social and academic behavior, future studies should

compare narrative performance between participants who do and do not receive direct instruction regarding SG elements. Research is needed to design intervention programs that target the difficulties of children with LI to transition from less complex heap stories (descriptions of events/actions) to more complex true narratives, which demonstrate goal-directed behavior within episodic events. One challenge will be discovering story stimuli that are simple and easily understood, while also engaging and exciting. In addition, future studies should include a greater number of children with varying profiles of LI to assess how different children respond to the intervention.

### **Summary**

This study investigated performance on a story retell probe over the course of 10 weeks of social communication intervention. Five children participated in the study, each between the ages of 7;0 and 11;7 and with a diagnosis of LI and documented social communication difficulties. Prior to the intervention program, the CELF-5 and CCC-2 were administered to each participant to determine consistent measures of language and communication. The story retell probe included two story sets from the ENNI, each containing three stories. The type and number of SG elements produced during two elicitations of each story set (12 retells total) over 10 weeks were coded and analyzed for changes occurring as a result of this intervention probe.

All of the children showed persistent difficulty producing the more complex SG elements, and none of the participants demonstrated consistent gains in the type and number of SG elements produced during their story retells.

The findings of the current study did not indicate change in story narrative production, reflected in the production of specific elements of story grammar, at least within a 10-week period. It might be the case that the 10-week intervention was neither intense enough nor long

enough to effect change. It may also have been the case that the children required more direct instruction on SG units than the intervention provided. However, despite the lack of consistent gains overall, the impression of the school SLP about the students' improvement was encouraging. Additional research investigating a variety of probes and intervention techniques is warranted to demonstrate the efficacy of the social communication intervention to improve narrative skills, and further address the social and academic needs of children with LI.

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## Appendix A

### Annotated Bibliography

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

**Purpose of the work:** This book began with a broad outline of the uses of language, and then narrowed to the use of narratives and how children and adolescents respond to them. Chapter 4 outlined Applebee's theory of narrative development.

**Summary:** Chapter 4 outlined the two processes that are basic to the narrative structure of children's stories: centering and chaining. This chapter summarized and used Vygotsky's (1962) theory of concept development to provide a parallel model for narrative development and analysis. Applebee described the following six stages of narrative form in detail, which progress from least to most complex: heaps, sequences, primitive narrative, unfocused chain, focused chain, and true narrative. Each stage of narrative form shows an increase in general complexity, as well as an increase in the complexity of combining centering and chaining to structure the narrative. These structures underlie the adult uses of language. Many stories do not neatly belong to just one category.

**Conclusions:** Applebee outlined children's concept of stories, the role of stories, how children structure stories, and how children respond to narratives over time. As children mature, their stories increase in complexity. Stories that are structurally more mature are more prevalent at older ages, and additionally, older children tell more complex stories.

**Relevance to the current work:** Applebee described a model for narrative development in typically developing children. This model also introduced an early system for analyzing children's narratives.

Celinska, D. (2014). Painting a portrayal of narrators with learning disabilities from two narrative perspectives. *Applied Psycholinguistics*, 35(4), 649-675.

**Purpose of the study:** The purpose of this study was to compare the narrative competency of children with and without learning disabilities using high point analysis (HPA) and episodic analysis (EA).

**Summary:** This study examined two different narrative analysis perspectives. HPA was used to examine how narrative structure and coherence conveyed the narrator's personal meaning of narrative events. HPA has been used to document developmental and individual differences in narrative performance. EA, on the other hand, was used to examine how narrative structure represented the "narrator's knowledge of human intentionality and goal-directed behavior" (p. 652). EA attempted to describe story grammars that guide comprehension and recall of narratives from a cognitive perspective. EA explored children's mastery of the episode (the basic unit of narrative organization), which included goal-directed sequences.

**Method:** Participants included 82 students with learning disabilities (LD) and their typically achieving (TA) peers matched on age, grade, gender, and ethnicity. The participants were enrolled in grades 4-7 (with the majority in fifth grade), with a mean age for both groups of 11 years. Using select subtests of the CELF-3, the LD group was found to have significantly lower expressive syntactic skills than those of their TA peers. Each participant's narratives were collected in a conversational context with an interviewer who facilitated narrating. Personal and fictional narratives were divided, classified, and analyzed according to HPA and EA frameworks.

**Results:** A series of one-way ANOVAs were used to analyze group differences on four dependent measures for both personal and fictional narratives. Significant effects (and nonsignificant effects) were found for only one of these dependent measures: the mean proportion of narratives in each of the EA coherence patterns. Significant effects across the LD and TA groups for personal narratives were found for action sequence and abbreviated episode. Significant effects across and TA group and the group with LD for fictional narratives were found for complete episode. These results indicated that participants with LD produced a lower proportion of abbreviated episodes and a higher proportion of action sequences in personal narratives than their TA peers. In contrast, participants with LD produced more complete episodes in fictional narratives than their TA peers.

**Conclusions:** The two narrative perspectives yielded consistent results relating to the participants' use of structural organization categories but incongruent results relating to their reliance on the narrative coherence patterns. The results of EA revealed group differences relating to goal-directed behavior for both types of narratives, although in opposite directions. The participants with LD tended to use more action sequences to retell personal narratives and more complete episodes (i.e., goal-directed behavior) to retell fictional narratives. The HPA perspective revealed comparable ability between the TA group and the group with LD. These results indicate that differences in narrative performance may depend on the narrative analysis used. The author outlined several limitations of both narrative perspectives, including their narrow focus on the underlying structure of children's narratives.

**Relevance to the current work:** This study utilized EA as a framework for story grammar analysis for personal and fictional narratives of children with LD.

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

**Purpose of the study:** Children with specific language impairment (SLI) have been shown to have limited memory capacity, particularly when the cognitive load is high. This study links these memory limitations to narrative skills. The purpose of the study was to investigate further the relationship between the memory, attention, and inhibition skills of six-year-old children with SLI and their performance on narrative tasks. This research indicated that children with SLI are less able to recall information from narratives they hear than from self-generated narratives.

**Method:** *Participants:* 16 children with SLI, 25 children with normal language development (age-matched with the children with SLI), and 15 children with normal language development (gender- and language-matched).

The first study compared the narrative generation, recall and comprehension of 6-year-old children with SLI with age- (AM) and language-matched (LM) non-impaired children. This study involved two tasks with different narrative measures. In the first task all children were asked to recall a single paragraph story, scored for the amount of relevant story content provided and story comprehension. In the second task the children looked through a picture book and were asked to generate a story, and then to recall the story after ten-minutes. The children were asked a series of comprehension questions.

In the second study, children with SLI and AM children were tested on four working memory tasks, and also attention and inhibition tasks. This study examined associations between the children's narrative and memory performance.

**Results:** *Study 1:* The performance of children with SLI was comparable to the AM group on some narrative tasks and comparable to the LM group on other tasks. Children with SLI performed significantly worse than the AM group for inference questions and were comparable to the LM group, indicating a two-year delay in inferencing skills for children with SLI. The children with SLI performed significantly better on inferencing questions when they made up their own story using picture cues.

*Study 2:* The findings from the memory measures indicate that the memory development of children with SLI is delayed. Children with SLI made significantly more errors than their typically developing peers. Children with SLI had difficulty storing information in memory when the processing demands were high.

**Conclusions:** The children with SLI did not have difficulty comprehending literal questions, but they did have difficulty with inferencing. The findings suggest that children with SLI have more difficulty processing and remembering information they hear. These children were better at remembering self-generated stories. Pictures may facilitate better encoding and better recall. The main conclusion from this study was that children with SLI have difficulty with simultaneously maintaining information in working memory and processing the information.

**Relevance to the current work:** This study examined the story retell skills of children with SLI. The children heard a story read to them and were given picture cues to guide their own retelling of the story. This research also studied contributions of attention, memory, and comprehension to the children's performance on 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, & Hearing Research*, 47(6), 1301-1318.

**Purpose of the study:** Children with LI have difficulties telling stories. Telling and writing fictional stories is a high-level language skill, which (along with other higher-level language skills) likely contributes to the academic and social difficulties of children with LI. Fey, et al. noted several gaps left by other investigations and designed the present study to address at least some aspects of each of these gaps. The authors principal concerns were to "examine the

story formulation skills of kindergarten children with LI as they progress into second and fourth grade and as they compare with children with TL, in the oral and written modalities,” (p. 1307).

**Method:** Participants included 538 children, taken from a larger study sample. Each child represented one of four diagnostic groups: typical language (TL), specific language impairment (SLI) nonspecific language impairment (NLI), or low nonverbal IQ (LNIQ). Researchers followed these children as they transitioned from kindergarten to second and fourth grade. IQ-related differences (including parent IQ and school achievement) were anticipated. The groups were not equivalent in age, maternal education, sex, maternal education, or race.

**Procedure:** Children were instructed to create a story using four sets of laminated picture cards with three pictures in each set. The first picture included characters and key elements, the second picture contained the main character in a problem/conflict situation, and the third picture presented the character taking some action to resolve the problem. Procedures were used to ensure that each child had carefully examined all essential details of each set of pictures so that weak stories would more likely reflect their cognitive and linguistic abilities related to narratives (rather than failure to notice key story elements). The examiner laid out the picture sets and prompted the child to label the preidentified key elements of the stories. The children were instructed to write a story using all three pictures in a set, without adult intervention (except for two types of prompts that could be used only once) or assistance with writing. Upon completion, the children were instructed to read their story to the examiner word for word. Stories were transcribed using standard Systematic Analysis of Language Transcripts (SALT) conventions; the basic units of analysis were C-units. Six measures were selected for analysis: number of different words, mean length of C-unit in words, total number of C-units, clausal density, percentage of grammatical C-units, and a subjective narrative quality score (a quantitative evaluation of the overall quality of a child’s story). Judgments of narrative quality were more complex than calculations for other measures, but the reliability was judged to be suitable for all subsequent analyses.

**Results:** Three analyses were conducted for second grade, fourth grade, and the difference between second and fourth grade, reflecting the narrative composition gains made between the two grades. Girls told stronger stories than boys in both second and fourth grade, despite group assignment. Significant effects were found for sex, modality, and group. Children identified with LI in kindergarten generated stories in second and fourth grade that contained shorter and less complex C-units, fewer different words, and more grammatical errors overall than the stories composed by typically developing peers. In addition, their story content, organization, and style led to stories of weaker overall quality. Gains from second to fourth grade were more substantial in the written than in the oral modality. Children with SLI showed slow growth from second to fourth grade.

**Conclusions:** The results of this study support evidence that children with early diagnoses of LI are weak in oral and written narrative skills during their elementary school years. There is a widening gap across grades between children with SLI and those with TL. “Minimally, it can be concluded that children with an early diagnoses of LI should not be expected to have fully recovered by fourth grade, even if their norm-referenced language test scores and, to a lesser extent, their narrative performance in second grade suggest a pattern of

normalization,” (p. 1315). Problems with narrative performance are likely to grow and become more significant as the child progresses in age. The researchers contend that evaluations of children with LI should include assessment of oral and written narrative composition. Clinicians should not assume that oral narratives accurately reflect written narratives.

**Relevance to the current work:** This study examines oral and written story composition skills in children with LI. The researchers conclude “story composition tasks are educationally relevant and should play a significant role in the evaluation of children with developmental LI,” (p. 1301).

Glenn, C. G., & Stein, N. L. (1980). *Syntactic structures and real-world themes in stories generated by children* (Technical report). Urbana, IL: University of Illinois, Center for the Study of Reading.

**Purpose of the study:** This purpose of this paper was to examine the kinds of structural information that children need in order to produce stories and to examine developmental changes in this ability. The authors examined the stories generated by children of different ages.

**Literature Review:** The authors outlined the findings from several initial studies of the syntactic analysis of stories, which included a summary of story grammars. The authors summarized two experiments by Stein and Glenn, which examined the effects of deleting category information (1977), and the effects of disrupting the natural temporal sequence of a story (1976). The results indicated that subjects expected certain types of information and added it if it was absent, and that subjects expected a certain temporal sequence of information and were sensitive to disorganized sequences. However, there was some flexibility noted for both conditions. The authors defined episodic sequencing and presented the results from two studies regarding the organization of story information in memory.

**Method:** This study consisted of two experiments. The participants in Experiment 1 included 18 students from each of three grades (kindergarten, third, and fifth), and the participants in Experiment 2 included 24 students from each of the same three grades. In both experiments, the participants were asked to generate three stories after hearing the three story beginnings. In Experiment 1, the children were given information about the story character and setting, which provided few restraints for the story generation task. In Experiment 2, the children were given information about the story character and setting, as well as the initiating event, motivating state, or consequence; this condition provided greater restraints for the story generation task. Each narrative was then classified according to the graded series of seven structures (descriptive sequence, action sequence, reactive sequence, abbreviated episode, complete episode, complex episode, and interactive episode).

**Results:** The results of Experiment 1 revealed that the series of structures was necessary to describe the children’s stories. An outline of these structures allowed comparisons both within and between the structures of stories. However, some stories were difficult to classify, which were analyzed and attributed to developmental factors, individual differences, and story differences. The kindergartners produced more stories that were shorter and poorly developed, and the third and fifth graders produced more stories with complex structures. The researchers

also analyzed the stories for pragmatic information. The results of Experiment 2 indicated a shift in story type with age, with a decrease in the number of stories with single structure (e.g., reactive sequence) and an increase in the number of stories with multiple structures (e.g., complex and/or interactive episode). Both studies found that story complexity increases with age.

**Conclusions:** The authors concluded that the structural types provided descriptive categories for story analysis, which most likely correspond to the individual's story expectations or knowledge structures. Developmental changes were observed in both story quality within any given structure and between the structural types generated. The authors concluded that children's stories increase in structural complexity with age.

**Relevance to the current work:** The researchers developed a method for examining stories and analyzed the stories of elementary-aged children.

Hedberg, N. L., & Stoel-Gammon, C. (1986). Narrative analysis: Clinical procedures. *Topics in Language Disorders*, 7(1), 58-69.

**Purpose of the study:** This work provides clinically relevant information about the collection of narrative samples and analyses and their interpretation.

**Conclusions:** Subject characteristics, stimuli, and the mechanical aspects of data collection should be considered when obtaining narrative samples, as each will influence the nature of the narratives obtained. The authors described in detail Applebee's (1978) narrative levels analysis and Glenn & Stein's (1980) story grammar structural patterns, as well as the developmental sequence for the acquisition of narrative levels and story structures. The authors also briefly outlined possible limitations with the findings from Applebee's (1978) and Glenn & Stein's (1980) original studies.

**Relevance to the current work:** The current work uses story grammar analysis to analyze the retellings of wordless stories by children with LI.

Heilmann, J., Miller, J. F., Nockerts, A., & Dunaway, C. (2010). Properties of the narrative scoring scheme using narrative retells in young school-age children. *American Journal of Speech-Language Pathology*, 19(2), 154-166. doi:10.1044/1058-0360(2009/08-0024)

**Purpose of the study:** The purpose of this study was to evaluate the efficacy of the narrative scoring scheme to measure narrative macrostructure skills in school-age children who were fluent in English, as well as to examine the relationship between children's microstructural and macrostructural language skills.

**Measure:** The Narrative Scoring Scheme (NSS) was developed to create a metric that documents the different skills needed for school-age children to tell a coherent and compelling story. As a hybrid measure, the NSS combined features of story grammar analysis as well as higher-level narrative skills (i.e., mental states, character development, and cohesive ties), to examine a total of seven skill areas. These seven scores are combined to provide a single composite score, which is an overall indicator of the child's narrative ability.

**Method:** The participants included 129 typically developing children between 5-7 years old, with no history of language impairment and/or learning disability. Most participants were native English speakers, however, a small percentage of participants were Spanish/English bilingual and designated as “fluent English.” A narrative retell was collected from each participant using Mayer’s (1969) wordless picture book *Frog, Where Are You?* Each participant listened to a taped version of the story while following along with the pictures, and was then asked to retell the story using the book as an aid. Using the retell transcriptions, a score of 0-5 was assigned for each of the seven categories to complete the NSS.

**Results:** The results of the NSS were correlated with other language sample measures, including number of total words (NTW; a measure of productivity), number of different words (NDW; a measure of lexical diversity), and mean length of C-unit (MLCU; as a measure of general grammatical skills). All correlations between the NSS, children’s age, and each of the microstructural measures were found to be significant and moderately strong. A series of hierarchical regression equations demonstrated that vocabulary was the most significant and unique microstructural variable in predicting the children’s story organization skills on the NSS.

**Conclusions:** The results revealed a close relationship between the children’s productivity, vocabulary, grammar, and narrative macrostructure skills, as well as a significant correlation between the children’s age, each of the microstructural elements, and their narrative organization skills. Age showed the weakest correlation with NSS scores; in other words, the children’s vocabulary and grammar skills were more closely associated with their narrative macrostructure scores than their age. This study produced one novel finding: the only unique predictor of narrative organization was the children’s productive vocabulary skills.

**Relevance to the current work:** This study examined the clinical utility of a comprehensive narrative macrostructure measure (the NSS) to assess story retell abilities.

Jones, S. T. (2015). *Story generation in five school-aged children with language impairment*. (unpublished Master’s thesis), Brigham Young University, Provo, UT.

**Purpose of the study:** This study examined the story generations of children with LI, as part of a larger intervention program designed to improve social communication.

**Method:** The participants included five children between the ages of 5-10 years with a diagnosis of LI. Treatment sessions were held twice a week for 20 minutes. Six books from the Mercer Mayer Frog series were used to elicit story generation during sessions. During the baseline, follow-up, and approximately half of the intervention sessions, participants were presented with one book and asked to generate a story about the book independently, with no cues from the clinician. The story generations were transcribed and analyzed according to system similar to the Edmonton Narrative Norms Instrument (ENNI), with an added analysis of emotion words.

**Results:** There was a high degree of variability among participants, however participants generally used descriptive phrases to present the events of the stories, and they produced shorter

stories in the second and third story generations. One of the five participants demonstrated a steady increase in the production of episodic elements over time.

**Conclusions:** The results indicated that the story generation task was difficult for the participants. The results also demonstrated that the participants had difficulty recognizing, labeling, and interpreting the emotional content of the books used in the task.

**Relevance to the current work:** This study examined the story generation abilities of children with LI, using wordless picture books to elicit the retells. The current study also examined this skill in school-aged children with LI, using different materials and the ENNI to analyze narrative macrostructural elements.

Klecan-Aker, J. S., & Kelty, K. R. (1990). An investigation of the oral narratives of normal and language-learning disabled children. *Journal of Childhood Communication Disorders*, 13(2), 207-216.

**Purpose of the study:** The aim of this study was to compare the developmental levels of the narratives of typical fourth-grade children and children with language-learning disabilities.

**Method:** Participants included 20 fourth-grade students (9-10 years of age), 10 of which had normal language and 10 of which were classified with a language-learning disability. Each participant was individually shown an eight-minute film and then asked to tell the examiner the story about the film while the examiner provided limited cues and questions. The story structure was then analyzed according to the Klecan-Aker et al. (1987) adaptation of Applebee's (1978) developmental levels.

**Results:** The children with typical language development produced primitive narratives, focused chains, and true narratives, with true narratives produced most frequently. The children with language-learning disabilities produced only sequences and primitive narratives, with primitive narratives produced most frequently.

**Conclusions:** The participants with language-learning disabilities told less complex stories. It was noted that the typically developing children used a greater number of story grammar components, and that children with language disabilities had more difficulty with memory and recall of the provided story structure. The authors acknowledged two major limitations of the study: only one type of stimulus was used to elicit the stories, and the sample size was small.

**Relevance to the current work:** This study examined the differences in narrative ability between typically developing children and children with language-learning disabilities. This study also supported use of the Klecan-Aker, McIngvale and Swank (1987) story level adaptation, which combined the research of Applebee (1978) and Stein & Glenn (1979) into a single coding system.

Lahey, M. (1988). *Language disorders and language development*. New York, NY: Macmillan Publishing Company.

**Purpose of the work:** This book addressed the definition of language (including content, form, use, and their integration), language disorders, language development, and language intervention. Chapter 11 outlined goals for language development into the school years.

**Summary:** Chapter 11 described the developmental sequence of narrative productions according to a logical-temporal structure (a content/form analysis), and presented information on the developmental changes regarding narratives. The narrative analysis used involved an examination of sentence relations to derive categories to describe those relations. The developmental sequence presented in this chapter involved four levels (with sublevels) of increasing complexity: additive chains, temporal chains, causal chains, and multiple causal chains. Lahey also described the subcategories of causal chains: setting, complication, internal response, attempts, consequence, and reactions.

**Conclusions:** Lahey stated that the narratives produced by preschool children are generally additive or temporal chains, while older children (7-8 years old) use causal and multiple causal chains more frequently (although they produce all narrative levels). Lahey also concluded that the developmental sequence children use in narratives begins with additive, then temporal, then causal relations between events.

**Relevance to the current work:** This chapter outlined (among other things) Lahey's scheme for analyzing story macrostructure through different narrative levels of increasing complexity, as well as the children's narrative development.

Longmore, E. (2016). *The effects of a social communication intervention on the production of emotion words for children with language impairment*. (unpublished Master's thesis), Brigham Young University, Provo, UT.

**Purpose of the study:** This study examined the production of emotion-based words as an indicator of emotional competence. This study was part of a larger social communication intervention for school-age children.

**Method:** The participants included five participants diagnosed with LI, between 6-10 years old. This study utilized a single subject, multiple baseline design to evaluate the intervention. Each participant received baseline, intervention, and follow-up sessions, during which they were presented with a wordless picture book from the Mercer Meyer Frog series. Each session included a story retell from the previous session, exploration of a new story with clinician support, interactive role-play of the new story, followed by a journal entry with writing or drawing a summary of the events and social concepts presented in the story. Each session was recorded and coded for the production of words within the following emotion categories: happiness, sadness, anger, surprise, fear, and disgust. Preliminary probes revealed that the participants had good command of the happiness and sadness categories and little knowledge of the disgust category, so these categories were excluded from further analysis.

**Results:** There was great variability between participants, however each participant produced gains within at least one emotion category during the intervention, Three of the five

children demonstrated gains in the mean production of emotion-based words within a supportive context for at least two emotion categories. Participants demonstrated the largest gains in the production of words in the fear category.

**Conclusions:** Despite the variability between participants' performance during the intervention, the results demonstrated gains for each participant in at least one emotion category. The effectiveness levels of the emotion categories varied from participant to participant, however the intervention revealed encouraging results regarding an effective context for learning emotion words.

**Relevance to the current work:** This study examined the production of emotion words during the story generations of five school-aged children with LI. The current study included a few of the same participants but in a different analysis of story grammars.

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

**Purpose of the study:** In the present study, the authors examined the overall quality of oral and written narratives produced by children with and without language disorders (LD). Narrative quality included both quantifiable elements (e.g., appropriate organization) and less quantifiable elements (e.g., interest, clarity). Holistic scoring considered both elements to rate the overall quality of narratives. The researchers also studied the relationships between holistic judgments of quality and structural analyses of form and content at the sentential and textual levels of discourse. Samples were segmented into T-units and transcribed.

**Method:** Participants included 40 school-aged children, 10 of which had LD. Each of these students was matched with three same-sex students of typical development, in order to create four groups of ten students: the group with LD, the age-matched (AGE-M) group, the language-matched (LANG-M) group, and the reading-matched (READ-M) group. Each participant produced two spoken and two written stories based on visual stimuli. Myers (1981) holistic scoring procedure was used to assess the overall quality narrative quality.

**Results:** Students with LD (and their reading- and language-matched peers) received significantly lower holistic scores for overall quality of narratives in both spoken and written modalities than their age-matched peers. The results showed a correlation between holistic scores and textual level measures of form and content, but not with sentential measures of form and content.

**Conclusions:** Students with LD produced narratives that were both structurally less complex and of poorer quality than those of their age-matched peers. Traditional school-age intervention has been focused on sentence-level language. However, as indicated by the results of this study, careful attention to textual-level targets of form and content may contribute to improved narrative quality for children with language disorders. Clinicians might achieve greater impact on the overall quality of their students' narratives by attending to textual-level elements

of length and episodic organization, as well as qualitative elements like charm, interest, and clarity.

**Relevance to the current work:** This research examined the overall narrative quality of children with and without LD.

Merritt, D. D., & Liles, B. Z. (1987). Story grammar ability in children with and without language disorder: Story generation, story retelling, and story comprehension. *Journal of Speech and Hearing Research*, 30(4), 539-552.

**Purpose of the study:** The purpose of this study was to examine the cognitive structures in the narratives of school-aged children with LI compared with those of typical children. This study examined children's use of story grammar in story generation, story retelling, and story comprehension. By age 9, typically developing children are able to generate, retell, and comprehend stories with the primary components of story grammar. Children with LI have deficits in narrative ability and difficulty formulating and producing spoken language, which negatively impacts their academic and social success. Stein & Glenn (1979) have described a set of story grammar rules in which story components are linked together to create the story. The most salient unit of story analysis is the episode structure. Stein (1979) described a complete episode "as a behavioral sequence containing (1) some reference to the motivation or purpose of the character's behavior (an initiating event or an internal response); (2) an overt goal-directed action (an attempt) and; (3) the attainment or nonattainment of the goal (a direct consequence)" (p. 539). These three components are crucial to the complete episode structure. Story grammars have been widely used to study story retelling in typical school-age children.

**Method:** An adapted Stein and Glenn's (1979) story grammar model was used to analyze the children's stories and responses. Participants consisted of 40 children between the ages of 9;0 and 11;4 (22 boys, 18 girls). Twenty children had a mild to moderate language impairment and were age- and gender-matched with a control group of 20 typically-developing children. Three "story stems" were chosen as stimuli for the story generation task because they provided minor initial story structure to evoke the rest of the story. Each participant completed each of the three story tasks in one sitting.

**Results:** Results indicated no significant correlations between age and the dependent variables for story generation, story retelling, or story comprehension. A significant correlation for both story generation and story retelling indicated that the children with LI generated significantly fewer of the six story grammar components and fewer complete episodes than the control group. In the story retelling task, the children with LI provided a significantly reduced mean number of main and subordinate clauses per complete episode than the control group. Although the hierarchy of story components differed slightly between the groups, in story generation both groups used initiating events most frequently, followed by direct consequence. In story retelling both groups retold attempts most frequently, followed by initiating events and direct consequences. In story comprehension, the control group scored significantly better on story grammar questions than did the children with LI. Results also indicated that children with LI talked less than the control group when given a story model.

**Conclusions:** The control group produced more complete episodes and more story grammar components than did the children with LI for both story generation and story retelling tasks. Although both groups of children produced complete and incomplete episodes in both story tasks, the children with LI organized their episodes into incomplete units more often than the control group. Generally, the children with LI generated stories with multiple initiating events with few causally linked attempts, but without a logical ending or direct consequence information (thus creating an incomplete episode). “Because few causal links were established in the story, the listener questions who did what to whom and with what motivation,” (p. 546). The children with LI also most often emitted direct consequence statements in story retelling. Both groups of children correctly answered about 6/8 factual story comprehension questions, but the children with LI exhibited difficulty with questions assessing the relationship between story grammar components. These findings indicated that the children with LI demonstrate a less effective use of story grammar organization.

**Relevance to the current work:** This study examined the story grammar components in narratives of children with LI compared with typical children on story generation, story retelling, and story comprehension tasks.

Norbury, C. F., & Bishop, D. V. M. (2003). Narrative skills of children with communication impairments. *International Journal of Language and Communication Disorders*, 38(6), 287-313.

**Purpose of the study:** The purpose of this study was to explore the relationship between language and pragmatic ability in narratives in typically developing children and children with communication impairments. Norbury & Bishop reviewed investigations of narrative ability in typically developing children and in three groups of children with communication impairment (ASD, SLI, PLI).

**Literature Review:** Norbury & Bishop described three main approaches to analyzing narrative, including global structure, local sentence structure, and use of evaluation. Global structure refers to the narrator’s ability to hierarchically organize the main story elements. Children most often encounter narratives with three essential elements of global structure: the initiating goal/problem, the attempts to achieve the goal, and the overall outcome. Analysis of local structure refers to syntactic complexity, sentence productivity, and referential cohesion. Evaluative comments can be used in children’s narratives to help explain the cause and consequences of story events. Adults use significantly more evaluative devices than children.

**Method:** Participants included fifty children with language impairments, age range 6-10 years, were recruited from residential schools and units attached to mainstream schools. Participants included 17 children with SLI, 21 children with PLI, and 12 children with high functioning autism (HFA). Additionally, 18 typically developing children of comparable age were recruited from state primary schools and represented a wide range of social backgrounds. A wordless picture book was used to elicit narratives from each participant. The child looked through the book once, and then began at the beginning and told the story aloud.

**Results:** The stories were analyzed for a global structure measure, three measures of local structure (story length, syntax, semantics, and cohesion), and an evaluation measure. There were no group differences on the global story structure measure. There were differences between the control group and the children with impairments on the syntactic measures.

The control group made fewer tense errors and used more complex sentences than the children with SLI and HFA. The groups with SLI and HFA generally introduced characters with either an indefinite or definite noun. When reintroducing a character, children in all groups preferred to use a noun phrase. However, children in all groups preferred to maintain a reference with a pronoun.

**Conclusions:** The authors found modest support for their hypothesis that language ability is the key determinant of narrative competence. They reported robust relationships between syntactic complexity and frames of mind references in all groups. The HFA group differed from the other groups with respect to referencing, in producing ambiguous nouns and pronouns. The authors concluded that narrative assessment provides needed information about a child's linguistic, pragmatic, and cognitive abilities, but that better normative data is needed to make comparisons.

**Relevance to the current work:** This study examined the narrative skills of children with communication impairments, including measures of global structure and syntax.

Page, J. L., & Stewart, S. R. (1985). Story grammar skills in school-age children. *Topics in Language Disorders*, 5(2), 16-30.

**Purpose of the study:** This article provided an overview of story grammars and how children learn and use story grammar to comprehend and produce stories.

**Summary:** This article summarized the role of story grammars in everyday speech tasks and the development of story grammars in typically developing children. The authors also presented the difficulties children with language impairments may experience in using story grammar to process and produce narratives. The authors discussed assessment of children's ability to process and produce stories by examining story grammar. The authors concluded by presenting remediation procedures for story structure instruction to facilitate children's comprehension and production of stories. Three strategies for training the use of story grammars include: (a) continued exposure to stories and questions related to story grammar, (b) improving prediction skills through understanding cause-and-effect relationships, and (c) explicit training to use story grammar as an organizational strategy.

**Conclusions:** Stories are an integral part of daily life. All people (including children) are continuously exposed to stories, which provide important information about language and the world. Story grammar is one construct used for comprehending and producing stories. This article highlighted the lack of clear procedures for analyzing story grammar, since many variables can influence children's performance on these assessments. Instruction in story grammar can provide a framework for organizing content and facilitate children's comprehension and production of stories. There is some disagreement, however, about the most effective procedure for training these skills.

**Relevance to the current work:** This overview provided insight into the role of story grammar and its usefulness in evaluating the narrative skills of children.

Paul, R., & Norbury, C. F. (2012). *Language disorders from infancy through adolescence: Listening, speaking, reading, writing, and communicating* (4th ed.). St. Louis, MO: Mosby Elsevier.

**Purpose of the work:** This book addressed (broadly) child language disorders, assessment, and intervention, across the span of language development (from birth to adolescence). Chapter 10 addressed language in the school setting and Chapter 11 addressed language assessment, both of which were of particular interest when writing the introduction of the current paper.

**Summary:** Chapter 10 described the SLPs role in early intervention, the roles and responsibilities of school-based SLPs, and the legislation and implications that govern practice in schools. This chapter described the phonological, syntactic, semantic, pragmatic, and social/emotional characteristics of school-aged children with language and learning disabilities (LLD). Chapter 10 summarized the difficulty children with LLD have in understanding, recalling, and producing stories, as well as their development of narrative skills. This chapter also described the link between oral language, learning, and literacy, and strategies for promoting literacy through support and instruction.

Chapter 11 described (among other things) methods of standardized and non-standardized assessment, language analysis procedures, and dynamic assessment methods. This chapter described the pragmatics of narrative, including comprehension and inferencing and narrative production, as well as the difficulties of children with LLD with narrative tasks. The authors listed several schemes for analyzing narrative macrostructure as a way to assess the level of narrative maturity in children with LLD.

**Conclusions:** In Chapter 10, the authors concluded that proficiency with oral and written language matters for literacy and success in school. In Chapter 11, the authors concluded that when assessing students in the “language for learning” stage (5-10 years old), it is important to investigate how they process and use language in the classroom environment.

**Relevance to the current work:** These two chapters summarized the difficulties that school-aged children with LLD have with narratives, and various systems for assessing narratives.

Peterson, D. B. (2011). A systematic review of narrative-based language intervention with children who have language impairment. *Communication Disorders Quarterly*, 32(4), 207-220.

**Purpose of the study:** The purpose of this study was to provide a review of research articles (from nine studies that met inclusion criteria) that assessed the outcome of narrative-based language intervention for preschool and school-age children with language impairment.

**Method:** The researchers searched electronic databases using various combinations of specific search terms related to narrative language intervention to find appropriate studies to include in this systematic review. The research studies considered were conducted between 1980 and 2008, and nonexperimental case studies were not included. The researchers classified the dependent variables of each study as either relating to narrative macrostructure or microstructure. After the researchers reviewed 3,958 article titles and narrowed the investigation to 208 article abstracts and/or full articles, they found a total of nine research studies that met the inclusion criteria.

**Results:** The researchers provided a summary of the nine studies under review, along with study quality appraisals that denoted the level of confidence that could be placed in the causal nature of the interventions. The researchers found moderate to large effect sizes for narrative macrostructure however, no clear connection between the outcomes and procedures/materials used could be established. Almost all of the studies also reported moderate to large effect sizes for narrative microstructure. The one intervention that did not result in significant improvement in narrative proficiency was only implemented for 60 minutes total, whereas the other interventions were implemented for 320 total minutes or longer.

**Conclusions:** This comprehensive review revealed significant improvements in narrative macrostructure (as well as some aspects of microstructure) in response to narrative intervention focused on macrostructure and repeated story retellings. All but one of the studies demonstrated moderate to large effect sizes for narrative macrostructure and microstructure. The researchers reported multiple threats to internal validity and advised caution in interpreting the results of these studies. Further research is needed to assess the outcomes of narrative-based language intervention.

**Relevance to the current work:** This article is a systematic review of narrative language intervention studies with children with LI. Each of the studies examined required participants to retell and/or generate narratives, although the procedures and materials varied.

Sáenz, L. M., & Fuchs, L. S. (2002). Examining the reading difficulty of secondary students with learning disabilities. *Remedial and Special Education, 23*(1), 31-41.

**Purpose of the study:** The purpose of this study was to identify the differences between the reading performances of students with learning disabilities on narrative and expository text.

**Method:** Participants included 111 high school students recruited from 20 different remedial and special education reading classrooms. Students were identified with LD and had estimated reading grade levels between Grades 2 and 6. Four narrative and four expository passages were used to assess reading performance and reading fluency.

**Results:** During a 2-minute reading sample, students read a greater number of words correctly on narrative than they did on expository passages. Results revealed a significant effect for text type and question type, and a significant effect between text types for inferential questions. The students' literal comprehension on narrative and expository passages was similar, but inferential comprehension was different.

**Conclusions:** Secondary students with LD had more difficulty with expository reading than with narrative reading. These students read expository text less fluently and had poorer inferential comprehension than with narrative text. A high correlation has previously been established between reading fluency and reading comprehension. These students may benefit from instruction with expository reading materials.

**Relevance to the current work:** This work compared the reading performances of students with LD on narrative and expository text, while the current work examined the production of narratives in intervention for children with LI.

Schneider, P. (1996). Effects of pictures versus orally presented stories on story retellings by children with language impairment. *American Journal of Speech-Language Pathology*, 5(1), 86-96.

**Purpose of the study:** The purpose of this study was to compare the story retellings of children with language impairments (LI) when presented with different stimuli (orally, pictorially, and both). The authors summarized the existing literature of picture stimuli effects, suggesting that stimuli medium can affect children's narratives differently.

**Method:** Participants consisted of 16 children, ages 5;7 to 9;9, who attended a school within a rehabilitation hospital. The participants had been previously identified as having LI. Four stories in both oral and pictorial form were prepared, with each story containing the same main character and one secondary character that differed for each story. Each child received four stories in one of four conditions: pictures-only, oral-followed-by-pictures, oral-with-pictures, or oral-only.

**Results:** Three types of measures (of length, of content, and discourse measures) were used to analyze the stories. The story retellings were all coded for these measures using the SALT program. None of the measures of length revealed significant differences among the story conditions. For measures of content, results indicated a significant effect for the total number of story grammar units included in the retell (oral-only condition elicited the most SG units, and pictures-only elicited the fewest). The oral-only condition elicited more complete episodes. The children's 2 narrations (to naïve and non-naïve listeners) were compared and did not show adjustment based on mutual knowledge with the listener.

**Conclusions:** In this study, the best stories were produced when the children listened to the stories without pictures. The stories with the least story grammar information and most extraneous information were produced in the pictures-only condition. The implications for clinical use are to include both oral-only and pictures-only conditions, which will reveal different information about a child. With oral stories, the essential information and linguistic structure is provided, so the task is to recall and retell the story. With pictures only, the child must translate from a visual to oral modality and actively apply knowledge about good story formulation (which gives children more opportunity to be creative or to deviate from an ideal story). The use of a naïve listener ensures the need for maximum explicitness in storytelling.

**Relevance to the current work:** This study examined children's (including children with LI) story retellings based on oral vs. pictorial conditions.

Schneider, P., & Hayward, D. (2010). Who does what to whom: Introduction of referents in children's storytelling from pictures. *Language, Speech, and Hearing Services in Schools, 41*(4), 459-473. doi:10.1044/0161-1461(2010/09-0040)

**Purpose of the study:** The purpose of this study was to investigate children's ability to provide referential cohesion and referring expressions in stories. The authors developed First Mentions (FM), a scoring system to measure the development of referential cohesion in storytelling from ages 4 to 9, and to reveal differences between groups of children with and without LI.

Linked references connect the text in referential cohesion and referring expressions are used to introduce a referent and refer to the same referent throughout the story. Young children tend to use less adequate forms to introduce referents; around age 9, a child's ability to introduce referents in simple stories resembles that of adults, and this skill continues to develop for some time. The authors summarized previous studies attempting to quantify differences between children with and without language impairment.

**Method:** Participants included 377 children ages 4 through 9 whose stories form the ENNI database. Per age group, there were 50 typically developing children and somewhere between 10-17 children with LI. Stimuli included the two story picture sets of the ENNI. Each story set contained three picture stories of increasing complexity and referential difficulty. Each child was presented with each story, one page at a time, and then asked to tell the story while looking at the pictures again. The examiner was blind to the pictures. The authors developed a scoring system (FM) for the measure with each of 14 targeted referents receiving a score from 0 to 3 (a score of 3 for fully adequate referring expression for its context, down to a score of 0 when referents were omitted). Scoring was dependent on the appropriateness of the linguistic form for first mention, rather than on the use of a particular term. The authors compared their scoring system (FM) with referential adequacy (RA) scoring, which has been used in previous studies.

**Results:** Data analysis revealed significant main effects for age, showing that the FM measure revealed development in adequacy of referent introduction from ages 4 to 7. There were also significant main effects for language between children from 4 to 8 years, with and without LI. The FM measure provided higher effect sizes than did the RA measure as well as an interaction between age and language, and differences among the younger age groups.

**Conclusions:** FM scores indicated that for fairly simple stories, children's ability to use adequate referring expressions appeared to be mastered by the majority of children at age 7. The results also highlighted differences in children of different language abilities beyond age 7, suggesting that children with LI caught up to their typically developing peers in their referring abilities by age 9. Older children achieved higher scores than younger children on referent introduction, and children with TD had higher scores than children with LI of the same age. Advantages of FM scoring included focusing on referential cohesion, focusing on adequacy of expressions rather than mastery of linguistic forms, and facilitating the qualitative analysis of

referential error types for intervention planning. These data suggested that FM measures may be a better measure of referential cohesion than RA measures, as FM scoring appeared to better reflect the quality of referent introduction.

**Relevance to the current work:** This work evaluated referential cohesion and the use of referring expressions in the stories of children with and without language impairment. Similarly, the current study examines the story grammar (including referring expressions) in children with LI. Stimuli for both studies were the two story picture sets of the ENNI.

Schneider, P., Hayward, D., & Dubé, R. V. (2006). Storytelling from pictures using the Edmonton Narrative Norms Instrument. *Canadian Journal of Speech-Language Pathology and Audiology*, 30(4), 224-238.

**Purpose of the study:** Stories are used in everyday interactions and serve as a bridge between oral and written language styles. Story tasks tell about a child's ability to use discrete language to communicate, as tasks require children to use purposeful combinations of words and sentences. Children with learning disabilities have an impaired ability to produce and understand stories. Story tasks predict academic achievement and discriminate between typical children and children with impairments in a functional language context. This article describes the development of the Edmonton Narrative Norms Instrument (ENNI). The current study investigated whether story grammar units (SGU) used with the ENNI data would provide a useful measure of storytelling development from ages 4 to 9, and the ability of SGU to distinguish developmental changes in story production between children with and without language impairments. The present study examines four research questions: (1) Are developmental trends evident in the data for amount of story grammar information? (2) Are there differences between the groups in the amount of story grammar information included in children's stories within each age group? (3) Do story grammar scores discriminate between children with and without language impairments? (4) Do story grammar scores correlate with a standardized test of language?

**ENNI:** ENNI was developed to collect local norms using designated story stimuli. This picture-based instrument requires children to formulate stories from pictures, which reveals children's ability to generate a story rather than recall a story generated by another person. Because picture story tasks challenge children's independent abilities more than story recall tasks, these tasks may detect problems that may not be evident otherwise. The story grammar model describes the basic components essential to "good" stories, which older children and adults typically include in storytelling. "Stories consist of sets of sequentially related categories of units and each category refers to different types of information that serve specific functions in the story," (p. 225). Within this model are two major components: structural patterns outline the overall content and organization of stories, and story grammar units are the information categories that typically occur in a certain order within episodes. Experimental evidence supports the story grammar model as a "valid representation of how individuals organize story information in order to encode, understand, and retrieve stories," (p.226).

**Method:** Participants included 300 children with typical development and 77 children with language impairments, including SLI (ages 4-9). Materials included six original picture sets

with animal characters, used to elicit stories at three levels of narrative complexity. When administering the storytelling task, the examiner informed the child of the instructions and emphasized that the examiner would not see the pictures so the child needed to tell a good story for the examiner to understand it. The examiner first showed the child all the pages of the story and then turned through the pages again as the child generated a story. The child was first given a training story to make the procedure familiar and allow more prompts to encourage storytelling. For the sets A and B stories, the examiner was restricted to more general assistance. Later, the CELF-P or CELF-3 test or subtests were administered. Two ENNI stories (one simple, one complex) from Set A were used in the Story Grammar analysis. SG units of Initiating Event, Attempt, and Outcome three were considered core units and as such were awarded more points. The SG measure was the total points awarded for SG units included in the story.

**Results:** Trend analysis for the simple and complex stories revealed a significant linear trend, which suggested an increase in scores with increasing age. A *t* test analysis revealed that children with TD scored significantly higher than did children with SLI for both the simple and complex stories, except for both stories at age 9 and the simple story at age 7. Discriminant analysis revealed 83.6% specificity, 70.1% sensitivity, and 80.8% of children correctly classified with TD or SLI overall. These analyses were used to provide evidence of construct validity. Correlations with CELF scores suggest a degree of concurrent validity for ENNI.

**Conclusions:** The trend analysis indicated that SGU can provide information about the development of storytelling in younger children. SGU scores did not increase for older children, but this cannot be interpreted to mean that storytelling skills are fully acquired by age 8. The discriminant analysis indicated that the SG measure would not be independently sufficient to identify language impairment at any age. The results of the current study suggest that the prevalence of storytelling problems within the population of children with language impairments is around 70% (an initial estimate). The authors noted that 16% of the children in the study with TD were misclassified using SG scores, indicating that some children without known language difficulties provided limited story details.

**Relevance to the current work:** This article described the development of the ENNI, as well as evidence for its validity and reliability and limitations of the findings. The current study examined the storytelling skills of children with typical development and children with language impairments. The children were shown pictures and then asked to formulate a story using the pictures, without the examiner seeing the pictures. The results indicate that the ENNI could be beneficial in discriminating between children with language impairments and those with typical development, and in identifying which aspects of language use are impaired. The authors suggest that during initial assessment of language impairment it is necessary to use other measures of language as well.

Stein, N. L. (1979). How children understand stories: A developmental analysis. In L. Katz (Ed.), *Current topics in early childhood education* (Vol. 2, pp. 261-290). Norwood, NJ: Ablex

**Purpose of the paper:** The goal of this paper was to discuss children's comprehension of complex linguistic information (i.e., a story), evaluation of comprehension, and techniques for teaching comprehension.

**Summary:** Stein provided a review of previous research on children's comprehension of stories, from a linguistic and anthropological view and a psychological view. Stein outlined the development and basic assumption underlying story grammars. A simple, single episode story contains a setting plus an episode structure, which includes a sequence of five categories (initiating event, internal response, attempt, consequence, and reaction). The episodes in a multiple episode story structure are connected by either a *then*, *cause*, or *and* relationship, however the types of relations depend upon the inferences made by an individual while processing and organizing story information. Children have little difficulty recalling the temporal order of events in a well-formed story if the story sequence corresponds to the expected sequence. Several studies show that the expected story sequence (story grammar model) correlates with an adult's perception of a "good" story. Stein summarized the previous research on how children understand and organize category deviations from the expected story sequence.

**Conclusions:** This paper illustrated the usefulness of a story grammar approach to comprehension of stories. Listeners expect stories to contain certain types of information that occurs in specific types of temporal sequences, and story recall decreases if information is missing. When stories deviate from the typical schema, listeners add new information during story recall to coincide more with the expected sequence. Children's stories increase dramatically in structural complexity with age. Stein outlined the limitations of current research and the need for further studies of children's story comprehension and use of story grammars.

**Relevance to the current work:** This paper outlined the development of story grammar its usefulness in comprehending stories.

Stein, N. L. & Glenn, C. G. (1979). An analysis of story comprehension in elementary school children. In R. O. Freedle (Ed.), *New directions in discourse processing*, (pp. 53-120). Norwood, NJ: Ablex.

**Purpose of the study:** The purpose of this study was to collect recall data on several stories representative of those found in children's literature. Experiment 1 examined the effects of age and time on the recall and organization of stories, and the category distinctions formulated in the story grammar. Experiment 2 investigated other aspects of story processing, including statements of importance and cause-effect relationships in stories.

**Method:** Experiment 1 included 48 children in the first and fifth grades. The children were randomly divided into two groups of 12 subjects from each grade level. The children in Group 1 were told 2 stories and the children in Group 2 were told 2 different stories. Immediately following the first story presentation, a brief time lapse took place before the children were asked to retell the story exactly as they heard it. The second story was then presented in an identical fashion. The children were asked to recall both stories again one week later. Each was scored for the total number of accurately recalled units. Experiment 2 included 24 children in the first and fifth grades, and the same four stories were used. A set of 12-13 probes, phrased as 'why' questions, was constructed for each story. Each child heard all four stories, with a brief time lapse immediately following each story, followed by questions about

the three most important details of the story. Following all four stories, the experimenter asked the probe questions for each story.

**Results:** The results from Experiment 1 indicated significant developmental differences on total recall, recall of internal responses, and the number of inferences added to recall. Older children included more of each type of information on recall than did the younger children. In all stories, the setting was best remembered, followed by the initiating event and direct consequence. Internal responses were consistently added (rather than recalled), indicating children's awareness of characters' feelings, thoughts, and goals. The results from Experiment 2 revealed that, compared to the first graders, the fifth graders produced more statements per importance judgment, and often connected their statements with causal or temporal connectors. Fifth graders provided significantly more internal responses than did the first graders.

**Conclusions:** These results provided evidence for the usefulness of the story schema for defining story information and predicting the importance of information categories in recall.

**Relevance to the current work:** This study provided information about the types of organizational processes (including story grammar) used during story encoding and retrieval. The authors presented the story schema used in story analysis and provided definitions and examples of the story grammar categories (i.e., setting, initiating event, attempt, etc.).

Ukrainetz, T. A. (2015). Telling a good story: teaching the structure of narrative. In T. A. Ukrainetz (Ed.), *School-age language intervention: Evidence-based practices* (pp. 335-377). Austin, TX: PRO-ED, Inc.

**Purpose of the work:** This chapter addressed three ways of targeting narratives in intervention: story grammar, cohesion, and story art.

**Summary:** This chapter began with a discussion of the importance of narratives, including the distinctive features of narrative discourse and the focus on narratives in school. The author described some of the difficulties children with LI encounter with narratives. The author then described three types of analysis systems, including story grammar analysis, cohesion analysis, and story art analysis. The author then shifted her focus toward the tools of narrative intervention, and she ended the chapter with a discussion of teaching narrative structure.

**Conclusions:** The author concluded that narratives are very important for learning both at home and school, and that narrative competence is necessary for academic success. The author presented research which shows that children with LI struggle with narrative tasks. The author addressed how children may be taught to independently tell whole stories with improved story grammar, cohesion, and story art.

**Relevance to the current work:** Ukrainetz summarized the difficulties that children with LI have with narratives, and described story grammar analysis (among other analysis systems).

Westby, C. (2004). Assessing and remediating text comprehension problems. In H. Catts and A. Kamhi (Eds.), *Language and reading disabilities* (2nd ed., pp. 157-232). Boston, MA: Allyn & Bacon.

**Purpose of the work:** In this chapter, Westby discussed how language abilities, schema knowledge, and metacognitive processing function in comprehending narrative and expository texts, with a focus on assessment and remediation of deficits in those areas.

**Summary:** This chapter began with a discussion of the information used in text comprehension (content facts, content schemata, and text grammars), and a comparison between narrative and expository texts. Westby then described the metacognitive abilities necessary for text comprehension. The chapter then shifted to address the assessment of language and cognitive skills for text comprehension (including literate language style, schema knowledge, and metacognitive processing). Westby included a summary of the development of narrative structure and the development of narrative contents (world knowledge that underlies narrative structure) from preschool to adolescence/adulthood. Westby introduced a binary decision tree as an analysis of story grammar, which included reading through a child's story and a series six questions to characterize the story according to the relations between events and goal-directed behavior. Westby concluded this chapter with a discussion of facilitating text comprehension and metacognition throughout children's narrative development.

**Conclusions:** Text comprehension is essential for students to become independent learners. Facilitating student's text comprehension requires an understanding of the linguistic and cognitive concepts that occur in texts, as well as development of metacognitive monitoring strategies.

**Relevance to the current work:** Westby discussed narrative structure and development (including that of story grammars), and proposed a decision-tree structure as another type of macrostructural analysis, which assessed the maturity of narrative organization.

## Appendix B

### Participants' Scores on the CELF-5

*Participants' Scores on the Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel, Wiig, & Secord, 2013)*

CELF-5 Scaled Scores						
Participant	Age	Sentence Comprehension	Word Structure	Formulated Sentences	Recalling Sentences	Core % Rank
JS	5;11	8	6	6	4	7

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Participant	Age	Word Classes	Formulated Sentences	Recalling Sentences	Semantic Relationships	Core % Rank
MG	9;11	4	6	6	2	2
ALK	10;1	7	6	7	5	8
SS	9;7	7	3	4	4	2
JRS	11;3	2	3	2	4	0.2

*Note:* The participants' ages in this table reflect their age when the CELF-5 was administered, previous to this study.

## Appendix C

### ENNI Story Grammar Scoring Sheets

#### Story Grammar Scoring Sheet for Story A1

Child's Name: \_\_\_\_\_ Age: \_\_\_\_\_ Date: \_\_\_\_\_

SG Unit	<i>Acceptable [child need only have one alternative per unit to get credit for that unit]</i>	Score
Character 1	giraffe / male / boy (or any type of animal such as horse) [not acceptable: pronoun]	0 1
Character 2	elephant / female / girl (or any type of animal such as cow) [not acceptable: pronoun]	0 1
Setting	swimming pool had a ball / playing with ball / want to play ball	0 1
Initiating Event	ball goes in water/pool/sand/mud ball is in water they see a ball	0 2
Internal Response	one / both want to get ball elephant says, e.g., "look what happened," "what am I going to do?" E upset/sad [not: he/she/they want to go swimming]	0 1
Internal Plan	G decides to / thinks he will get the ball	0 1
Attempt	G jumps in pool / swims toward ball / tries to get ball [not: giraffe swimming (without goal); giraffe falls in water]	0 2
Outcome	G gets ball / gives ball to E [not: E gives ball to G, unless it is noted as unexpected, e.g., "but instead, E gets it and gives it to him"]	0 2
Reaction of Giraffe	G is happy / proud / smiles G says "you're welcome" G's teeth are chattering / G is cold/wet	0 1
Reaction of Elephant	E is happy / is grateful / says "thank you" E hugs the ball [not: holds/has the ball]	0 1
Reaction both/ unknown	"they" are happy / in love / are friends [code only as a replacement for Reaction of Character 1 or 2; there should not be more than 2 reactions total]	0 1
<b>Total Score:</b>		<b>/13</b>

### Story Grammar Scoring Sheet for Story A3

Child's Name: \_\_\_\_\_ Age: \_\_\_\_\_ Date: \_\_\_\_\_

<b>SG Unit</b>	<b>Acceptable [child need only have one alternative per unit to get credit for that unit]</b>	<b>Score</b>
Character 1	giraffe / male / boy (or any type of animal such as horse) [not acceptable: pronoun]	0 1
Character 2	elephant / female / girl (or any type of animal such as cow) [not acceptable: pronoun]	0 1
Setting	at swimming pool / going swimming / are playing has/is holding airplane / one asks other to play	0 1
Initiating Event	G playing with airplane / making airplane fly G shows/gives E his airplane	0 2
Internal Response	E wants / is interested in airplane	0 1
Internal Plan	E decides to take airplane	0 1
Attempt	E takes airplane / zooms airplane around / makes airplane fly/ G gives E a turn	0 2
Outcome	airplane falls in pool / E throws plane in pool	0 2
Reaction of Giraffe	G angry/yells/stares at plane	0 1
Reaction of Elephant	E feels bad/embarrassed/scared / E stares at plane / says oops	0 1
Reaction both/ unknown	“they” are unhappy [code only as a replacement for Reaction of Character 1 or 2; there should not be more than 2 reactions total]	0 1
Character 3 (C3)	lifeguard / other elephant / other female / her mother / her sister / other person	0 1
Initiating Event	C3 shows up / comes over / has net / C3 sees plane in water / asks what happened	0 2
Internal Response	C3 wants to help / knows how to get plane / offers to help	0 1
Internal Plan	C3 decides to try / has idea / says she will get it E/G asks C3 to get it	0 1
Attempt*	C3 reaches for plane / is going to get it / tries to get it C3 gets plane	0 2
Outcome*	C3 gives plane to G / G has plane	0 2
Reaction G	G is happy / amazed / excited / hugs plane / says thanks	0 1
Reaction E	E is happy / relieved / feels better / says thanks	0 1
Reaction C3	C3 is relieved / pleased	0 1
Reaction of both/ unknown	“they” are happy/excited / say thanks [code only as replacement for Reaction of another character; there should not be more than 3 reactions total]	0 1
<b>Total Score:</b>		<b>/25</b>

\*For this story and this episode, either her attempt to get the plane or her actually getting it qualify as the Attempt, while the Outcome is her giving the plane to the giraffe, because the goal of the episode is to get the plane back to the giraffe.

### Story Grammar Scoring Sheet for Story B3

Child's Name: \_\_\_\_\_ Age: \_\_\_\_\_ Date: \_\_\_\_\_

SG Unit	Acceptable [ <i>child need only have one alternative per unit to get credit for that unit</i> ]	Score
Character 1	rabbit / bunny / male / boy (or any type of animal such as mouse) [not acceptable: pronoun]	0 1
Character 2	dog / female / girl (or any type of animal such as hamster) [not acceptable: pronoun]	0 1
Setting	outside/ at park / walking / playing with wagon / balloon	0 1
Initiating Event	D has balloon	0 2
Internal Response	R wants / is interested in balloon	0 1
Internal Plan	R decides to untie balloon / get balloon	0 1
Attempt	R unties balloon	0 2
Outcome	R lets go of balloon / balloon flies away	0 2
Reaction of Rabbit	R feels sad / nervous / embarrassed / sorry / worried/ guilty	0 1
Reaction of Dog	D is angry / upset / mad	0 1
Reaction both/ unknown	“they” are unhappy / upset / worried [code only as a replacement for Reaction of Character 1 or 2; there should not be more than 2 reactions total.	0 1
Character 3 (C3)	doctor / other rabbit / other female / his mother	0 1
Character 4 (C4)	balloon man / other rabbit	0 1
Initiating Event	C3 shows up / comes over / R sees C3 / R asks C3 for a balloon / money / help	0 2
Internal Response	D/R hopes C3 will get balloon / C3 wants to help	0 1
Internal Plan	D decides to ask for balloon / money / explains what happened / C3 decides to help NOT: D talks to C3 (without specifying what about)	0 1
Attempt	C3 gives R money / pays for / buys balloon	0 2
Outcome	R and D get new balloons / have balloons / play with balloons / hold balloons	0 2
Reaction R	R feels happy / excited / is grateful / says “thank you”	0 1
Reaction D	D feels happy / excited / is grateful / says “thank you” / hugs balloon	0 1
Reaction C3	C3 is pleased / happy / says “you’re welcome”	0 1
Reaction of both/ unknown	“they” are happy [code only as replacement for Reaction of another character; there should not be more than 3 reactions total]	0 1
<b>Total Score:</b>		<b>/26</b>

\*Setting and IE should be determined based on context. Can count ‘balloon’ for both if the wording is obviously setting up the story.