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The Ability of Five Children with Language Impairment to Describe Mental State in Story
Narratives in Spontaneous and Prompted Conditions: Does It Help to Ask?

Naomi Asai

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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ABSTRACT

The Ability of Five Children with Language Impairment to Describe Mental State in Story Narratives in Spontaneous and Prompted Conditions: Does It Help to Ask?

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Master of Science

Numerous studies have shown that children identified with Language Impairment (LI) have marked difficulty with producing story narratives compared to their typically developing peers. One particular area of weakness seen in the narratives of children with LI is their ability to incorporate internal states, specifically internal response, internal plan, and emotion words. The current study examines five children with LI and their descriptions of mental and emotional states of characters in story narratives under spontaneous and prompted conditions. Participants produced story retells based on a series of wordless picture books taken from the Edmonton Narrative Norms Instrument. Story retells were elicited twice for each story, once with and once without verbal prompts. As expected, children produced more internal state story elements in response to prompts. As children produced more of these elements, however, their accuracy decreased, and the states they reported did not always reflect the story content. The children with LI showed limited understanding and ability to interpret the reactions, motivations, and emotions that characters experienced. However, verbal prompts did reveal children's current abilities and understanding of internal states.

Keywords: language impairment, school-age children, story narratives, story retells, story grammar, internal states, mental states, emotion-based words

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DESCRIPTION OF THESIS CONTENT

This thesis, *The Ability of Five Children with Language Impairment to Describe Mental States in Story Narratives in Spontaneous and Prompted Conditions: Does It Help to Ask?*, is part of a larger research project. It is presented in journal article format and abides by university format requirements for submission. This work may be included in future presentations or articles where the author is listed as co-author. Appendix A contains the parental permission form administered to parents before the study was initiated. Appendix B contains the results of the Clinical Evaluation of Language Fundamentals-5 (CELF-5) administered to all participants. Appendix C contains sample question prompts administered to participants. Appendix D contains a sample of the Edmonton Narrative Norms Instrument (ENNI) story grammar scoring sheets. Appendices E and F contain the scoring conventions for internal state expressions, specifically internal response, internal plan, and emotion words, used during the analysis of this study. Appendix G contains a sample coding analysis scoring sheet used during the analysis of this study. Appendix H contains an annotated bibliography.

Introduction

A story is much more than words describing a series of events. A story can involve the active participation of both listener and speaker, a social exchange of ideas, attitudes, and emotions. For example, a particular style of speaking and form of story-telling in Hawaii termed *talk story* illustrates the essence of story narratives and their vital role in cultivating relationships. Talk story emphasizes the affective involvement of participants in both transferring information and building and maintaining social relationships by “searching for and recognizing shared feelings” (White & Robillard, 1989, p. 198). Lindquist (2009) further described the overlapping informational and affective aspects of narration by stating, “language can be no more removed from emotion, than flour can be removed from an already baked cake” (p. 16). Norbury, Gemmell, and Paul (2014) explained that story narratives draw on a range of linguistic, social, and cognitive abilities, including the ability to access characters’ internal states and “establish and maintain perspectives of a range of characters” (p. 1). Because of this intertwining of narratives and emotions, including the intention and motivation behind them, it is crucial for children to develop the ability to understand and express mental states and emotion in storytelling. To understand the development of storytelling, it is important to consider how children structure stories as well as how they convey mental and emotional states within that structure. One way to accomplish this is to consider story grammar, especially the story elements that incorporate internal states and emotion.

Story Grammar

Story narratives are a type of discourse describing an interconnected sequence of events enacted by an agent in which plans and goals play a role throughout the course of the story (Norbury et al., 2014; Stein & Glenn, 1979). Story narratives come in diverse forms, varying in

length, level of complexity, and narrative style. Complex analyses of narrative structure have been created in an attempt to discover commonalities across different stories (Stein, 1978). Despite differences in many respects, these analyses all identify basic components in story narrative structure. The development of story grammars thus “illustrates an attempt to describe the general structural characteristics of stories” (Stein, 1978, p. 9) by describing predictable, stable, consistent patterns (Stein, 1978). Story grammar functions to guide the listeners in breaking down narrative content by analyzing key component parts in order to interpret meaning. Stories that contain key components or story grammar elements within an expected sequence are judged by adults and children to be “good” stories (Stein & Policastro, 1984).

Stein and Glenn's (1979) story grammar model is one of oldest and most widely recognized narrative structural analyses. Stein and Glenn described the organization of stories as “a hierarchical network of categories and the logical relations that exist between these categories” (p. 58). All stories consist of a setting, which includes the character introductions and the context in which the story occurs, and the episode system, or the “entire behavioral sequence” (p. 62) that comprises the remainder of the story structure (Stein & Glenn, 1979). The sequence, which is usually temporal, contains multiple categories of information expected in most stories.

Basic story grammar elements include the “external and/or internal events which influence a character, the character’s internal response (e.g., goals, cognitions, plans) to these events, the character’s external response to his goals, and the consequence resulting from his overt responses” (Stein & Glenn, 1979, p. 63). A single episode begins with the initiating event which in turn evokes an internal response from a story character. The internal responses consist of the affective responses, goals, and cognitive states of the characters involved. Internal

response is used to characterize the motivation behind the subsequent plan sequence including the character's overt attempt to attain his goal (Stein & Glenn, 1979). This reaction then incites an internal plan in which the character must reevaluate their course of action in response to the occurred event. The episode concludes with the resolution to the character's attempt comprising of both the direct consequence(s) and the reaction. Depending on its complexity, a story can contain a single episode or multiple interconnecting episodes that relate to one another.

Building upon the work of Stein and Glenn (1979), Norbury and Bishop (2003) analyzed story narrative content using three main parameters including global or hierarchal structure, local sentence structure, and use of evaluation. The global organization of a story refers to the hierarchical structure of story grammar elements including the setting, initiating event, internal response, goal, attempt, and outcome. In addition to the macrostructure, analyses of microstructure conducted at a local linguistic level focus on the syntactic complexity, sentence productivity, and referential cohesion in narratives. Finally, the authors examined the use of evaluative comments which "can be used to help explain the causes and consequences of such events and what they may mean to the protagonist" (Norbury & Bishop, 2003, p. 289). Evaluative comments provide the listeners with information about the internal states of characters through references to their mental and emotional states.

The story grammar model presented by Schneider, Hayward, and Dubé (2006) similarly described the structural organization and elements of a story. Within this goal-based story grammar model, there is at least one main character, who through a series of attempts, successfully achieves or does not achieve their goal. The story grammar model consists of two major components, the structural patterns and the story grammar units. The structural patterns, which refer to the narrative content and organization, provide the backbone support in producing

complete episodes. The other half of the model, the story grammar units, provide the categories of information that become the core story content. Story grammar units (e.g., initiating events) are typically ordered in a particular sequence within episodes although some units tend to appear more often than others.

Story Narrative Abilities in Typically Developing Children

Children become proficient storytellers as they develop and mature cognitively, linguistically, and socially over time. The development of narrative abilities is an extraordinary achievement for children as they acquire the ability to “organize ideas, causal relations, and event sequences as well the ability to linguistically encode these using appropriate grammatical forms and vocabulary” (Pearce, James, & McCormack, 2010, p. 635). Telling a story requires an integration of all domains of language at phonological, morphological, syntactic, semantic, and pragmatic levels as well as the use of mental faculties associated with memory, organization, processing, and planning (Duinmeijer, De Jong, & Scheper, 2012). Story narrative skills are further enhanced as children obtain knowledge about the world and human behavior including knowledge of cause and effect, goals and intentions, beliefs, attitudes, emotions, personality, and social role (Pearce et al., 2010). For these reasons, story narratives serve as a key resource for clinicians, teachers, and parents in predicting later academic and linguistic status (Feagans & Appelbaum, 1986). The developmental milestones achieved by young children provide rich information about their linguistic, cognitive, and social abilities (Norbury & Bishop, 2003).

Trends observed in the development of story narratives illustrate a gradual progression and refinement of narrative abilities as children mature. The stories of typically developing children generally tend to increase in length and linguistic complexity as children grow older (Norbury & Bishop, 2003). Exposure to stories begins early on in life, and children from as

young as two years old form very simple narratives (Siller, Swanson, Serlin, & Teachworth, 2014). As linguistic development accelerates, increasingly refined narrative abilities likewise begin to emerge. Botvin and Sutton-Smith (1977) investigated the fantasy narratives of 220 children ranging in ages from 3 to 12 and found that structural complexity progressively increased with age. During the earlier stages, children from the age of 3 formed primitive narratives by linking a series of proper nouns with only the implication of action. Around the age of 4, children began to state events and actions, albeit fragmented and incoherent. Simple narratives emerged around the age of 4 or 5 years old, with narratives organizing around a conflict and integrating a chain of events involving a central protagonist (Applebee, 1978; Botvin & Sutton-Smith, 1977). At around 6 years old, children produced sophisticated stories with an adult-like narrative structure consisting of elaborate complete episodes with initiating events, motivating states, attempts, and consequences (Peterson & McCabe, 1983). Development continued in 9- and 10-year-old children and beyond as they began producing greater numbers of episodes linked together in increasingly complex ways (Liles, 1993).

Berman (1988) also examined children of varying ages as they produced fictional narratives. Results supported developmental trends revealing that younger children, particularly ages 3 and 4, were unable to maintain a unified story line throughout, recounting the pictures “by merely juxtaposing one scene alongside another” (Berman, 1988, p. 487). Younger children were also observed using more isolated simple clauses or occasional coordination. Around 5 years of age, children began sequentially chaining chronologically related events as evidenced by the emerging use of transition words. Interestingly, as school-age children matured, they told “quite standardized, almost stereotypical stories” (Berman, 1988, p. 492).

In addition to linguistic abilities, social and emotional knowledge is important in story narratives. Bamberg and Damrad-Frye (1991) explored the use of evaluative comments, or descriptions of mental states in the narratives of typically developing children, including their ability to refer to frames of mind or the emotional states of story characters. They found that with age, the diversity and relative frequency of evaluative devices increased in fictional narratives (Kemper, 1984). Their findings suggested that children as young as 5 years old had the ability to use evaluative devices in third person narratives and that throughout childhood, their preference in using references to frames of mind increased, particularly becoming prevalent around the age of 9. Moreover, development was not only seen quantitatively as the frequency of evaluative devices increased, but a qualitative change in the use of evaluative devices, especially in frames of mind, was observed (Drijbooms, Groen, & Verhoeven, 2016). It was shown that young children tended to tie frames of mind to express a local evaluative perspective on events. However, with increasing age, a shift was seen toward its use in signaling a higher-order hierarchical organization of story events from a more global perspective, with references to frames of mind clustered around the emotional highpoints of a story (Bamberg & Damrad-Frye, 1991; Drijbooms et al., 2016). Children continue to expand their socio-cognitive abilities into late childhood as they acquire strategies for monitoring the listener involvement and elaborating the point of view of the story characters (Siller et al., 2014).

Story Narrative Abilities in Children with Language Impairment (LI)

Numerous studies have suggested that children with LI experience marked difficulty producing story narratives in comparison to their typically developing peers (Colozzo, Gillam, Wood, Schnell, & Johnston, 2011; Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; Liles, 1993; Makinen, Loukusa, Laukkanen, Leinonen, & Kunnari, 2014; Norbury & Bishop, 2003;

Pearce et al., 2010). For example, children with LI produced story narratives that contained shorter utterances that were less grammatically accurate (Bishop & Donlan, 2005; Colozzo et al., 2011; Fey et al., 2004; Kaderavek & Sulzby, 2000; Norbury & Bishop, 2003). In addition, the stories of children with LI contained less lexical diversity (Fey et al., 2004; Kaderavek & Sulzby, 2000; Makinen et al., 2014), fewer cohesive devices (Liles, 1985; Norbury & Bishop, 2003; Pearce et al., 2010), fewer inflection errors (Makinen et al., 2014), reduced syntactic complexity (Colozzo et al., 2011; Fey et al., 2004; Norbury & Bishop, 2003), and shorter length (Makinen et al., 2014). These simpler narratives that children with LI produced reflected the decreased productivity, meaning, and lexical skills associated with LI (Fey et al., 2004; Makinen et al., 2014).

Research has also shown that children with LI produced less sophisticated narratives that contained fewer story grammar elements (Colozzo et al., 2011; Engberg-Pedersen & Christensen, 2016; Merritt & Liles, 1987; Norbury et al., 2014), fewer main ideas (Bishop & Donlan, 2005; Merritt & Liles, 1987), less relevant information (Colozzo et al., 2011; Merritt & Liles, 1987), and limited goal directed story lines (Pearce et al., 2010). As a result, children with LI produced stories with fewer events, limited episodes, and poorer story quality (Fey et al., 2004; Merritt & Liles, 1987; Pearce et al., 2010). As Pearce et al. (2010) explained:

The narrative structures of school-aged children with SLI [specific language impairment] are more ‘confused’ than those of age-matched children with TDL [typically-developing language] with omission of critical content, inclusion of irrelevant information, lack of a consistent theme, lack of logical sequence, and omission of a logical consequence or conclusion. (p. 623-624)

Interestingly, Colozzo et al. (2011) additionally noted that compared to age matched peers, children with LI told stories of uneven strength, either producing stories with poor content, but grammatical accuracy or with elaborate content, but poorer grammatical form. It is clear that story generation is a demanding task for children with LI. This task becomes increasingly more complex and difficult for children with LI when aspects of social and emotional learning are considered.

Reactions, Intentions, and Emotions

According to Norbury and Bishop (2003), the ability to produce successful story narratives depends on the ability to integrate a combination of linguistic, cognitive and social skills. Drijbooms et al. (2016) further emphasized the necessity of both linguistic knowledge and social cognition in narrative production and evaluation noting,

Evaluation relies on linguistic proficiency in both lexicon and syntax, but it also requires two fundamental abilities of social cognition: the ability to adopt the perspective of the audience and adjust the story to the audience's needs, and the ability to understand, talk about, and reflect upon characters' actions, mental states, and beliefs, and to make inferences about them. (p. 2-3)

In order to access the rich world of storytelling, children need to consider internal states, particularly the internal response, internal plan, and emotional states of story characters.

Internal state expressions serve various functions in the narrative organization and story grammar structure. The reactions, intentions, and feelings of characters form a crucial element to the story grammar structure as a whole. These internal states fall into a larger category of evaluative devices termed, "frames of mind" and represent the affective responses, goals, and cognitive states of the characters involved (Bamberg & Damrad-Frye, 1991; Stein & Glenn,

1979). More importantly, they function to identify the motivation behind the subsequent plan sequence and qualify the nature of the links between sequential events (Drijbooms et al., 2016; Stein & Glenn, 1979). Bamberg and Damrad-Frye (1991) added that emotion words give “meaning to the individual events and actions” (p. 691) shifting to a greater focus on the organization of the story from a global hierarchical perspective. By ascribing intentions, feelings, and thoughts to characters, there are greater cohesive ties between the causal events that occur within the story, facilitating listeners’ ability to grasp the storyline (Engberg-Pedersen & Christensen, 2016; Trabasso, Secco, & Van den Broek, 1984). Emotion words in stories also inform the audience about the emotional and mental states of characters, allowing them to expect certain events or understand the purpose behind characters’ future actions. With the absence of internal state language often found in the story narratives of children with LI, story events may appear disconnected from one another, decreasing narrative cohesiveness and increasing confusion in listeners

In recent years, there has been increasing evidence suggesting delays in the expression of both internal states and emotion in the stories of children with LI (Makinen et al., 2014; Norbury et al., 2014). It is well documented that many children with LI demonstrate poor social cognition and emotional knowledge, especially in emotion understanding (Engberg-Pedersen & Christensen, 2016; Ford & Milosky, 2003; Loukusa, Makinen, Kuusikko-Gauffin, Ebeling, & Moilanen, 2014; McCabe & Meller, 2004; Spackman, Fujiki, & Brinton, 2006). The ability to employ evaluative devices relies on a combination of linguistic proficiency and socio-cognitive skills, especially the ability to infer how specific events affect characters’ thoughts and emotions (Drijbooms et al., 2016; Eaton, Collis, & Lewis, 1999; Ford & Milosky, 2003; McCabe & Meller, 2004; Norbury & Bishop, 2003; Norbury et al., 2014; Spackman et al., 2006). Successful

narratives have additionally been linked to emotion understanding, which may be thought of as affective theory of mind, a vulnerable area for children with LI (Loukusa et al., 2014; Spanoudis, 2016; Westby & Robinson, 2014). Since children with LI often show weaknesses in both language and emotion understanding, they might be expected to struggle producing emotion words and the internal states fueling those emotions in story narratives. In fact, preliminary work suggests that children with LI have particular difficulty expressing characters' internal states, intentions, and reactions in story generation (Alldredge, 2016; Deere, 2016; Jones, 2015).

Norbury et al. (2014) studied the pragmatic abilities of children with autism spectrum disorder (ASD) and children with LI in narrative discourse and discovered that children with LI struggled more with internal state language, semantic pragmatic relevance and story macrostructure than did children with ASD. These researchers suggested that the ability to discuss the thoughts and feelings of others depends greatly on having the vocabulary and linguistic abilities to do so. Engberg-Pedersen and Christensen (2016), adding to the work of Norbury et al. (2014), also examined the use of mental state expressions in narratives told by children with ASD and LI. They found that both groups had lower scores on the semantic-pragmatic relevance index (SPRI) compared to their age-matched peers and that significant correlations existed between children's use of mental state expressions and their SPRI score.

Although children with LI have particular difficulty relating mental states and emotions in story retell, it might be the case that they would perform better in response to specific prompts directing them to attend to the mental and emotional states of characters. This appears to be the case for typically developing children. For example, Eaton et al. (1999) examined the use of evaluative explanations in typical children's story narratives elicited by a video sequence without dialogue. Children in the prompt condition were given a series of questions focusing on the

mental state of story characters in hopes that children would offer more evaluative explanations. Findings revealed that the prompt questions led to an increase to references to frame of mind across all age groups, suggesting that it is possible to lift the evaluative performance of children by providing scaffolds in the form of prompt questions. Similarly, Schneider and Hayward (2014) found that typically developing children described much more emotion in story generation tools using picture stimuli when specific prompts were employed.

Purpose of Current Study

The current study was designed to investigate the ability of five children with LI to describe emotions experienced by characters when telling stories from picture stimuli. Two conditions were observed: story retell with and without verbal prompts. The following research questions were posed: (a) In generating a story from picture stimuli, would individual children with LI relate more internal responses, internal plans, and emotions in spontaneous storytelling or in response to specific prompts? and (b) compared to telling a story spontaneously from pictures, would each child with LI describe internal responses, internal plans, and emotions more accurately in response to specific prompts?

Method

This study was part of a larger project investigating a social communication intervention approach for five school-aged children with LI. The current study focused on one of the assessment tasks employed in that project. That task incorporated elicited generation and prompted generation of stories from pictures.

Participants

Five school-age children between ages 5;10 (years; months) and 11;0 were recruited from the caseload of a speech-language pathologist of a local suburban elementary school in the

western United States. Participants were native English speakers identified with LI and were receiving speech and language services on a pull-out basis at the time of the study. All five children passed pure tone hearing screening administered by the school district speech-language pathologist prior to the study. In addition, the school district psychologist ruled out general developmental disability. However, children with a history of attention deficits were included as part of this study.

The school speech-language pathologist identified children from her caseload presenting with language and social communication difficulties. Prospective participants' guardians were contacted to obtain permission to include their children in this study. Upon receiving written consent from the children's guardians to participate in the study, the Clinical Evaluation of Language Fundamentals-5 (CELF-5; Semel, Wiig, & Secord, 2013), a comprehensive standardized measure of receptive and expressive language, was administered to document participants' existing language difficulties. Additionally, the Children's Communication Checklist-2 (CCC-2; Bishop, 2006) was completed by each child's teacher to screen for general language impairments, as well as pragmatic deficits. A detailed description of each participant is provided below. Individual test scores are presented in Table 1. The parental permission form is included in Appendix A. CELF-5 subtest scores 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, Wigg, & Secord, 2003) Percentile Scores

Instruments	Participants and Percentiles				
	MG (11;0)	KJ (10;2)	PW (9;11)	JS (8;0)	VA (5;10)
CCC-2 ¹ Subtests					
Speech	1	<1	<1	25	1
Syntax	25	<1	16	50	2
Semantics	5	5	5	50	1
Coherence	1	37	9	9	<1
Initiation	37	2	50	37	9
Scripted Language	25	50	25	37	9
Context	16	16	9	25	5
Nonverbal Communication	5	5	9	16	<1
Social Relations	5	2	5	1	<1
Interests	37	50	25	37	5
GCC ² percentile	5	3	6	23	<1
SIDI ³	9	7	9	-6	1
CELF-5 ⁴					
Core Percentile	4	2	9	9	5

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

MG (11:0 years; months). MG was a Caucasian female identified with specific learning disorder (SLD) and LI. She attended a regular education classroom from kindergarten through second grade with resource services provided on a pull-out basis. However, upon receiving a diagnosis of SLD at the age of 7, MG was placed in a specialized classroom for children with learning disabilities with small class sizes to accommodate individualized instruction. MG later transitioned back to a mainstream regular education classroom for the fourth and fifth grades.

At the time of the study, MG was receiving resource and speech-language services while continuing to participate in her mainstream fifth grade class. Speech-language services focused on receptive and expressive language along with social communication goals aiming to increase MG's ability to participate in social conversations, collaborate in the classroom, and build positive relationships with peers. MG was highly motivated to interact and fairly proficient in basic conversational tasks as indicated by the CCC-2, however, she struggled when faced with higher level communication tasks requiring an understanding of social inferencing and nonverbal communication. This often resulted in MG's being nonresponsive to her conversational partners. Scores on the CELF-5 showed MG had marked difficulties with speech, semantics, and coherence, resulting in a core language score in the 5th percentile.

KJ (10;2). KJ was a Caucasian male identified with LI. KJ initially qualified for special education services at the age of 6;1 and later received services at the age of 6;6 for reading, writing, and math under the diagnosis of SLD. KJ was attending a mainstream general education class with continued resource services when the study was first initiated.

KJ received speech and language services with a primary focus on articulation and language. KJ's clinician reported difficulties with social communication, particularly in taking the perspective of others, initiation, and reading social cues from pictures, stories, and most

importantly, conversations and peer interactions. These difficulties were reflected in his scores on the CCC-2. KJ's contributions to social conversations were often one-sided and off topic. Interestingly, KJ demonstrated motivation to interact with others when the topic was of interest to him. However, when topics were initiated by others, it proved challenging for KJ to provide appropriate comments in response to conversational partners. KJ's academic and social performance was also impacted by his impulsivity and short attention span, with teachers and parents reporting difficulties staying on task and monitoring inappropriate behaviors. KJ's scored on the 2nd percentile for his core language score on the CELF-5, performing particularly poorly in areas of speech and syntax (below the 1st percentile).

PW (9;11). PW was a Caucasian male previously diagnosed with attention deficit disorder (ADD). At the time of the study, he was identified with LI. Upon conclusion of a school-based evaluation at the age of 9;1, PW was further diagnosed with SLD and qualified for special education services for more individualized instruction in reading and math. When PW was first seen by researchers, he was attending a mainstream fourth grade class with pull-out resource services provided for a maximum of three hours per day.

Along with resource, PW was also receiving speech and language services to improve articulation, resonance, and overall language abilities. According to his clinician and mother, PW was passive in conversation, allowing others to dominate the conversation, refraining from initiating social exchanges with others, and using pleasantries, such as laughter to compensate for communication breakdowns that occurred due to linguistic and social incompetencies. Furthermore, PW's speech sound errors impacted his speech intelligibility, increasing the conversational effort required from others. PW's mother and clinician felt that all these factors contributed to his passive interaction style and decreased sense of confidence. The results of the

CCC-2 also indicated weaknesses in the context, nonverbal, and social relations subtests. PW scored a core language score in the 9th percentile on the CELF-5, struggling particularly with coherence, semantics, and speech.

JS (8;0). JS was a Caucasian female initially diagnosed with developmental delay (DD), LI, and attention deficit hyperactivity disorder (ADHD) prior to age 3. Upon completing a comprehensive evaluation at the age of 4, JS qualified to attend a special needs preschool due to test scores revealing significant delays in cognition, social/emotional development, and general language abilities. At the time of the current study, JS was attending a mainstream general education classroom supplemented with resource services for reading and speech and language services for language and articulation.

Although her clinician reported improvement in basic communication, overall cohesiveness, and cause/effect relationships, JS continued to fail to meet grade-level expectations with higher level language tasks including perspective taking, outcome predictions, and story narratives. Consistent with her diagnosis of ADHD, JS demonstrated limited sustained attention affecting her classroom behavior, ability to following directions, and the conversational stamina and focus to produce appropriate comments during a conversational exchange. As a consequence, JS struggled to develop positive relationships with peers, and she often worked independently and avoided her peers altogether. JS's scores on the CCC-2 confirmed deficits in social relations, scoring in the 1st percentile. She also produced a core language score in the 9th percentile on the CELF-5, demonstrating delays in the areas of syntax, semantics, and speech.

VA (5;10). VA was a Caucasian male who had previously received early intervention services before the age of 3. He was later tested for special education services through an early childhood assessment center and found to have significant delays in social and emotional

development, as well as expressive and receptive language abilities. These results eventually qualified him to enroll in a special-needs preschool. At the age of 5;4, VA was reevaluated upon entering kindergarten and diagnosed with LI and SLD, as well as ADHD. This qualified VA for special education services focusing on math and writing, occupational therapy, and speech and language.

Speech and language goals involved articulation and language, with a specific focus on syntax and semantics. These semantic and syntax errors impacted VA's ability to express himself and participate in conversational exchanges. VA's clinician reported one-sided conversations and struggles to learn how to behave in basic social interactions. She reported that VA often initiated interaction through rough play or other inappropriate behavior. Additionally, VA's limited sustained attention and impulsivity impacted his ability to focus on tasks and demonstrate appropriate classroom behavior, requiring multiple prompts to redirect off-task behavior. Emotion understanding was also another challenge for VA as he found it difficult to recognize facial affect and interpret nonverbal cues when responding to others' emotional states. VA scored below the 9th percentile on every subtest on the CCC-2 and received a core language score in the 5th percentile on the CELF-5.

Measure

This study employed six picture stories from the ENNI (Schneider, Dubé, & Hayward, 2005), which were publically available online and used for research purposes in the current study. The ENNI is a language assessment tool specifically designed to probe narrative development, particularly the ability to include story grammar elements in a retelling, in children aged 4 to 9 years old. Local normative data, including analyses of story information, referring expressions, and linguistic complexity, was established from collecting information from 377

children in Edmonton, Canada. Although half of the participants in the current study were older than the age group it was intended for, it was felt that the use of the story retell tasks was justified considering the language deficits of the participants.

Materials

Stimuli used to elicit narrative retells consisted of two story sets of the ENNI, each containing three stories in illustrated pictorial form. All stories contained reoccurring animal characters in various settings, each faced with unique problems resolved by the story's conclusion. Characters were specifically illustrated to highlight emotional states and reactions to the story plot as identifiable by characters' facial expression, body language, and story content. Picture stories varied in terms of the amount of story information, length, and number and gender of characters. Story pages ranged from as few as 5 pages to as lengthy as 13 pages. The Giraffe/Elephant stories comprised the first story picture set consisting of three stories which were titled: *Story A1 – Ball*; *Story A2 – Diving board*; and *Story A3 – Airplane*. The second story picture set consisted of three Rabbit/Dog stories which were titled: *Story B1 – Sandbox*; *Story B2 – Picnic*; and *Story B3 – Balloon*. The story subjects were selected due to their content and simple and clear representations. The first story in both sets contained single episodes, gradually increasing in referential and episodic complexity in the second and third stories. Stories A3, B2, and B3 were shortened by the researchers to accommodate the task and reduce the complexity of these stories. Stories A3 and B3 contained fewer episodes than the complete version, but maintained the same number of characters. Story B2 contained one less page than the original, but this did not affect the number of episodes or characters in the story. A colored PDF file of each ENNI story was stored in the library of an electronic tablet with pages presented separately.

The use of an electronic tablet was intended to motivate and engage participants in the storytelling task.

A series of prompt questions were created for each page of the ENNI stories. These prompts specifically probed story characters' emotional and mental states. For every story character involved in a particular scene, two prompt questions about the character's thoughts and emotional states were asked. The questions were as follows:

1. What is [character] thinking?
2. How does [character] feel?

Prompts were designed as open-ended questions to elicit comments on the character's internal states, intentions, motivations, and feelings. The sample set of prompt questions used in the study is included in Appendix C.

Procedure

The narrative retell task and question prompts were administered by a graduate student clinician under the supervision of the cooperating school's speech-language pathologist. The design of the study was directed by two doctoral-level speech-language pathologists specializing in the field of LI, particularly in research with school-age children. Different numbers of story generations were elicited from each participant.

Participants were seen individually in a quiet room, facing the clinician across a small desk. The task consisted of two parts, one condition where the child generated a story while looking at picture scenes, and another where the child retold the same story given question prompts. The storytelling task was administered first in all sessions. The clinician began by verbally stating the following instructions:

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).

The child was then shown the picture story via electronic tablet while the clinician flipped through the story slides, waiting a few seconds before moving on to the next slide. If the child immediately began telling the story, the clinician gave a gentle reminder to quietly preview the contents before telling the story. In consecutive sessions following the initial visit, the child was allowed to hold the electronic tablet and preview the pages independently. After previewing the story, the clinician returned to the beginning and briefly instructed the child again to tell the story seen from the pictures. While the clinician continued to hold the electronic tablet, the child told the story aloud, touching the tablet only to continue to the next slide. The electronic tablet was positioned in such a way that the clinician could not see the pictures as the child told the story, encouraging the child to be as precise and explicit in their story retells as possible. Neutral responses including verbal and nonverbal forms of backchanneling were allowed to support the task interaction between clinician and child.

Following the completion of the storytelling task, the child immediately moved into the prompt condition of the study. To begin, the clinician verbally stated the following instructions:

Great! Now I want to look at the pictures with you. Please tell me the story again, and let me ask you about it. So, look at the pictures and tell me the story that you see in the pictures.

To help the children persist with the task, an incentive system was introduced using puffballs. For every page of the story completed, the child was rewarded one puffball to place on a styrofoam board. The clinician presented the electronic tablet back to the child and prompted the child to begin their story retell while looking at the pictures. After the child completed a retell of a single scene, the child was asked a series of question prompts that drew attention to the mental and emotional states of story characters. All responses were handwritten and recorded verbatim by the clinician. The task was complete once the child retold and answered questions prompts for every picture scene in the story.

Sessions were video recorded using digital cameras operated by undergraduate student research assistants throughout the duration of the tasks. Participants wore a microphone to amplify audio quality and facilitate the analysis of participant utterances. Both story retell and question prompt responses were transcribed from the video recordings onto Word documents. Transcribers were given a set of standard guidelines to follow in order to ensure consistency across all transcriptions. Interjudge agreement was established prior to transcription analysis.

Interjudge Agreement

Under the guidance of a graduate school clinician, two undergraduate students and the mentioned graduate school clinician transcribed 20% of the participants' story retells and question prompt responses from video recordings. The undergraduate students were trained by the graduate school clinician and given a standard key to assist them in the transcribing process. The sessions were randomly selected and transcribed independently. Upon comparison, interjudge agreement was found to be approximately 93% with the first student and 92% with the second (using the following formula: $A/N \times 100$, where A is the number of word agreements and N is the total number of words).

Two graduate student clinicians collaborated in establishing reliability for the scoring procedure provided in the ENNI to analyze the story retell transcripts. The two students reviewed the instructions provided with the ENNI beforehand, and discussed standard scoring conventions regarding this procedure. The students randomly chose 20% from the collection of story retells, scoring at least one retell from each ENNI story. They continued attempts to establish interjudge agreement until they achieved at least 90% agreement on the chosen sample. Interjudge reliability was found to be approximately 93% between the two students.

Finally, the graduate clinician collaborated with the head researcher of this project in order to establish reliability for the coding analysis procedure. A random sample of 20% of the story retells were collected and reliability was established for each of the six categories of focus in this study, including the total number of internal response, internal plan, and emotion expressions along with their respective accuracy measures. Interjudge reliability was found to be approximately 97% for number of emotion words with 94% reliability for accuracy, 92% for number of internal responses with 100% reliability for accuracy, and 82% for number of internal plans with 95% reliability for accuracy. When internal response and internal plan measures were collapsed, reliability was determined to be approximately 86%.

Analyses of Narratives

Transcriptions of the spontaneous story retell were initially analyzed by two graduate students using the ENNI Story Grammar analysis system. The story analysis scoring sheets for stories A1 and A3 were used and retrieved from the ENNI website. Scoring sheets for A2, B1, B2, and B3 were later created by two graduate students, aligning the structure and content of the analysis forms to that provided for A1 and A3. The ENNI analysis specifically focused on eight story grammar (SG) units known to be important in forming a “good story,” including units for

internal plan, internal response, and reactions (Stein & PolICASTRO, 1984). The scoring sheets assigned each SG unit a certain amount of points and provided typical acceptable responses to guide the scoring process. These scoring sheets and scoring manual are all available for public use on the ENNI website. The scoring form for A2, which was created for the purpose of this study, can be found in Appendix D for reference.

For the prompt condition, transcribed utterances were additionally analyzed using a specially designed analysis system created by the doctoral-level researcher heading the project and the graduate clinician. This analysis system exclusively looked at the three categories of interest in this study, consisting of categories for internal response, internal plan, and emotion words. Scoring conventions based on the acceptable responses provided for internal response and internal plan categories found from the ENNI scoring sheets was created in order to maintain consistency across scorers and ensure a fair comparison between the spontaneous and prompted story retell results despite using two analysis systems. Additionally, the graduate student collaborated with the researcher to discuss and label acceptable emotion words for each character on every page of the story. Occasionally characters' faces were indistinguishable, in which they were omitted from the analysis. Scoring conventions for internal response, internal plan, and emotion words can be found in Appendix E and F.

The analysis scoring sheet allowed for side-by-side comparison of the number of internal response, internal plan, and emotion words produced in the elicited and prompted story retell conditions. In addition, each instance was coded for accuracy or appropriateness given the story content. When participants answered a "thinking" question with an emotion word, the response was still recorded under the emotion word category as well as vice versa. If further prompts by the clinician were given following the administration of the original question probe, only the first

response given by the child was recorded. Occasionally a question probe was not administered in which they were recorded as “NP,” meaning no probe. Lastly, if participants used emotion words that were too broad or generic in their story retells, those items were labeled as “G,” standing for generic. These items were labeled on the analysis sheet, but not included in the total emotion word count. A sample analysis template for A1 can be found in Appendix G for reference.

Results

Each participant’s story retells were coded and analyzed following the analysis system presented above, and results are presented for each child individually. Two tables were created for each participant. One table displays comments that were identified as internal response or internal plan expressions under both elicited and prompted conditions. Another displays both the number and the variety of emotion words produced under the elicited and prompted conditions. Each table also indicates percentages of internal response, internal plan, or emotion words that were considered appropriate given the context of the story.

MG

As Table 2 shows, in three story retells, MG produced five internal response expressions in the elicited condition, and only one in the prompted condition. All of these were accurate. MG produced only one internal plan expression in the elicited condition, and this was considered appropriate. In the prompted condition, MG produced 12 internal plan descriptions, 83% of which were accurate.

Table 2

Production and Accuracy of Internal Response and Internal Plan Expressions During Elicited and Prompted Story Generation for MG

Story	Internal Response				Internal Plan			
	Elicited IR	Accuracy	Prompt IR	Accuracy	Elicited IP	Accuracy	Prompt IP	Accuracy
A1	0	--	0	--	0	--	2	2/2 (100%)
A2	2	2/2 (100%)	1	1/1 (100%)	1	1/1 (100%)	5	4/5 (80%)
A3	3	3/3 (100%)	0	--	0	--	5	4/5 (80%)
Total	5	5/5 (100%)	1	1/1 (100%)	1	1/1 (100%)	12	10/12 (83%)

Note. IR = internal response; IP = internal plan.

Table 3

Production and Accuracy of Emotion Words During Elicited and Prompted Story Generation for MG

Story	Elicited Emotions	Overall Accuracy	Word Accuracy	Prompted Emotions	Overall Accuracy	Word Accuracy	
A1	1	1/1 (100%)	In love (1/1)	18	6/13 (46%)	Happy (3/3) Sad (0/2) Worried (1/1)	Loving (1/4) Excited (1/3)
A2	0	--	--	17	8/17 (41%)	Happy (3/3) Sad (4/10) Scared (1/2)	Confused (0/1) Embarrassed (0/1)
A3	1	1/1 (100%)	Mad (1/1)	34	14/34 (41%)	Happy (9/12) Sad (0/10) Excited (1/1) Angry (1/1) Mad (1/5)	Sorry (2/2) Embarrassed (0/2) Surprised (0/1)
Total	2	2/2 (100%)	In love (1/1) Mad (1/1)	69	28/64 (44%)	Happy (15/18) Sad (4/22) Scared (1/2) Loving (1/4) Excited (2/4) Angry (1/1) Mad (1/5)	Embarrassed (0/3) Confused (0/1) Sorry (2/2) Surprised (0/1) Worried (1/1)

Note. Fractions next to emotion words represent number of emotion words used correctly over total number of words.

Table 3 presents MG's production of emotion words under the elicited and prompted conditions across the three stories. In the elicited condition, MG produced only two emotion words, both of which were accurate. She produced 64 emotion words in response to the prompts, but only 44% of those were used accurately. The emotion word, *happy*, was the most commonly labeled emotion word and used with approximately 83% accuracy. The next two commonly used emotions, *sad* and *mad*, were also used frequently throughout the story retells, but with considerably less accuracy. Valence errors were also noted, mistakenly labeling positive emotions with negative ones and vice versa, a total of four times throughout the prompted story generation task.

KJ

Table 4 shows that KJ produced four internal response descriptions across six story retells under the elicited condition, all of which were accurate. He described 28 internal response expressions in the prompted condition, and 89% of those were accurate. He described one accurate internal plan in the elicited condition, and seven under the prompted condition. Eighty-six percent of these were accurate. According to Table 5, KJ produced nine emotion words across the stories in the elicited condition, all of which were accurate. In the prompted condition, he produced 145 emotion words, 78% of which were accurate. Both the quantity and the diversity of emotion words KJ produced were greater in the prompted condition. The emotion word, *happy*, was used frequently and accurately approximately 94% of the time. This was followed by the emotion words, *sad* and *scared*, which were labeled appropriately a little more than half of all attempts. When valence of emotion was considered, it was found that LJ made four valence errors during the six prompted story retells.

Table 4

Production and Accuracy of Internal Response and Internal Plan Expressions During Elicited and Prompted Story Generation for KJ

Story	Internal Response				Internal Plan			
	Elicited IR	Accuracy	Prompt IR	Accuracy	Elicited IP	Accuracy	Prompt IP	Accuracy
A1	1	1/1 (100%)	5	5/5 (100%)	0	--	1	1/1 (100%)
A2	1	1/1 (100%)	8	8/8 (100%)	0	--	0	--
A3	1	1/1 (100%)	5	4/5 (80%)	1	1/1 (100%)	0	--
B1	1	1/1 (100%)	5	3/5 (60%)	0	--	0	--
B2	0	--	3	3/3 (100%)	0	--	2	1/2 (50%)
B3	0	--	2	2/2 (100%)	0	--	4	4/4 (100%)
Total	4	4/4 (100%)	28	25/28 (89%)	1	1/1 (100%)	7	6/7 (86%)

Note. IR = internal response; IP = internal plan.

Table 5

Production and Accuracy of Emotion Words During Elicited and Prompted Story Generation for KJ

Story	Elicited Emotions	Overall Accuracy	Word Accuracy	Prompted Emotions	Overall Accuracy	Word Accuracy	
A1	1	1/1 (100%)	Happy (1/1)	15	13/15 (87%)	Happy (9/9) Sad (0/1)	Scared (1/2) Glad (3/3)
A2	2	2/2 (100%)	Scared (1/1) Mad (1/1)	28	27/28 (96%)	Happy (9/10) Sad (7/7) Glad (2/2) Scared (5/5)	Nervous (1/1) Sorry (1/1) Mad (2/2)
A3	2	2/2 (100%)	Mad (1/1) Happy (1/1)	36	19/36 (53%)	Happy (14/15) Sad (0/6) Glad (2/2) Excited (1/2)	Scared (0/7) Sorry (0/1) Angry (1/1) Nervous (1/2)
B1	1	1/1 (100%)	Nervous (1/1)	15	12/15 (80%)	Happy (6/7) Sad (4/4) Mad (0/1)	Scared (2/2) Nervous (0/1)
B2	0	--	--	23	18/23 (78%)	Happy (11/11) Sad (0/2)	Scared (7/10)
B3	3	3/3 (100%)	Nervous (1/1) Angry (1/1) Happy (1/1)	28	24/28 (86%)	Happy (16/17) Sad (1/2) Scared (4/4)	Sorry (1/2) Mad (0/1) Angry (2/2)
Total	9	9/9 (100%)	Happy (3/3) Scared (1/1) Mad (2/2) Nervous (2/2) Angry (1/1)	145	113/145 (78%)	Happy (65/69) Sad (12/22) Scared (19/30) Glad (7/7) Nervous (2/4)	Sorry (2/4) Mad (2/4) Excited (1/2) Angry (3/3)

Note. Fractions next to emotion words represent number of emotion words used correctly over total number of words.

PW

Table 6 shows that PW described three internal response expressions, all of which were accurate across six stories in the elicited condition. In the prompted condition, he produced 31 internal response descriptions, 84% of which were accurate. A similar pattern was noted for internal plans. Under the elicited condition, PW described three accurate internal plan responses. In response to the prompts, he produced 65, but only 68% were accurate.

Table 6

Production and Accuracy of Internal Response and Internal Plan Expressions During Elicited and Prompted Story Generation for PW

Story	Internal Response				Internal Plan			
	Elicited IR	Accuracy	Prompt IR	Accuracy	Elicited IP	Accuracy	Prompt IP	Accuracy
A1	0	--	1	1/1 (100%)	1	1/1 (100%)	5	3/5 (60%)
A2	1	1/1 (100%)	15	11/15 (73%)	0	--	3	3/3 (100%)
A3	1	1/1 (100%)	8	7/8 (88%)	0	--	20	14/20 (70%)
B1	0	--	1	1/1 (100%)	1	1/1 (100%)	8	5/8 (63%)
B2	0	--	3	3/3 (100%)	1	1/1 (100%)	14	13/14 (93%)
B3	1	1/1 (100%)	3	3/3 (100%)	0	--	15	6/15 (40%)
Total	3	3/3 (100%)	31	26/31 (84%)	3	3/3 (100%)	65	44/65 (68%)

Note. IR = internal response; IP = internal plan.

Table 7

Production and Accuracy of Emotion Words During Elicited and Prompted Story Generation for PW

Story	Elicited Emotions	Overall Accuracy	Word Accuracy	Prompted Emotions	Overall Accuracy	Word Accuracy	
A1	0	--	--	10	9/10 (90%)	Happy (5/5) Sad (0/1)	Worried (2/2) Glad (2/2)
A2	0	--	--	16	11/16 (69%)	Happy (4/4) Sad (2/2) Worried (1/4) Scared (3/3)	Selfish (0/1) Mad (1/1) Annoying (0/1)
A3	1	1/1 (100%)	Mad (1/1)	24	13/24 (54%)	Happy(10/12) Sad (0/1) Scared (1/3) Worried (1/4)	Sorry (0/1) Selfish (0/1) Angry (1/1) Unhappy(0/1)
B1	0	--	--	10	9/10 (90%)	Happy (5/5) Sad (1/2) Scared (1/1)	Unhappy(1/1) Foolish (1/1)
B2	1	1/1 (100%)	Sick (1/1)	15	6/15 (40%)	Happy (4/4) Unhappy 0/5 Sick (1/2)	Disgust (0/1) Annoyed(0/2) Worried (1/1)
B3	1	1/1 (100%)	Mad (1/1)	19	14/19 (74%)	Happy (8/8) Sad (1/4) Mad (1/1) Grumpy (1/1)	Unhappy(0/1) Worried (2/3) Excited (1/1)
Total	3	3/3 (100%)	Mad (2/2) Sick (1/1)	94	62/94 (66%)	Happy(36/38) Sad (4/10) Mad (2/2) Angry (1/1) Worried(7/14) Glad (2/2) Scared (5/7) Grumpy (1/1)	Unhappy(1/8) Excited (1/1) Disgust (0/1) Annoyed/ Annoying (0/3) Foolish (1/1) Sorry (0/1) Selfish (0/2) Sick (1/2)

Note. Fractions next to emotion words represent number of emotion words used correctly over total number of words.

Table 7 shows the emotion words produced across the stories. A marked increase in emotion words with a greater selection of diverse emotions was observed when compared to spontaneous productions during the elicited story generation tasks. However, although total numbers rose from 3 to 94 emotion words, a sharp dip in accuracy also occurred, falling from an overall accuracy rate of 100% to 66%. PW produced the word, *happy*, most frequently in the

story retells and he used it with approximately 95% accuracy. PW used many emotion words inappropriately during the prompted story retells. Additionally, PW produced three valence errors in the prompted story retells.

JS

Table 8 shows that across three story retells, JS described five accurate internal response expressions in the elicited condition, 67% of which were accurate. JS did not incorporate any internal plan expressions in her story retells in the elicited condition, but she produced 16 in the prompted condition, 75% of which were accurate.

Table 8

Production and Accuracy of Internal Response and Internal Plan Expressions During Elicited and Prompted Story Generation for JS

Story	Internal Response				Internal Plan			
	Elicited IR	Accuracy	Prompt IR	Accuracy	Elicited IP	Accuracy	Prompt IP	Accuracy
A1	3	3/3 (100%)	1	1/1 (100%)	0	--	1	0/1 (0%)
A2	0	--	4	3/4 (75%)	0	--	8	7/8 (88%)
A3	2	2/2 (100%)	1	0/1 (0%)	0	--	7	5/7 (71%)
Total	5	5/5 (100%)	6	4/6 (67%)	0	--	16	12/16 (75%)

Note. IR = internal response; IP = internal plan.

Table 9

Production and Accuracy of Emotion Words During Elicited and Prompted Story Generation for JS

Story	Elicited Emotions	Overall Accuracy	Word Accuracy	Prompted Emotions	Overall Accuracy	Word Accuracy	
A1	0	--	--	10	7/10 (70%)	Happy (5/5) Sad (0/2)	Worried (2/3)
A2	1	0/1 (0%)	Sad (0/1)	21	13/21 (62%)	Happy (6/7) Sad (4/6) Worried (3/6)	Angry (0/1) Feels bad for (0/1)
A3	4	4/4 (100%)	Happy (2/2) Mad (1/1) Scared (1/1)	26	16/26 (62%)	Happy (9/12) Sad (2/5) Mad (0/1) Angry (2/4)	Glad (1/1) Scared (0/1) Worried (2/2)
Total	5	4/5 (80%)	Sad (0/1) Happy (2/2) Mad (1/1) Scared (1/1)	57	36/57 (63%)	Happy (20/24) Sad (6/13) Worried (7/11) Mad (0/1)	Angry (2/5) Feels bad for (0/1) Glad (1/1) Scared (0/1)

Note. Fractions next to emotion words represent number of emotion words used correctly over total number of words.

Table 9 shows that JS produced five emotion words in the elicited condition, 80% of which were accurate. In the prompted condition, she produced 57 emotion words, but only 63% were used accurately. She used the emotion word, *happy*, most commonly, followed by *sad* and *worried*. Although JS used *happy* appropriately about 83% of the time, she misused *sad* and *worried* about half of the time. Finally, among the participants, JS produced the most valence errors, with a total count of nine across the three prompted story retells.

VA

Table 10 shows that across two story retells, VA did not describe internal responses in either the elicited or the prompted condition. He described one internal plan accurately in the elicited condition, and nine in the prompted condition, 67% of which were accurate.

Table 10

Production and Accuracy of Internal Response and Internal Plan Expressions During Elicited and Prompted Story Generation for VA

Story	Internal Response				Internal Plan			
	Elicited IR	Accuracy	Prompt IR	Accuracy	Elicited IP	Accuracy	Prompt IP	Accuracy
A1	0	--	0	--	0	--	5	3/5 (60%)
A2	0	--	0	--	1	1/1 (100%)	4	3/4 (75%)
Total	0	--	0	--	1	1/1 (100%)	9	6/9 (67%)

Note. IR = internal response; IP = internal plan.

Table 11

Production and Accuracy of Emotion Words During Elicited and Prompted Story Generation for VA

Story	Elicited Emotions	Overall Accuracy	Word Accuracy	Prompted Emotions	Overall Accuracy	Word Accuracy
A1	1	1/1 (100%)	Happy (1/1)	12	7/12 (58%)	Happy (7/10) Sad (0/2)
A2	0	--	--	23	16/23 (70%)	Happy (8/10) Sad (5/9) Nervous (3/4)
Total	1	1/1(100%)	Happy (1/1)	35	23/35 (66%)	Happy (15/20) Sad (5/11) Nervous (3/4)

Note. Fractions next to emotion words represent number of emotion words used correctly over total number of words.

Table 11 shows VA's production of emotion words across the two story retells. In the elicited retells, VA produced one accurate emotion word. In the prompted condition, he produced three emotion words, *happy*, *sad*, and *nervous*, a total of 35 times. These words were used accurately 66% of the time. Among these words, *sad*, appeared to be most challenging for VA to use appropriately. Additionally, VA produced a total of five valence errors.

Discussion

The current study considered the ability of five children with LI to incorporate three internal state elements in story narratives using wordless picture books. These three elements consisted of internal response, commonly expressed in words indicating motivation, such as “want” and “need”; internal plan, expressed in words indicating intention like “decides to” and “going to”; and emotion words. These elements were observed under both elicited and prompted conditions. This study aimed to determine whether question prompts which were specifically designed to elicit internal states would help children describe more internal states than they would normally do on their own. The performance of each individual participant is discussed below.

Individual Findings

MG. Despite being the oldest child in this study MG produced few internal state expressions in the elicited condition, much like the younger participants. Rather, her stories were characterized by a series of descriptions of actions taking place in the story (i.e., “Now she’s running. But then she fell and got a big boo-boo. And she was crying”). During the prompted condition, MG demonstrated some variability in response to the question prompts. For example, she produced more internal plan expressions, but fewer internal response expressions than she did in the elicited condition. Even though she used more internal plan expressions in response to the prompts, she used these expressions less accurately. It may have been the case that she misinterpreted the story events, or that she had an incomplete understanding of the question prompts. Her typical responses comprised of simple sentence constructions, some of which did not appropriately respond to the given prompts (i.e., when asked what giraffe is thinking in a particular scene, MG responded with the phrase “flying it”).

MG demonstrated a very limited number of emotion words during the elicited condition. She produced just two emotion words throughout all three stories, *mad* and *in love*. It was interesting that she did not produce commonly used emotion words, such as *happy* or *sad* in the elicited condition. However, in the prompted condition, she used many more emotion words displaying greater diversity, but she used these words less accurately. Though MG attempted to use more emotion words in her stories, she did so with some confusion, sometimes contradicting her responses when given different prompts. The following exchange illustrates such an instance:

Clinician: How does giraffe feel?

MG: Angry

Clinician: What do you think giraffe is thinking?

MG: Sad

Additionally, MG repeated the phrase “nice and kind” numerous times throughout the stories in response to prompts, and she occasionally repeated the same emotions for each character from previous picture scenes despite the changing of events. Considering her age, it was surprising that MG also produced emotion words with the wrong valence five times, suggesting an incomplete understanding of even the simplest emotion words like *sad* and *happy*. All in all, although the prompt questions encouraged MG to take greater risks and express more internal states in her stories, she still lacked the understanding and ability to use these words accurately even with simple picture stories.

KJ. Despite completing six story retells, KJ produced a limited number of internal states during the elicited condition. He produced very few internal response expressions and only one internal plan expression across all six story retells. Fewer internal plan and internal response expressions contributed to confusing stories with many gaps in the storyline that did not present

a clear solution or ending (i.e., “And then dog grabbed her hand. And then pulled the bunny to bunny and she freaked out cuz he had a stomach ache. And then they went back home” when attempting to describe how Dr. Rabbit helps sick Rabbit get better). In the prompted condition, KJ demonstrated some inconsistency in response to the question prompts. He produced many more internal response expressions, but just a few more internal plan expressions. In fact, KJ produced fewer internal plan expressions in Story A3 compared to the elicited condition. Furthermore, KJ used internal state descriptions less accurately in the prompted condition. Occasionally, he seemed to describe internal states that were not appropriate for the picture he was considering, but would happen later in the story. More often, his description of internal intents were not closely related to the story and were sometimes difficult to interpret. For example,

Clinician: What is doctor bunny thinking?

KJ: What is she doing to me? She gonna sacrifice me?

Although KJ produced several different emotion words during the elicited condition, the overall frequency of these words was low. However, in response to prompts, not only did KJ nearly double the different emotion words used, but he produced markedly more emotion words throughout all his story retells. Interestingly, KJ provided more information regarding why the character was feeling a certain way (i.e., “I’m sad you broke the sand castle”), which he did not do during the elicited condition. He continued to demonstrate a greater awareness of emotion words by anticipating these prompts before they were asked. However, he had some difficulties with successive question prompts that resulted in fewer accurate productions. For example, when asked two different questions about how the character was feeling or thinking, KJ would provide contradictory responses, such as in the situation below:

Clinician: What is dog feeling?

KJ: I'm sad for bunny

Clinician: How does dog feel?

KJ: Scared

In addition, when faced with more complex emotions, such as *shocked* or *guilty*, KJ typically responded by either resorting to the emotion, *sad*, to describe emotions with negative valence, using generic terms like *freaking out*, or by using emotion words with the wrong valence, something not typically expected from children his age. Overall, although KJ began to show more interest in using internal states in his stories, even appearing to enjoy anticipating the question prompts, he still required considerable support in correctly interpreting these states.

PW. In the elicited condition, PW described very few internal states across all three categories. He produced stories mostly comprised of picture descriptions, demonstrating limited inferencing and ability to connect story events together (i.e., “and then the lifeguard helps her get on the bench. And then the lifeguard is pointing to the no running sign”). However, unlike his performance during the elicited condition, PW produced dramatically more internal state expressions during the prompted condition. However, PW used a quarter of these new expressions inaccurately. Possibly due to his familiarity with the story, PW began to anticipate story events, mislabeling characters’ intents and motivations that might apply to future actions that had not yet occurred in the story.

PW produced few emotion words during the elicited condition, and those were limited in both quantity and diversity. Emotion words were limited to the same two emotions, *mad* and *sick*, with a noticeable absence of words like *happy* or *sad*. During the prompted condition, PW produced markedly more emotion words with a greater repertoire, producing 16 different types

of emotion words. However, although PW produced more emotion words, he also used them far less accurately than in the elicited condition. *Unhappy*, one of the emotion words in PW used most commonly, was also one of the words he used most inaccurately. He tended to use *unhappy* as an umbrella term for more complex emotions with similar valence, such as *nervous*, *scared*, and *disgusted*. When asked how a specific character felt, occasionally PW would respond by providing two opposing emotion words (i.e., “sad and happy”), revealing difficulties selecting the correct valence. It is interesting to note that PW’s behavior also led to more inaccurate productions of internal states. As PW warmed up to the task and the clinician, he began to talk about his experiences relating to the story events, often requiring additional support to be redirected back to the story. For example, the exchange below demonstrates how PW’s personal experiences influenced his interpretation of the story as he responded to a prompt regarding a scene of Rabbit feeling better after having a stomachache:

Clinician: And what does rabbit feel?

PW: Probably annoyed he’s sick again. Mmmm that’s the problem with me and my grandpa, my mom’s grandpa. We, if we go fishing or camping, we buy junk food.

As the task proceeded, PW began to anticipate the prompts by producing emotion words on his own, pointing to different characters in the story and labeling them with their respective emotions (i.e., saying “sad, selfish, happy” while pointing to characters in story). PW even suggested that the clinician ask him about how the balloon in a particular story felt. Additionally, he began to attend more to characters’ facial expressions by pointing out specific features of their faces (i.e., “see how her eyes are,” “see how her lips are”). In summary, although PW described more internal states and began to attend better to emotion words, he still used emotion words inaccurately a third of the time.

JS. In the elicited condition, JS's stories consisted largely of a series of picture descriptions that were difficult to follow because they lacked cohesion. In the elicited condition, JS rarely used internal state expressions that described the reactions, motivations, and intentions of characters. It is also noteworthy to mention that throughout these stories, JS easily became distracted, making many off-topic remarks. The examiner sometimes had to direct her back to the task. In response to question prompts, JS demonstrated some variability. Although she produced more internal plan expressions, she produced only one more internal response expression than she did in the elicited condition. Additionally, in the prompted condition, JS used both internal response and internal plan descriptions less accurately than what she did in the elicited condition, with many errors resulting from questionable interpretations of the story pictures (i.e., responding with "He's thinking about I shouldn't yell at her" when describing a story picture of Lifeguard scolding Elephant).

As indicated, JS used few emotion words in the elicited condition, even though the character's emotions were important to the story. In the prompted condition, she produced many more emotion words, but her use of these emotion words showed a level of immaturity and awkwardness revealed in phrases like "giraffe was doing mad faces at her." JS demonstrated difficulty describing more complex emotions, such as *nervous* and *shocked*, and she responded by defaulting to a simpler emotion word like *sad*, or by using an emotion word with the wrong valence. In response to continued question prompts, JS began to anticipate these questions, shifting more of her attention to characters' emotions and describing them spontaneously without any prompting. It is noteworthy, however, that even though JS produced many more emotion words in response to the prompts, her accuracy decreased markedly. Overall, less than two thirds of the emotions she described were appropriate given the story content. It seemed clear that

although the prompt questions helped JS focus on the intents, motivations, plans, and emotions of characters, her understanding of those states was limited.

VA. Of the five participants, VA had the most difficulty with the story retell task. He produced short, simple sentences with unclear referents. He described only one internal state (internal plan) in the elicited condition. In the prompted condition, VA described more internal plan expressions, but no internal response expressions. Compared to the elicited condition, VA used these new internal plan expressions less accurately, with errors resulting from misinterpretations of story events and actions (i.e., “thinking her gonna open up the egg” when referring to a character playing with a ball). Additionally, VA seemed to struggle with the question prompts, sometimes responding with “I don’t know,” requiring further prompts. When asked a question probing what a character was thinking, VA would often respond with an emotion word instead of an internal response or internal plan description, offering an explanation for why fewer internal response/plan expressions were produced compared to emotion words.

Although VA produced many more emotion words in the prompted condition, his choice and diversity of emotion words was not much more than in the elicited condition. In fact, the 35 total emotion words he used throughout the stories were limited to just the same three emotions, *happy*, *sad*, and *nervous*; and he used these emotions inaccurately a third of the time. Interestingly, although he frequently used *happy* and *sad*, VA appeared to have some degree of difficulty with both of these emotion words. When closely examined, it was found that VA overgeneralized these basic emotions, using *happy* to label any emotion with positive valence and *sad* for any emotion with negative valence. Additionally, VA sometimes made valence errors and occasionally responded with two polar opposite emotions when prompted about a character’s feeling (i.e., “sad or happy”). In summary, although VA described more emotion

words and internal plan descriptions in the prompted condition, his interpretation of the mental states of characters was decidedly immature.

Conclusions and Interpretations

The results of this present study suggested that the five children with LI had difficulty conveying internal states in story retells, both with and without verbal prompts. In the elicited condition, all participants struggled to produce hardly any internal responses, internal plans, or emotion words on their own. If participants did include emotion words, they were often limited to simple emotions that were used repeatedly throughout stories. For most participants in the prompted condition, the effectiveness of question prompts was variable in eliciting greater internal state expressions. However, a pattern seen across all participants showed that as they attempted to express a greater number and diversity of internal states, accuracy decreased, demonstrating their limited understanding of characters' motivations, intentions, and plans. In summary, although the number and variety of internal states expressions increased when presented prompts, the difficulty with these concepts remained.

As expected, a surge was seen in the number of emotion words during the prompted condition for all participants. However, individual participants varied in how they used these emotion words. Although all children used more emotion words with greater diversity, many of these new emotion words that were not seen during the elicited condition were used inappropriately. Some children demonstrated a limited vocabulary range, and compensated for this weakness by labeling difficult emotion words with simpler ones, such as happy or sad. Others responded by using emotion words with the wrong valence, which they did not do during the elicited condition. They seemed to guess which emotion word to use when faced with complex emotions experienced by story characters. The number of inaccuracies seen with this

group suggested a limited understanding of the emotions the story characters experienced and as the literature shows, reflects the difficulties children with LI have with social emotional learning (Ford & Milosky, 2003; Loukusa et al., 2014; Spackman et al., 2006). It was surprising to see that when considering the age of the individual participants, some of the older participants performed more poorly than the younger participants.

Finally, although the verbal prompts did not seem to help participants use internal state expressions any more accurately, it did help draw attention to them. Most children began to anticipate the question prompts and include more internal state expressions, particularly emotion words, in their story retells even before the question prompts were given. Additionally, some children even began pointing out specific facial features of story characters during their story retells.

In conclusion, although verbal prompts did help draw attention to characters' internal states in the stories of children with LI, they alone were not enough in supporting the interpretation and implementation of internal states. However, these verbal prompts did reveal children's current ability and understanding of internal states, as well as weaknesses that should be addressed.

Limitations of the Study

This pilot study consisted of a series of case studies examining five children with LI and was designed to determine the effectiveness of verbal prompts in eliciting internal state expressions in story generation. However, there were several limitations in this study. First, given the limited sample of participants in this study, generalization to a wider population of children with LI needs to be established. This study also used two similar sets of picture stories with recurring characters. It is possible that a wider selection of stories would elicit different

responses. Factors including behavior and cognitive fatigue may have also affected participants' abilities to stay focused on the task, although it should be noted that all participants attended sufficiently to complete the task. Finally, there were occasional inconsistencies in the administration of question prompts, with a few prompts accidentally skipped over during the prompt condition of the task. Specifically for VA, instead of being administered the intended three stories, he was only administered two stories.

Directions for Future Research

In order to fully understand the effectiveness of verbal prompts in improving the quality of story retells in children with LI, future studies should replicate this current study with a larger number of children with LI. In addition, comparisons with typically developing children would be useful. Results from these studies may provide additional information on individual differences seen in typical and atypical populations, particularly in the area of social emotional learning. Research is also needed to design further question prompts in addition to prompts used in the current study to better direct and instruct children with LI and elicit more appropriate internal state expressions given a particular story.

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APPENDIX A:

Parental Permission Form

Introduction: I am Professor Martin Fujiki, Brigham Young University. I am doing research to develop therapy procedures to help children with communication problems improve their social interactional skills. Your child is being invited to participate because he/she is currently receiving speech language services in Alpine School District at Grovecrest Elementary School.

Procedures: I am asking you to enroll your child in a 12 to 14-week intervention study. During this time your child will be enrolled in intervention that will focus on teaching social communication skills that help him/her better understand the emotions of others. The goal will be to help your child interact more appropriately with peers and adults. Therapy will be provided by a combination of BYU graduate students in Communication Disorders and your child's school speech pathologist. All treatment will take place at your child's school. There will be two to three treatment sessions per week, each lasting about 30 minutes. All treatment sessions will be video recorded. These sessions will work on helping the child to understand better the emotional responses of others. All treatment sessions will take place during the regular school day. In addition, your child may be given additional testing to make sure that he/she meets the study criteria. Some of this testing may have been done already, but if not it may take up to an additional two hours of time to complete. If the testing has already been done, we would like to request your permission for the school clinician to make this information available to us. All treatment sessions will be video recorded to allow researchers to analyze the effectiveness of the treatment. The recordings will be erased following completion of the analyses.

As part of the assessment and follow up I will be asking you to complete a paper copy of a social skills questionnaire for your child before and after the intervention takes place.

Risks/Discomforts: There are minimal risks associated with this treatment. Your child may miss class for one extra session of therapy a week during the course of the study. Your child's school clinician will either be present or close by during all therapy sessions to handle any questions or difficulties that may arise as a result of working in the treatment conditions. Clinicians and supervisors will consult regularly to make sure that your child is not experiencing any problems in the treatment conditions. The only other discomfort is that the questionnaire I will ask you to complete will take about 20 minutes of your time.

Benefits: The primary benefit to your child is the potential growth resulting from receiving intensive intervention during the course of the study. There are benefits to society in general in that this study may result in more effective treatment methods for children with social communication problems.

Compensation: There is no compensation associated with participation in the study.

Confidentiality: Your child's participation will be confidential. All materials will be stored in locked cabinets in a locked lab at BYU. Names will be removed from research materials and

neither your name nor your child's name will ever be used in connection with any presentation of this research. Video images will be stored on a secure hard drive in a locked lab at BYU. These images will be used to document how well your child responds to the intervention. These images will be stored for six years to allow analysis and then destroyed.

Participation: Participation is voluntary. If you give permission to include your child in the study, he/she will also be asked if he/she would like to participate. Even if you give consent, you and your child have the right to withdraw at anytime or refuse to participate entirely without jeopardy to your class status, grade or standing with the school.

Questions about the Research: If you have any questions concerning the study, please contact me. My phone number and email address are (801) 422-5994, martin_fujiki@byu.edu.

Questions about your Rights as a Research Participant

If you have questions regarding your rights as a research participant, you may contact the BYU IRB Administrator, A-285 ASB, Brigham Young University, Provo, UT 84602, 801-422-1461, irb@byu.edu.

I have read, understand, and received a copy of the above consent and of my own free will allow my child _____ to participate in the study.

Signature _____ Date _____

Printed name _____

Video Release Form

As noted above, I will be making video recordings of your child during his/her participation in the research. Please indicate the uses of these video recordings you are willing to permit. Put your initial next to the uses you agree to and signing the form at the end.

1. _____ The video recordings can be studied by the research team for use in the research project.
2. _____ Short excerpts from the video recordings can be shown at scientific conferences or meetings.
3. _____ Short excerpts from the video recordings can be shown in university classes.

I have read the above descriptions and give my consent for the use of the videotapes as indicated by my initials above.

(Signature)

(Date)

Name _____

APPENDIX B:

Clinical Evaluation of Language Fundamentals-5 (CELF-5)

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

Participant	CELF-5 Percentile Rank Scores on Individual Subtests					
	Age	Sentence Comp ¹	Word Structure	Formulated Sentences	Recalling Sentences	Core % Rank
VA	5;07	25	9	1	5	5
JS	7;11	50	2	9	9	9
	Age	Word Classes	Semantic Relationships	Formulated Sentences	Recalling Sentences	Core % Rank
PW	9;10	50	2	16	5	9
KJ	10;01	<1	16	9	2	2
MG	10;11	5	2	25	2	4

Note. ¹Sentence Comprehension.

APPENDIX C:

Sample Question Prompts

A1--STORY GENERATION, PROMPT CONDITION

Giraffe rescues Elephant's ball in the pool

STORY GENERATION TRIAL 2--PROMPT

Instructions to child:

Great! Now I want to look at the pictures with you. Please tell me the story again, and let me ask you about it. So, look at the pictures and tell me the story that you see in the pictures

See these colored puffballs? Every time you tell me about a page, I will put another puffball in this _____. When the story is over, we will put them on your board.

Prompts: Order of prompts can vary

Plate A1—"Ready?" Remember, you will get a puff ball for each page if you tell me about it and answer my questions.

Plate A2 (E, bouncing ball)

1. Wait for child's description
2. What is Elephant thinking?
3. How does Elephant feel?
4. What is Giraffe thinking?
5. How does Giraffe feel?

Plate A3 (ball in pool)

1. Wait for child's description
2. What is Elephant thinking?
3. How does Elephant feel?
4. What is Giraffe thinking?
5. How does Giraffe feel?

Plate A4 (giraffe swimming for ball)

1. Wait for child's description
2. What is Elephant thinking?
3. How does Elephant feel?
4. What is Giraffe thinking?
5. How does Giraffe feel?

Plate A5 Giraffe hands ball out to Elephant

1. Wait for child's description

2. What is Elephant thinking?
3. How does Elephant feel?
4. What is Giraffe thinking?
5. How does Giraffe feel?

Plate A6 Elephant holding ball

1. Wait for child's description
2. What is Elephant thinking?
3. How does Elephant feel?
4. What is Giraffe thinking?
5. How does Giraffe feel?

APPENDIX D:

Sample ENNI Story Grammar Scoring Sheet

Story Grammar Scoring Sheet for Story A2

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	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 no running allowed / going swimming / diving	0 1
Initiating Event	E starts to run towards diving board/ running/ going too fast	0 2
Internal response	E wants to go diving/ wants to dive/ wants to play in the water	0 1
Internal plan	E decides to / thinks she will run / swim	0 1
Attempt	E runs / goes fast	0 2
Outcome	E falls / gets hurt/ bumps knee	0 2
Reaction of Elephant	E sad / cries / upset / holds her knee	0 1
Reaction of Giraffe	G is scared/ worried/ goes to help	0 1
Reaction both/ unknown	“they” are unhappy / sad / upset [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 male / her father / her brother	0 1
Initiating event	C3 shows up/comes over/ G sees C3/ C3 sees that E is hurt / asks what happened	0 2
Internal response	E/G hopes C3 can help/ C3 wants to help	0 1
Internal plan	Lifeguard decides/wants to help	0 1
Attempt	C3 tries to put Band-Aid on / puts Band-Aid on	0 2
Outcome	E gets help / feels better / has a Band-Aid / sits on bench	0 2
Reaction C1	G is relieved / happy / says “you’re all better”/ encourages	0 1
Reaction C2	E feels better / not hurt / not sad / stares at Band-Aid	0 1
Reaction C3	C3 is pleased / happy / proud / takes E to bench/ encourages	0 1
Reaction of both/ unknown	“they” are happy / say “thank you”	0 1
Initiating Event	C3 points to no running sign	0 2
Internal response	C3 wants E to follow rules / doesn’t want her to get hurt/ wants to help	0 1
Internal Plan	C3 decides to explain rules	0 1
Attempt	C3 explains rules / tells E “no running”	0 2
Outcome	E understands / listens / knows rules	0 2
Reaction of E	E nervous / worried / sorry / says sorry	0 1
Reaction of C3	C3 is upset / angry / stern	0 1
Reaction of both/ unknown	“they” are worried / upset / angry / sorry	0 1
Total Score:		

APPENDIX E:

Scoring Conventions (Internal Response/Internal Plan)

Scoring Conventions for Internal Response/ Internal Plan

Internal Response (reaction to initiating event; can be expressed in dialogue)

- Wants to/ wants [something]
 - Ex: Want to play ball, doesn't want her to run, wants food/ the ball
- Thinks [that] NOTE: dialogue, state, judgement, reaction to past action (should/shouldn't have + verb), can be expressed in dialogue
 - Thinks he shouldn't have done that
 - Thinking that he likes elephant
 - Thinking that was so fun!
 - That really stings!
- Hopes that
 - Ex: Hopes that lifeguard can help
- Is interested in
 - Ex: Is interested in airplane
- Needs to/ have to [future action]/
 - We need to get that airplane out the water
- Wondering [something]
 - He is wondering if he was wrong
- Knows [something]
 - Ex: Knows how to get the plane

Internal Plan (character's plan in dealing with initiating event; an indication of planning)

- Decides to
 - Ex: Decides to swim
 - Decides to take the ball away
- Think(ing) + [future action]
 - He is thinking to take the plane
- He/she will/can +[future action]
 - Ex: He will get the ball
- Says (or he's/ she's like) he/she will
 - Says she will get the ball
- Going to/ Gonna (About to)
 - Ex: Gonna take off the balloon
 - DO NOT COUNT: Something that is going to happen
 - Ex:The plane is going to sink
- (Should/could) or (shouldn't/couldn't) + [future action]
 - Ex: We should dive from the diving board
 - I shouldn't do that in the future
- Has idea to
 - Has idea to ask lifeguard to get it
- Let's [future action]
 - Let's go swimming

NOTE: DO NOT COUNT: Unclear referents (using general words like this, that, do) UNLESS utterances within the same story plate before or after qualify them.

APPENDIX F:

Scoring Conventions (Emotion Words)

Scoring Conventions: Emotion Words (A1-A3)

E: Elephant G: Giraffe L: Lifeguard M: Mom

A1

2. Bouncing ball: E/G-Happy, Glad, Excited
3. Ball in pool: E/G-Surprised, Concerned, Worried, Scared, Nervous
4. G in pool: E- Worried, Scared, Concerned, Nervous G- Omit
5. G hands E ball: E-Happy, excited G-Happy, proud
6. E and G standing by pool together: E/G- happy, in love G- proud

A2

2. Standing by pool: E/G- Happy, excited
3. E pointing to board: E/G- Happy, glad
4. E slips by pool: G –happy E- shocked, scared, bad surprised
5. E gets hurt: E-sad, hurt G- worried, scared, nervous
6. Lifeguard comes: G- worried, scared, nervous sad E- sad, hurt L- worried, scared, nervous
7. Puts band aid on: E- sad, hurt G- sad, worried, concerned, scared, nervous L- Omit
8. Puts E on bench; L/ G- happy, encouraging E- worried, scared, confused, nervous
9. Scolding E: L-mad, angry, disappointed E- sorry, guilty

A3

- 2 By pool: E/G-Happy, excited, glad
3. Flying airplane: G- happy, glad E- amazed, surprised
4. E grabs plane: E- happy, glad, excited G- upset, angry, shocked, bad surprised, distressed
5. Plane in pool: E/G- Worried, scared, nervous
6. G angry at E: G-angry, mad E- scared, guilty, sorry
7. Lifeguard comes: L- mad, distressed, worried E- guilty, worried, nervous G- worried, scared, guilty, nervous
8. Mom comes- M: pleased, happy E/G/L- shocked, surprised
9. Gets plane with net: M- determined L- happy G/E: worried, scared, nervous
10. Plane is back: G/M- happy, glad
11. Plane in G's hand: E/G-happy, in love, excited

***General emotions: bad, freaked out, upset, good- Label as G for Generic

Scoring Conventions: Emotion Words (B1-B3)

D: Dog R: Rabbit Dr. R: Dr. Rabbit BM: Balloon Man

B1

2. D/R- Happy, glad, excited
3. D/R- Happy, glad, pleased
4. R- happy, glad, excited D- scared, worried, nervous (NOT sad)
5. D- Shocked, bad surprised, sad R- scared, shocked, bad surprised, guilty, sorry
6. D- sad R- sad, guilty, sorry

B2

2. D/R- happy, glad, excited
3. D- worried, nervous, scared R- happy, excited, glad
4. D- worried, nervous, scared R- sick, miserable, yucky, disgusted, grossed out
5. D- scared, worried, nervous Dr. R-surprised, shocked, nervous, worried, scared R-Omit
6. D- worried, concerned, nervous, scared Dr. R-surprised, shocked, nervous, worried, scared, R-Omit
7. Dr. R: angry, mad R- disgusted, grossed out, sick, yucky, miserable
8. D/Dr. R- happy, glad R- happy, glad, better, relieved

B3

2. D/R- glad, happy, excited
- 3 R- happy, glad, excited D- surprised, worried, nervous, scared
4. D- worried, nervous, scared, bad surprised, shocked R- Omit
5. R/D- shocked, scared, bad surprised
6. D- angry, mad, furious R- guilty, sorry, scared
7. D- worried, sad, scared, nervous R- worried, scared, nervous, Dr. R and BM- Omit
8. Balloon guy/ Dr. R- happy D/R- happy, excited, glad
9. R/D- happy, excited, in love Dr. R- happy, glad

***General emotions: bad, freaked out, upset, good- Label as G for Generic

APPENDIX G:

Sample Coding Analysis Scoring Sheet

Coding Analysis Scoring Sheet for Story A1

Child's initials	Base A1		Story Probe				Base A1		Prompt Q		
Plate 1	Initial Cover					E (Elephant) G (Giraffe)					
	Emotion words	Y / N	Internal Response/ Internal Plan	IR/ IP	Y / N	Ques.	Emotion words	Y / N	Internal Response/ Internal Plan	IR/ IP	Y / N
Plate 2						ET					
						EF					
						GT					
						GF					
Plate 3						ET					
						EF					
						GT					
						GF					
Plate 4						ET					
						EF					
						GT					
						GF					
Plate 5						ET					
						EF					
						GT					
						GF					
Plate 6						ET					
						EF					
						GT					
						GF					

APPENDIX H:

Annotated Bibliography

Bamberg, M., & Damrad-Frye, R. (1991). On the ability to provide evaluative comments: Further explorations of children's narrative competencies. *Journal of Child Language*, 18(3), 689-710.

Purpose of the study: The authors explored the use of evaluative comments by typically developing children including evaluative devices for references to 'frames of mind,' character speech, 'hedges', negative qualifiers, and causal connectors.

Method: Twenty-four children and twelve undergraduate students participated in the study, with children divided into two age groups of 5 and 9-year-olds. A 24-page wordless picture book was used to elicit all narratives. Before being asked to narrate the picture book, all participants were given time to familiarize themselves with the story as they looked through the pictures of the book. The narratives were later transcribed and coded by two examiners who coded lexical items into one of five categories including frames of mind (references to emotional states, emotion verbs and mental states or activities), character speech, distancing devices, negative statements, and causal connectors.

Results: There was a difference in frequency across the groups in the overall use of evaluative devices. On average, adults used three times as many evaluative devices when compared to 5-year-old children. Findings from statistical analyses revealed that 9-year-old children's relative frequency of evaluative devices was comparable to the adults. However, the overall quantity of evaluative devices produced by 9-year-olds was more similar to the 5-year-olds. Statistical analyses also showed that there was no difference in the amount of use of the evaluative categories of 5-year-old children, whereas the 9-year-olds and adults alike used significantly more references to 'frames of mind' over the other four evaluative types. Additionally, adults used significantly more references to frames of mind and 'hedges' than the other two groups. A second analysis on the discourse functions of references to 'frames of mind' showed that younger children used this specific device to express a local evaluative perspective on events. However, with increasing age, a shift was seen towards its use in signaling the higher-order hierarchical organization of story events which is consistent with developmental patterns.

Conclusions: Each group that participated in the study demonstrated a difference in discourse profiles. Findings suggested children as young as 5-years-old have the ability to use evaluative devices in third person narratives. It was also found that although the narratives of 9-year-old children were shorter, the narrative quality did not decrease, with children providing more information and restricting themselves to relevant information. Increased preference in using references to 'frames of mind', particularly to emotions suggested that the use of this evaluative device becomes prevalent around the age of nine.

Relevance to current work: This research study provides developmental patterns observed with school-age children and their use of evaluative devices, particularly emotion words, in narratives.

Berman, R. A. (1988). On the ability to relate events in narrative. *Discourse Processes, 11*(4), 469-497. doi:10.1080/01638538809544714

Purpose of the study: This study contributes to the growing body of knowledge concerning the development of the ability to produce narratives, particularly children's ability to produce event sequences by examining children of varying ages as they produced fictional narratives elicited by an unfamiliar picture booklet.

Method: Subjects included a total of 112 Hebrew speaking participants consisting of preschoolers aged 3 to 5, school children aged 7 to 12, and a group of college educated adults ranging from 20 to 40 years. Participants previewed all the pictures in the book before they told the story to the examiner while looking at the pictures.

Results: Results revealed that younger children, particularly ages 3 and 4-years-old, were unable to maintain a unified story line throughout the narrative, recounting the pictures "by merely juxtaposing one scene alongside another; they treat each picture as an isolated frame, largely to what precedes or follows." (p. 487) It was observed that from around 5 years old, children were able to sequentially chain chronologically related events, as evidenced by their use of transition expressions such as "after that" and "then." Younger children used more isolated simple clauses or occasional coordination. It was noted that about one third of the 9-year-olds and the adults, but not the younger age groups, mentioned the internal state in response to a new development in the story. Additionally, school-age children were observed to tell "quite standardized, almost stereotypical stories, rather as though they know what is expected of them in a school-type task." (p. 492) School-age children aged 9 and 10 years old relied heavily on sequential markers, including words like "and then" and "later," with 20% of all clauses used to organize events occurring in succession. In contrast to younger children who used these segmentation markers excessively, children aged 11 to 12 years old used such words less frequently and more selectively.

Conclusions: The authors concluded that proficient narrative abilities seen in adults combine knowledge of grammatical and lexical forms for describing events, knowledge of narrative structure and linguistic devices in elaborating and interconnecting events and their own personal narrative style.

Relevance to current work: This study describes typical developing children's ability to relate events in a narrative discourse across various age groups ranging from 3 to 12 years. The current study examines the storytelling skills of children with and without language impairment.

Botvin, G. J., & Sutton-Smith, B. (1977). The development of structural complexity in children's fantasy narratives. *Developmental Psychology, 13*(4), 377-388. doi:10.1037//0012-1649.13.4.377

Purpose of the study: The authors investigated the developmental sequence of increasing structural complexity in the fantasy narratives of typically developing children.

Methods: Two experiments were conducted sampling a total of 220 children ranging from 3 to 12-years-olds. During both experiments, children were asked to make a story about anything that interested them and to make it as creative and original as possible. Stories were then scored according to seven hypothetical levels of structure complexity.

Results: The main findings from the two studies showed that the structural complexity of children's narratives progressively increased with age. Children appeared to progress in a developmental trend, starting from (a) the concatenation of a series of single plot units, to (b) the construction of narratives around a simple nuclear dyad, to (c) the conjunction and coordination of a series of nuclear dyads, to (d) the embedding of subordinate dyads within a superordinate dyad. Starting from the age of 3, children formed primitive narratives by linking a series of proper nouns without any action or event statements, merely implying the action. Around the ages of 3 or 4, children started to explicitly state events and actions; however, narratives were fragmented and incoherent, having no organization around a central conflict. Simple narratives began to emerge around the age of 4 or 5 years old. Narratives produced by this age group may be organized around a conflict and involve a progression of events. Children from the age of 6 began to produce narratives with more interest and cohesion, with greater expansion and elaboration. The ability to incorporate and coordinate multiple sequences together emerged from age 7, followed by use of complex narrative with embedded structures at the age of 11 years.

Conclusions: Narrative development appears to align with general developmental trends and principles. Both studies indicated a significant correlation between the structural complexity and length of narratives. As the number of elements incorporated in the narrative increases, it becomes necessary to use more complex ways of organization.

Relevance to current work: This work provides a detailed overview of children's developmental milestones as they learn to produce sophisticated, adult-like stories. The current study examines the difference in developmental sequence of narrative discourse between typically developing children and children with language impairment.

Colozzo, P., Gillam, R. B., Wood, M., Schnell, R. D., & Johnston, J. R. (2011). Content and form in the narratives of children with specific language impairment. *Journal of Speech Language and Hearing Research, 54*(6), 1609-1627. doi:10.1044/1092-4388(2011/10-0247)

Purpose of the study: Children with language impairment have shown to have deficits in both narrative content and form, both crucial aspects in producing a successful narrative. The main goal of this study was to examine the relationship between content and form in the narratives created by school-age children with specific language impairment (SLI) by specifically looking at both narratives with appropriate content, but many grammatical errors and narratives with poor content, but few grammatical errors.

Method: Participants included 26 school-age native English speaking children in Grades 2-4 from rural and suburban schools in British Columbia, Canada. Speech language-pathologists identified 13 of the 26 children with SLI, all of which presented with language difficulties and were receiving continued speech services at the time. The study was later replicated with a larger

sample of children consisting of 20 typically developing (TD) children and 20 children identified with SLI ranging from ages 7 to 8 year olds from Texas and Kansas.

The first study investigated whether narrative generation tasks from visual prompts and the TNL (The Test of Narrative Language) scoring system could be used to distinguish the strengths of content and form in a child's narratives.

The second study further examined the narrative performance patterns seen in study 1 using measures from more comprehensive linguistic and discourse analysis including transcribing and segmenting narratives based on Stein and Glenn's (1979) story grammar system.

Results: Study 1: Children with SLI performed considerably poorer than the TD group, falling below age level expectations in both form and content. Interestingly, many children in the SLI group had limitations that made it challenging to produce stories that were both strong in content and grammatical accuracy. More often than not, the content of the stories was stronger than the grammatical accuracy.

Study 2: Narratives produced by children with SLI contained fewer story elements than those produced by TD children, as well as fewer C-units. The narrative produced by the group with SLI also differed in language form, showing less grammatical accuracy and shorter utterances that were less syntactically complex.

Conclusions: Children with SLI present with patterns of dissociation of two kinds, one showing relative strengths in content along with weakness in form and the other less noticeable pattern of fewer grammatical errors accompanied by poor content and decreased syntactic complexity. The study also suggests that the lack of grammatical errors observed in narratives does not always indicate a strength or vice versa as a successful narrative is dependent on the organized use of multiple linguistic domains.

Relevance to current work: This study examined the narrative abilities of children with SLI in the domain of content and form compared to TD children. The current study looks at the narrative abilities of children with SLI in story generation.

Domsch, C., Richels, C., Saldana, M., Coleman, C., Wimberly, C., & Maxwell, L. (2012). Narrative skill and syntactic complexity in school-age children with and without late language emergence. *International Journal of Language & Communication Disorders*, 47(2), 197-207. doi:10.1111/j.1460-6984.2011.00095.x

Purpose of the study: This aim of this study was to determine if there were significant differences between the scores of children with and without a history of late language emergence (LLE). Comparisons were made in the three areas of narrative comprehension and production on standardized tests, use of complex syntax, and use of relative clauses in narration and conversation.

Method: Participants included twenty-two 8-year-old children, 11 of which had been diagnosed with LLE at 30 months and a control group of 11 TD (typically developing) children. Participants completed The Test of Narrative Language, a standardized test of narrative

comprehension and production, and provided a conversational sample. The results of these assessments were analyzed for the number of complex sentences and relative clauses.

Results: Children with a history of LLE did not differ from the TD group in comprehension and production scores on the standardized narrative assessment. However, it was found that the production of complex sentences in conversational samples was fewer in the LLE group. Finally, it was shown that there were no significant differences between the groups in the use of relative clauses in narratives and conversation.

Conclusion: Although children with a history of LLE may demonstrate typical development on standardized narrative tests, it is possible that they still lack age-appropriate syntactic complexity compared to their TD peers.

Relevance to current work: This study provides supporting evidence for language differences, particularly in the domain of syntax, between typically developing and atypically developing school-age children.

Drijbooms, E., Groen, M. A., & Verhoeven, L. (2016). Children's use of evaluative devices in spoken and written narratives. *Journal of Child Language*, 1-28.
doi:10.1017/S0305000916000234

Purpose of the study: This study compared the development of evaluative aspects of spoken and written narratives in middle to late elementary school children.

Method: At the start of the study, 102 children in the fourth grade took part in the study. However due to dropouts, the final sample consisted of 93 children. Participants presented with normal non-verbal cognitive and vocabulary abilities. The Expression, Reception, and Recall of Narrative Instrument, a wordless picture book that assesses children's narrative abilities, was administered to children to elicit both spoken and written narratives. Transcripts were coded into several evaluative categories including direct speech, emotive terms, intellectual terms, perceptual terms, negative qualifiers, hedges, modal verbs, figurative language, evaluative comments, and intensifiers.

Results: Findings showed that children used a wider range of evaluative categories in their writing as compared to their spoken narratives. The diversity of evaluative devices decreased significantly in spoken narratives across development, whereas it did not for written narratives. Although children were observed to use a variety of emotive terms to tell their narratives, there was no developmental changes observed in the study sample. However, although this finding may contradict results from Bamberg and Damrad-Frye (1991), it can be accounted for by the differences in the participant population and the nature of the stories used to elicit narratives between the two studies. However, both studies suggested that younger children tend to attach emotions to local outcome rather than to the global coherence of the story.

Conclusions: Developmentally, the diversity of evaluative devices did not increase, and only a few categories showed a clear developmental increase in use with age. However, the authors proposed that for older children, in which the "acquisition of linguistic forms is no longer

central to language production,” their language development begins to “revolves around learning to deploy linguistic forms flexibly and appropriately to meet communicative goals.” (p.23)

Relevance to current work: This study provided a look at the evaluative performance, particularly the use of emotive terms, in middle to late elementary school children in spoken and written narrative production. It also outlined important developmental patterns observed in the use of evaluative devices.

Eaton, J. H., Collis, G. M., & Lewis, V. A. (1999). Evaluative explanations in children's narratives of a video-sequence without dialogue. *Journal of Child Language*, 26(3), 699-720.

Purpose of the study: This study examined the use of evaluative explanations in children’s narratives in the absence of having previously hearing the story. The second aim of this study was to investigate whether questions that focused attention on the mental state of story characters would prompt children to offer more evaluative explanations in narrative production. Finally, the researchers examined whether children would adopt a more global evaluative perspective on a story when given prompt questions.

Method: Participants involved 160 children across four age groups, with ages ranging from 4 to 12 years old. Materials included a 3-minute silent video and a set of prompt questions used to elicit narratives. The children were individually presented the video sequence to familiarize them with the story, followed by another showing of the video where children were randomly grouped into either a prompt or no prompt condition. During the second showing of the video, the clip was stopped between each of the seven individual scenes. After each stopping of the video, the children in the no prompt condition were asked to tell the story back to the proctor in their own words. In the prompt condition, children were asked a series of prompt questions after each individual scene of the video sequence. The prompt questions focused on the story action as well as the story characters’ mental states. All narrative transcripts were divided into two categories of clauses, narrative and evaluative, and then coded into six subcategories of evaluative devices including frame of mind (basic), frame of mind (with cause), causal connectives, hedges, character speech and negative qualifiers. The transcripts for children’s responses in the prompt condition were coded for their relevance to the prompt question.

Results: In the no prompt condition, children produced fewer evaluative clauses than narrative clauses, and use of both clauses increased with age. On the other hand, in the prompt condition, the use of evaluative clauses was higher than the frequency of narrative clauses, even in 5-year-old children. Additionally, the number of evaluative comments saw a steeper increase with age compared to the growth seen in narrative clauses. Although some evaluative categories were used infrequently in both conditions, it was observed that the prompt questions led to an increase in the number of frame of mind (basic) and frame of mind (with causes) explanations across all age groups.

Conclusions: The authors conclude that it is possible to improve the evaluative performance of even 5-year-old children when given prompt questions. The data demonstrated that children were able to provide evaluative explanations of story events even without hearing a

story. The authors state, “willingness to offer this type of evaluation spontaneously appears to increase systematically with age, but it would seem that children possess the cognitive skill to formulate evaluative explanations long before they include these in their narratives spontaneously (p.713).” The findings of this study also suggest that children are very quick in spontaneously providing the information the prompt questions were designed to probe. This finding supported previous findings of a positive correlation between the deliberate inclusion of evaluative devices when telling a story to a child and the child’s subsequent use of these devices independently (Harkins, Koch, & Michel, 1995). Finally, the results of this study challenge previous studies that claim that cognitive skills involved in evaluative comments do not develop until a later age, providing new evidence that 5 year olds are able to produce evaluative explanations once they are given a framework of prompt questions. It appears that by lightening the demands on working memory and/or cueing expected story patterns, children are able to infer characters’ mental states.

Relevance to current work: This study briefly outlines developmental patterns of evaluative performance, including basic frame of mind (emotion words) development, observed in typically developing children. Similarly, the current study also utilizes a set of questions probes focusing on the evaluative state of story characters’ and assesses whether there are significant differences that exist in the evaluative performance of school-age children with language impairment pre and post administration.

Engberg-Pedersen, E., & Christensen, R. V. (2016). Mental states and activities in Danish narratives: children with autism and children with language impairment. *Journal of Child Language*, 1-26. doi:10.1017/S0305000916000507

Purpose of the Study: In this study, the authors investigated the relationship between children’s use of mental state language about the story characters and the content elements by comparing narratives from children with autism spectrum disorder (ASD), children with language impairment (LI), and typically developing (TD) children. The authors predicted that children with autism and language impairment would mention fewer content elements as well as fewer mental-state clauses of communication, thoughts, and emotions than typically developing children.

Method: Participants in this study included Danish-speaking children ranging from ages 10 to 14 years old. Twenty-seven of these children were diagnosed with ASD, twelve children with developmental LI, and thirty with TD children. Narratives were elicited using a wordless picture book, with children leafing through the book before telling the experimenter what the story was about. The narratives were analyzed for content according to the semantic-pragmatic relevance index (SPRI) developed by Norbury, Gemmell, and Paul (2014). Additionally, narratives were also analyzed for total number of lexical and clausal mental-state expressions, specifically targeting communication, thought, and emotion clauses.

Results: Significant effect of group was found with the SPRI score, revealing that both groups with impairment provided significantly fewer components of the storyline compared to TD children. Children with LI produced less relevant information than TD children. There was no effect of group on the total number of expressions of mental states and activities, as well as

for the total number of expressions with each category of communication, emotion, and thoughts. The children's total number of mental state expressions and mental state clauses was observed to be correlated with their SPRI scores, showing high correlations between TD and LI children. All children in the study generally used few emotion clauses. However, children with ASD used more communication clauses than TD children.

Conclusions: Children with ASD and LI had lower scores on the SPRI compared to TD children. There were significant correlations found between children's use of mental state expressions and their SPRI score. There were no significant group effects on the overall use of mental state clauses across all three groups. Although children with LI received very low scores on linguistic background assessments, their linguistic difficulties may have been compensated for by their socio-cognitive skills during narrative production. However, their narratives continued to remain less informative than TD children.

Relevance to current work: This study described narratives produced by children with ASD and LI, particularly focusing on the use of mental state expressions. The current study also uses pictureless stories to elicit narratives and analyzes the use of emotion words in narratives produced by children with LI.

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

Purpose of the study: This study set out to understand story composition outcome differences among second and fourth grade children depending on the children's language and nonverbal IQ skills at kindergarten, testing modality and the child's sex. The authors also aimed to further examine the level of progress made in narrative ability of children as they advanced from second to fourth grade.

Method: Participants included 538 children who originally were part of a larger study of 7,218 children with language impairments in kindergarten. Each child participant represented 1 out of 4 diagnostic groups including typical language (TL), specific language impairment (SLI), nonspecific language impairment (NLI) or low nonverbal IQ (LNIQ). The 538 children completed oral and written story generation tasks during both grades. Stories were later analyzed for lexical diversity, utterance length, story length and productivity, clausal density, grammatical accuracy, story content, organizational structure and literate language sophistication.

Results: Compared to any other diagnostic group, TL children had more grammatical complexity, fewer errors, greater lexical diversity, and greater overall quality of story narratives. Children with early diagnoses of LI had poorer oral and written narrative skills as they continued through the elementary school years. When compared to the TL group, the group with SLI showed slower growth from second to fourth grade particularly in the areas of lexical diversity, story length, and story quality.

Conclusions: Assessment procedures of a child with a history of LI should include assessment of both oral and written narrative composition.

Relevance to current work: This study examined the oral story composition differences between typically developing children and children with a history of various language impairments.

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

Purpose of the study: The authors provided clinically relevant information about the collection of narrative samples, two approaches to narrative analyses, and their interpretations.

Conclusions: Clinicians should consider subject characteristics, type of stimuli, and elicitation methods when collecting narrative samples. Although there are many approaches to narrative analysis, clinical applications have shown that Applebee's (1978) narrative levels analysis and Glenn and Stein's (1979) story grammar structural analysis provide the most relevant information for clinicians. These two narrative analyses are similar in their assessment of global organization, but differ in the features used to organize narrative content. Story grammar patterns, which are goal-based, were developed through the study of kindergarten and third and fifth grade children's stories. On the other hand, narrative levels were defined after the analysis of stories created by children 2 to 5 years of age. The authors described the seven major components of Stein and Glenn's (1979) story grammar model, which include the setting, initiating event, internal response, internal plan, attempt, consequence, and reaction. A developmental sequence for the acquisition of these story structures begins with the descriptive sequence, which then develops into an action sequence, reactive sequence, abbreviated sequence, complete episode, and complex episode before reaching the highest level of the interactive episode. The overview concluded by listing possible limitations of both Applebee's (1978) and Stein and Glenn's (1979) narrative analyses studies.

Relevance to current work: The current study described ways to collect and analyze narrative samples.

Kaderavek, J. N., & Sulzby, E. (2000). Narrative production by children with and without specific language impairment: Oral narratives and emergent readings. *Journal of Speech Language and Hearing Research*, 43(1), 34-49.

Purpose of the study: This study examined the performance of preschoolers with and without language impairment in two narrative genres, emergent readings and oral narratives. The purpose of this study was to help the authors better understand how children respond differently to changing narrative genres as well as to clarify the relationship between language impairments and later reading disabilities.

Method: Participants included two groups of 2 to 4-year-old preschool children consisting of 10 typically developing children (TD) and 10 children diagnosed with specific language impairment (SLI). The typically developing children were matched to the subjects in the SLI group by gender and chronological age. Language samples were collected during home parent-child book reading and parent-child toy play interactions. The samples were then transcribed according to the guidelines for Codes for Human Analysis of Transcripts and

examined for length and complexity, story structure, character introduction/pronouns, verb tense, reported speech, and connectors.

Results: TD children produced more first-person pronouns, past-tense verbs, dialogue carriers, direct quotations, and longer utterances during their oral narratives compared with children with SLI. There were no significant differences observed between TD children and children with SLI for marking the beginning, middle, or end of the story structure and the use of connectors.

Conclusions: Overall, children with SLI showed reduced ability to produce the linguistic features of written language. Children with SLI presented with lower MLU, less frequent use of past tense verbs, and less frequent use of first-person pronouns, indicating that children with SLI demonstrated difficulties with syntax and morphology with oral narrative productions. Despite their deficits, children with SLI demonstrated awareness of decontextualization during emergent readings, showing frequent use of over-specificity of character. Emergent reading elicitation may measure a child's internalization of written text features and may serve as a useful additional language sample tool.

Relevance to current work: This study examined the oral narrative abilities of children with SLI and located several areas of difficulty SLI children may have compared to their age matched typically developing peers.

Loukusa, S., Makinen, L., Kuusikko-Gauffin, S., Ebeling, H., & Moilanen, I. (2014). Theory of mind and emotion recognition skills in children with specific language impairment, autism spectrum disorder and typical development: group differences and connection to knowledge of grammatical morphology, word-finding abilities and verbal working memory. *International Journal of Language & Communication Disorders*, 49(4), 498-507. doi:10.1111/1460-6984.12091

Purpose of the study: The aim of this study was to compare the social perception abilities, specifically Theory of Mind (ToM) and emotion recognition, in children with specific language impairment (SLI) and autism spectrum disorder (ASD) as well as typically developing (TD) children. The authors predicted that children with ASD would score lower than children with SLI and TD children on these tasks due to known social communication deficits commonly associated with ASD. In addition, the authors also expected children with SLI to fall in between children with TD and ASD.

Method: Fifty-seven Finnish-speaking children participated in this study, 18 children with SLI, 14 children with ASD, and 25 TD children. Ages ranged from 5 to 9 years old. Each child was administered two subtests of the Social Perception domain of the Developmental Neuropsychological Assessment (NEPSY-II). The subtest of Affect Recognition examined the children's ability to match basic emotions and neutral expressions in photographs of children's faces. In the ToM subtest, children answered questions verbally that measured their understanding of beliefs, intentions, others' thoughts, ideas and comprehension of figurative language. The Contextual tasks of the ToM subtest measured children's ability to relate emotion to the social context.

Results: Compared to other groups, children with ASD obtained lower standard scores in the Affect Recognition subtest. Children with SLI and TD children did not differ from each other in emotion recognition. Although previous studies have shown difficulties in emotion recognition in the performance of children with SLI on emotion inferencing tasks, in this study there were no such inference demands, thus creating an easier task for children with SLI. On the NEPSY-II ToM subtest, the groups with SLI and ASD both presented similar difficulties with ToM verbal tasks that required complex inferencing.

Conclusions: Contrary to the authors' expectations, both children with SLI and ASD demonstrated difficulties in verbal ToM tasks, providing increasing support that difficulties in social perception can be found in children with SLI as well. Additionally, the association between verbal ToM tasks and language tests were found to be stronger in the SLI group compared to the ASD group.

Relevance to current work: Findings provided an overview of what is known about the social perception abilities, including emotion understanding, of children with LI. The current study examined the use of emotion words in the narrative production of school-age children with LI.

Makinen, L., Loukusa, S., Laukkanen, P., Leinonen, E., & Kunnari, S. (2014). Linguistic and pragmatic aspects of narration in Finnish typically developing children and children with specific language impairment. *Clinical Linguistics & Phonetics*, 28(6), 413-427. doi:10.3109/02699206.2013.875592

Purpose of the study: The aim of this study was to investigate the narrative abilities of Finnish children with specific language impairment (SLI) from a linguistic and pragmatic standpoint.

Method: Thirty-eight Finnish 4 to 7-year-old children participated in this study. Nineteen of these children were identified as having SLI and the other 19 children were typically developing (TD) children. Children were tested individually and participated in a story generation task that was designed for the assessment of Finnish children's narrative abilities. Narratives were elicited by using a wordless, goal-based picture booklet called, "The Cat Story." The children were given time to look silently through the pictures before telling the story back to the prompter. These narratives were then transcribed using the CHAT format of the Child Language Data Exchange System (CHILDES). The narrative content was analyzed for number of different word tokens, mean length of communication units, clausal density, referential accuracy, event content, mental state expressions, and narrative comprehension.

Results: Children with SLI scored significantly lower than TD peers on the number of different word tokens, mean length of communication units, clausal density, grammatical accuracy, referential accuracy, event content, and comprehension questions. In the TD group, 79% of children produced mental state expressions with a total of 40 expressions. On the other hand, 42% of SLI children used mental state expressions with a total of 13 expressions. Analysis of the narratives of children with SLI revealed that the this group tended to omit third person subjects, making this the most common error type among children with SLI.

Conclusions: The group with SLI produced stories that were shorter than those of their age matched peers. Their stories also contained fewer word tokens, indicating decreased productivity, lexical skills, and meaning. Children with SLI showed reduced syntactic complexity, using mostly simple and short main clauses. Inflection errors were common with the group with SLI, but only to a small extent. However, this may have been impacted by the short length of the story probe tasks which may not have captured all the difficulties children may face in morpho-syntax. The omission of third person subjects in narratives not only affected the linguistic structure, but pragmatic aspects of narration as well. The missing referents and ambiguous pronouns made it difficult for the listener to identify the relationship between the story characters and their actions. Since accurate referencing requires both the simultaneous management of both contextual and linguistic features, it is possible that cohesion suffered as a result of a challenged child's processing capacity. Children with SLI were also shown to be unable to integrate sufficient relevant information into their stories, despite the picture prompts. In the analysis of mental state expressions, emotional behavior words or perceptual states which were visible in the picture prompts were not accepted. Results showed that although the proportion of children with SLI who produced mental state expressions was smaller than the TD group, the use of mental state expressions was also observed to be quite uncommon among the TD group. Studies have shown that TD Finnish children typically start producing mental state expressions around seven (Eaton, Collis, & Lewis, 1999) or nine years of age (Bamberg & Damrad-Frye, 1991). Children in the group with SLI may have concentrated on the clearly depicted actions of the story rather than on inferring the mental states of others. Memory and poor inferencing abilities may have had some effect on the significantly lower story comprehension scores that children with SLI received.

Relevance to current work: This study examined the linguistic and pragmatic aspects of narratives produced by young school-aged children with and without SLI. It emphasized the importance of both linguistic and pragmatic abilities in narrative production, stating "narratives offer a rich language sample to analyse and not only linguistic features but also pragmatic language, such as the use of context and the ability to understand listener's perspective" (p. 413). The researchers used pictorial prompts and tasks similar to the current study and analyzed the production of mental state expressions in children with SLI.

McCabe, P. C., & Meller, P. J. (2004). The relationship between language and social competence: How language impairment affects social growth. *Psychology in the Schools*, 41(3), 313-321. doi:10.1002/pits.10161

Purpose of the study: The study examined ratings of socially competent behaviors in preschool children with specific language impairment (SLI) and children with typical language development (NLI) using measures of peer likeability, socio-metric status, parent and teacher behavior ratings, emotional knowledge, and language development. Based on previous research, the authors expected to see children with SLI score lower on most measures of social competence.

Method: Participants included 71 pre-school children ranging from 3;10 to 5;7 years old with male participants outnumbering female participants by a 5:1 ratio among the group with SLI. Examiners met with children one week prior to testing in order to establish rapport. Each

child was given sociometric ratings, mutual friendship ratings, an emotional knowledge expression test, and an emotional situation knowledge test as part of the assessment.

Results: According to the results of the Social Skills Rating Scale, children with SLI had somewhat lesser developed social skills, particularly in the areas of self-control, assertiveness, empathetic responding and socialization. Regardless of language ability, children in both groups were able to identify emotions expressively and receptively. Findings showed that children with SLI performed more poorly on the stereotyped emotional knowledge task, in which they were made to imitate what most people feel in certain situations, than on the more difficult, non-stereotyped subtest where children used puppets to act in scenarios that required them to behave contrary to what would be typically expected. This finding suggested that under certain conditions, children with SLI struggled to find an appropriate emotion given a specific situation.

Conclusions: Through this study, results revealed that children with SLI demonstrated several delays in social competence, particularly in the areas of self-control, assertiveness, sociability and emotional knowledge understanding.

Relevance to current work: The current study analyzes the use of emotion words in the narratives of school-age children with LI.

Merritt, D. D., & Liles, B. Z. (1987). Story Grammar Ability in Children with and without Language Disorder. *Journal of Speech Language and Hearing Research*, 30(4), 539-552. doi:10.1044/jshr.3004.539

Purpose of the study: The intent of this study was to examine the story generation and story retelling abilities of older children with language disorders. Children in the study were interviewed using sets of comprehension questions in order to assess their understanding of the stories in the retelling task and to determine whether the story content or vocabulary was beyond the abilities of the participant.

Method: Forty children between the ages of 9;0 and 11;4 were involved in the study, with 20 children composing the group with language disorders, and another 20 children composing the typically developing control group. Each participant completed a total of three story generation tasks elicited from story stem stimuli, along with three story retelling tasks. Upon completion of each story retell, 16 comprehension questions designed for each story were asked to each child. The generated and retold stories were transcribed and analyzed using adaptations of Stein and Glenn's (1979) story grammar rules.

Results: The control group of children with typical development produced more complete episodes and a greater frequency of story grammar components than did children with language disorders on both story tasks. The omission of direct consequence statements was the most frequently omitted story grammar component in the group with language disorders. Children in this group also abandoned episodes without a logical consequence for their character's attempts. Although the groups did not differ in their ability to answer factual questions, differences were seen in their responses to story grammar comprehension questions.

In terms of story length, the stories of children with language disorders did not differ in length from those of their typical peers. However, the quality of stories differed.

Conclusions: Although typically developing children and children with language disorders appeared to be guided by story grammar rules in story organization, the quality and effectiveness of their narratives showed vast differences. Children with language disorders demonstrated weaknesses in both complete episode structures and story comprehension as evident by their performance on both story generation and retell tasks. The authors suggested that the story grammar model may be an effective tool in assessing the degree to which children with language disorders integrate causal and temporal relations in stories.

Relevance to current work: The current study reviewed story retell and comprehension in children with language disorders.

Norbury, C. F., & Bishop, D. V. (2003). Narrative skills of children with communication impairments. *International Journal of Language & Communication Disorders, 38*(3), 287-313. doi:10.1080/136820310000108133

Purpose of the study: This study aimed to explore the relationship between structural language and pragmatic abilities in narratives produced by children in three clinical groups, those with specific language impairment (SLI), those with pragmatic language impairment (PLI), and those with high functioning autism (HFA) along with their age-matched typically developing peers. The authors sought to continue exploring the following possibilities: 1) language ability is the key determinant of narrative competence 2) pragmatic language skills are an independent determinant of narrative competence 3) diagnosis predicts narrative performance.

Method: Children with language impairments ranging from 6 to 10 years old were recruited from residential schools that provided specialized services for children with SLI in South East England. Teachers were asked to complete the Children's Communication Checklist (CCC), as well as the Social Communication Questionnaire and the Autism Diagnostic Observation Schedule in order to classify children into three clinical groups (SLI, PLI, HFA). In addition to these clinical groups, 18 typically developing children were recruited from state primary schools and their teachers completed the CCC. A 24-page picture book, "Frog, Where are you?," was used to elicit narrative samples from each of the participants. The narratives were analyzed for global structure, evaluating the episodic structure of the child's story and the local structure, specifically looking at story length, syntax, semantic score, and cohesion. Finally, evaluative comments were measured using the same five-category system Bamberg and Damrad-Frye (1991) used in a previous study consisting of frames of mind, character speech, hedges, negative comments, and causal connectives.

Results: There were no group differences on the story structure measure across all groups. Syntactic measures including sentence complexity and tense errors distinguished children with impairments from typically developing peers. There were no differences between the clinical groups and their age matched peers in the total information provided by the semantic score. All children were sensitive in introducing and reintroducing story characters, but ambiguities were more commonly found in the clinical groups. There were no group differences

in the number of frames of mind or the number of other evaluative comments children produced. Modest support was found for language ability being the key determinant of narrative competence, however not much support was found for pragmatic language skills being independent determinants for narrative competence as the clinical groups rarely differed from one another. Finally, diagnosis only predicted narrative performance in one area, producing ambiguous nouns and pronouns, which were commonly found with children with HFA.

Conclusions: Although there were no group differences in global structure across groups, this claim warrants further investigation. Based on developmental trends, it is unlikely that many school-age children would be able to provide an adequate story ending and it is possible that the control children in the sample were still in the process of developing narrative skills. Syntactic measures showed significant differences between TD children and the clinical groups, contradicting traditional descriptions of children with PLI and HFA having relatively intact syntactic abilities. The lack of group differences found with regard to evaluative comments may be again due to developmental trends, with evaluation being a skill that continues to develop throughout the school-age years.

Relevance to current work: This study provided a comprehensive overview of different groups of children with communication impairments and how their impairments contributed to their narrative performance. Developmental trends regarding narrative abilities in school-age children were discussed, as well as findings regarding the use of mental state expressions and emotion terms among children with varying communication disorders.

Norbury, C. F., Gemmell, T., & Paul, R. (2014). Pragmatics abilities in narrative production: A cross-disorder comparison. *Journal of Child Language*, *41*(3), 485-510.
doi:10.1017/S030500091300007X

Purpose of the study: The study aimed to compare the socio-pragmatic and structural language deficits to narrative competence of children with autism spectrum disorder (ASD), non-autistic children with language impairment (LI) and children with typical development (TD).

Method: Eighty-nine children were recruited from the Yale Child Study Center in the USA and research participants in a larger study in England. The age range spread across the sample was 78 months to 189 months. Each participant was shown a wordless picture book and given time to review all the pages of the story before being asked to tell the story to the examiner. The story transcripts were coded for qualitative aspects of storytelling, internal state language, semantic-pragmatic relevance, pragmatic errors, and story macrostructure.

Results: Surprisingly, findings revealed that children with LI demonstrated more difficulty with qualitative indices of internal state language, semantic-pragmatic relevance, pragmatic errors, and story macrostructure than did their peers with ASD. The researchers suggested “that the ability to talk about the mental and emotional lives of others depends crucially on having the vocabulary to do so” and that “children with LI may recognize those internal states in others, but not have the vocabulary to discuss thoughts or feelings.” (p.502) Additionally, syntactic and semantic abilities in narrative production did not differ significantly between the groups with ASD and LI.

Conclusions: The authors concluded by emphasizing the importance of narratives as tools in revealing pragmatics strengths and difficulties in a wide range of clinical populations.

Relevance to current work: This study suggests that children with LI present with difficulties in socio-pragmatic and structural language, including weaknesses in the use of internal state language in story narratives.

Pearce, W. M., James, D. G., & McCormack, P. F. (2010). A comparison of oral narratives in children with specific language and non-specific language impairment. *Clinical Linguistics & Phonetics*, 24(8), 622-645. doi:10.3109/02699201003736403

Purpose of the study: The primary purpose of this study was to investigate whether measures of oral narrative structure, content, and cohesion differed between children with specific language impairment (SLI) and non-specific language impairment (NLI).

Method: Thirty-four children with moderate to severe language impairment and diagnosed with SLI and NLI, aging from 5;0-6;3 years of age, were recruited from South Australian pre-schools and schools. Twenty-one typically developing (TD) children aging from 4;11-5;11 years of age were recruited from pre-schools and schools from the same geographical areas to serve as a control group. Using problem-based picture stimuli, two oral narratives were elicited from each participant and then analyzed into narrative levels which were clustered in three levels of non-goal directed, goal-directed, and elaborated. The narrative samples were also analyzed for cohesive devices and information.

Results: Children from SLI and NLI groups demonstrated similar performance for narrative organization, cohesion and information provision. The majority of children with SLI and NLI produced less sophisticated narratives, producing non-goal-directed narratives while the majority of TD children produced elaborated goal directed narratives. Cohesion results from one of the oral narratives were limited, but showed high usage of erroneous ties with SLI and NLI groups. The TD groups provided significantly higher information scores than the other two groups with large effect sizes.

Conclusions: The findings of this study agree with the study by Fey et al. (2004) finding no significant differences between children with SLI and NDLI for grammatical accuracy, context, and quality. This finding suggests that linguistic skills contributed more to narrative competence than did non-verbal cognitive skills. The authors stated, “grammatical and vocabulary skills form critical building blocks for narrative cohesion and information provision.” (p.635)

Relevance to current work: This study investigated the oral language characteristics of school-age children with SLI including narrative structure, cohesion, and information as well as the possible impact of non-verbal cognitive skills utilized during narrative production.

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: The study described the Edmonton Narrative Norms Instrument (ENNI) and evaluated its ability to evaluate story retell abilities in typically developing children and children with LI from 4 to 9 years of age.

The Story Grammar Model (SG model): This model was created to “describe the information that adults identify as essential to ‘good stories’ and that adults and older children typically include in their stories” (Stein & Policastro, 1984, p. 225). This model assumes that “stories consist of sets of sequentially related categories of units” and each category of the SG model “refers to different types of information that serve specific functions in the story. (p. 225) In each story, there is at least one main character with a motivation to carry out some type of goal-directed action. The story then revolves around this attempt to accomplish this goal, with an ending in which the goal may or may not be achieved. The two main components of the SG model include structural patterns and story grammar units. The structural patterns of the story describe the organization of the story and its content. Story grammar units are “the categories of information that are typically provided in a certain order within episodes” (p.226). Story grammar units consist of the setting (including the characters and location of the story), initiating event, internal response, internal plan, attempt, outcome, and reaction. Experimental evidence provides support, suggesting that the SG model “appears to be a valid representation of how individuals organize story information in order to encode, understand and retrieve stories. (p. 226)

Method: Participants consisted of a total of 337 children ranging from ages 4;0 to 9;11. The sample represented two subgroups within every group and consisted of a wide range of both typically developing (TD) children and children with LI. Six original picture stories, ranging from simple to complex stories, were used to elicit narratives from each participant. Children previewed the story pictures with the examiner before telling the story. The SG model was used to analyze components of the child’s narratives.

Results: A developmental trend was revealed for the number of story grammar units to age 7 for simple stories and to age 8 for complex stories, suggesting that story grammar units can be useful in providing information about story telling abilities and its development in younger children. However, story grammar unit scores were not observed to increase with older children. Results also indicated that TD children obtained higher scores across each age group than children with LI, with the exception of age 9.

Conclusions: The story grammar measure was effective in differentiating the performance of children with LI and typically developing children from the ages of 4 to 8 years. The ENNI analysis showed promise as an evaluation tool.

Relevance to the current work: This article described the components of the SG Model and the development of the ENNI. The current study examines the narrative production of children with LI using the ENNI as an assessment tool.

Siller, M., Swanson, M. R., Serlin, G., & Teachworth, A. G. (2014). Internal state language in the storybook narratives of children with and without autism spectrum disorder: Investigating relations to theory of mind abilities. *Research in Autism Spectrum Disorders*, 8(5), 589-596. doi:10.1016/j.rasd.2014.02.002

Purpose of the Study: This study examined the ability of children with autism spectrum disorder (ASD) to produce narratives from wordless picture books. The researchers particularly focused on the children's language to describe characters' thoughts and emotions (internal state language) and investigated the relationship between the use of internal state language and theory of mind (ToM) abilities.

Method: Participants included 21 children with ASD and 24 typically developing (TD) children. These children were administered assessments for non-verbal cognition, and autism related symptoms, as well as a receptive and expressive language assessment using the Peabody Picture Vocabulary Test. Narratives were elicited using wordless picture books, then transcribed, and evaluated for narrative volume and use of internal state language.

Results: Results revealed that when compared to the TD group, the group with ASD used significantly fewer utterances as well as fewer adjectives and unique verbs. Additionally, children with ASD were observed to use fewer words to describe characters' emotional states. There were no significant differences found between children's use of cognitive terms. Finally, results showed that a specific association existed between use of emotion terms and performance on tasks evaluating ToM abilities.

Conclusions: Despite inconsistent findings of children's use of internal state language, this study provided increasing evidence for deficits in the use of internal state language specifically in children with ASD. Additional research was suggested with larger sample sizes to determine whether these deficits involve a greater extent of children's use of cognitive or affective terms. Findings from this study supported the notion that narrative skills of children with ASD may be impacted in part by their poor ability to interpret others' thoughts and internal states.

Relevance to current work: The current study evaluates the use of emotion words in narratives elicited by wordless picture books by school-age children with language impairment.

Spackman, M. P., Fujiki, M., & Brinton, B. (2006). Understanding emotions in context: The effects of language impairment on children's ability to infer emotional reactions. *International Journal of Language & Communication Disorders, 41*(2), 173-188. doi:10.1080/13682820500224091

Purpose of the study: The study examined the ability of school-age children to infer the emotion a character may experience given a specific social situation. The authors expected that children with language impairment (LI) would provide less sophisticated responses when compared to their typically developing (TD) peers.

Method: Forty-three children with LI and 43 matched TD peers were recruited from two school districts in the western US. Participant ages ranged from 5 to 12 years old. Story scenarios supported by pictures were presented to each participant. In each scenario the main character was faced with a situation that would elicit a particular feeling. Participants were then asked to indicate the emotion that the main character experienced in the story. Participants were given the option to respond verbally or point to one of five line drawings on cards representing

various emotions. After every fourth scenario given, the children were asked to provide a reason behind the main character's emotion in order to probe the child's understanding of the story event.

Results: Results showed that the emotion, happiness, was the most accurately identified emotion, followed by sadness, fear, and anger. Additionally, it was found that older and TD children produced more accurate identifications than younger children and children with LI. A modest effect size between the differences in TD children and LI children was noted on performance on the emotion inferencing task.

Conclusions: Despite researchers' efforts to bring the language demands of the tasks within the ability of the LI group, children with LI continued to lag behind TD children and experience difficulties even as they matured. This suggests that deficits lie in LI children's ability to recognize and infer emotions when given particular social situations. When children with LI were asked to describe how they experienced a particular emotion, they were able to discuss their emotions in some instances, but overall, they presented more difficulty than their TD peers.

Relevance to the current work: This study provided insights into possible social deficits in children with LI and how this may impact narrative discourse. The current study analyzed the ability of school-age children with LI to recognize and produce emotion words in oral narratives.

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 paper: This article provided a detailed overview of the story schema used to analyze both simple and complex stories.

Summary: Two assumptions are made when discussing the analysis of stories. First, it is assumed that stories have some kind of internal structure, and second, stories can be "described in terms of a hierarchical network of categories and the logical relations that exist between these categories" (p.58). Categories are the types of information one would expect to see in most stories. A story consists of a setting and an episode system. The setting of the story serves to introduce the main characters and "describes the social, physical, or temporal context in which the remainder of the story occurs" (p.59). The episode structure comprises the remainder of the story structure is defined by the authors as "an entire behavioral sequence" (p.62). The majority of stories contain multiple episodes that relate to each other. This behavioral sequence is comprised of "external and/or internal events which influence a character, the character's internal response (goals, cognitions, plans) to these events, the character's external response to his goals, and the consequence resulting from his overt responses" (p.63). A simple episode begins with an initiating event which then evokes a response from the main character. The character's response consists of an internal response, or the psychological state of the character, along with a plan sequence. The main function of this category is to identify the motivation behind the subsequent plan sequence. The internal response category contains the affective responses, goals, and cognitive states of the characters involved. The internal response is

followed by the plan sequence, which is divided into the internal plan and the plan application. The internal plan defines the character's strategy for their subsequent behavior which eventually becomes the motivation behind the plan application, or the character's overt attempt to attain his goal. The final category is the resolution to the character's attempt comprising of the direct consequence and the reaction (affective responses, cognitions, and actions). Although the internal response and reaction categories are very similar, the reaction category "contains no clear goal statements and does not lead to a plan sequence (p.67).

Conclusions: Very few stories are as straightforward as a simple episode. Rather, stories generally tend to vary widely in the number of episodes they contain as well as the complexity of each episode.

Relevance to current work: The researchers provided in-depth descriptions of their story grammar model, its elements and development. The current study analyzes the narrative abilities of children with LI, particularly their ability to describe internal responses and emotion words in narratives elicited by wordless picture stories.