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Oral and written narratives: A comparison of children with and without language impairments

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by

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ABSTRACT

Oral and written narratives: A comparison of children with and without language impairments

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Purpose:

The purpose of this study was to examine oral and written narratives of 30 children with and without language impairments.

Method: Thirty third grade children with either a clinically identified language impairment or typical development were matched to create 15 age and gender matches. The CELF-5 and TONI-4 were administered to further describe the severity of the children's language. Children then told oral and written narratives stories that were elicited using twin themed story starters. Research assistants who were blind to the purpose of the study transcribed and scored the oral and written stories. Oral and written narratives were analyzed at the word, sentence, and discourse level. At the word level, number of total words (NTW), number of different words (NDW) were measured. At the sentence level, was measured mean length of utterance (MLU). At the discourse level overall all narrative quality using the Monitoring Indicators of Scholarly Language (MISL) was measured. An inter-rater reliability score of 85% or better was considered acceptable for the transcription and scoring. Comparisons were made between oral and

written language modalities as well as between children with and without language impairment.

Results: Overall, written NDW was the only statistically significant difference when comparing oral stories to written stories. When comparing children with language impairments to children with typical development, there were statistically significant differences in written NTW, written NDW, and written MISL score, suggesting that children with language impairments had a more difficult time with their writing than their oral stories in the third grade.

Conclusion: The findings demonstrated that particular attention should be paid to written stories for children with language impairments. Specifically, lexical diversity, length of written stories and overall narrative quality. Literacy instruction should focus on the explicit teaching to develop greater lexical diversity in written measures for all children and lexical diversity and development of written causal and temporal terms for children with language impairments.

Key words: *narratives, oral language, written language, language modalities, language impaired, typically developing.*

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CONTENTS

Chapter I

Introduction

The National Assessment of Educational Progress (NAEP) is the nation's report card for children who attend public schools in the United States. NAEP assessments are administered in a variety of topics including mathematics, reading, science, writing, the arts, civics, economics, geography, U.S. history, technology and engineering, and literacy. Results from the 2011 NAEP paper/pencil writing assessments indicated both 8th and 12th grade children did not meet *Proficient* writing levels. Only 28% of 8th grade and 12th grade students performed at the *Proficient* level or above. Furthermore, a majority of 4th grade children did not meet *High* writing levels on a computerized 2011 pilot assessment. These results mean that a majority of children are not meeting the *Proficient* level set by No Child Left Behind Act (2001), which was replaced with Every Student Succeeds Act in December 2015. Overall, children's performance on the NAEP writing assessments is far from ideal.

To better prepare students for academic success, the Common Core State Standards (CCSS) were launched in 2009. The CCSS provide performance expectations at each grade level for children in kindergarten through 12th grade for *Speaking and Listening* (oral language) and *Writing* (written language). For example, by the end of 2nd grade, children are expected to write informative texts where they introduce a topic, use facts and definitions to develop points, and provide a concluding statement. Second grade children are also expected to write narratives where they recount a well-elaborated event and include details to describe actions, feelings, and thoughts. By the end of 3rd grade, children should be able to "report on a topic or text, tell a story, or recount an

experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace" (Common Core State Standards Initiative, 2017, b.). There is an interaction between oral and written language as children are required to meet these standards.

In addition to not meeting CCSS, poor writing skills can affect children in their adolescent and adult life. As children develop their ability to write in elementary school, writing then supports their learning (Suddarth, Plante, & Vance 2012). High school adolescents who have poor writing skills have a reduced chance of attending college due to the writing requirements during the application process (Graham & Perin, 2007). Writing deficits are present for 75% of adults with language impairment and 30% of adults with typical language (Suddarth, Plante, & Vance 2012). In the workforce, adults are required to demonstrate basic writing skills such as electronic messages, memorandums, documentation, and technical reports (Graham & Perin, 2007). Unfortunately, several adults lack basic writing skills, which costs employers and universities billions of dollars to remediate. Nationally, American businesses have spent $3.1 billion dollars annually to address poor writing skills (National Commission on Writing, 2004). Remediation of writing skills is costly at the state level too. For example, businesses and higher education institutions in the state of Michigan spend $16.6 billion each year to remediate basic skills of reading, writing, and arithmetic (Greene, 2000).

Although businesses have remediated adult writing, remediation of literacy skills does not need to wait until adulthood. Because literacy development depends on oral language skills (Paul & Norbury, 2012), written deficits can be identified much earlier as children develop their oral language and literacy skills. Research has demonstrated that

children who have been identified with early oral language deficits are at-risk for later writing deficits (Suddarth, Plante, & Vance 2012). Therefore, early identification or oral language deficits can lead to earlier remediation for writing deficits. Even though oral language deficits can be remediated early, there is still a need to address writing skills because writing deficits can be present even when oral language deficits are no longer apparent (Lewis, O'Donnell, Freebairn, & Taylor, 1998; Windsor, Scott, & Street, 2000). For example, 2nd grade children whose oral language skills were normalized by 4th grade demonstrated written narrative deficits in 4th grade **(**Fey, Catts, Proctor-Williams, Tomblin & Zhang, 2004).

Although there is a vast amount of research on oral language development, there is a dearth of information that describes the relationship between the oral and written modalities of language. The aim of this study is to better understand the relationship between oral narrative tells and written narrative stories, especially for elementary age children with language impairment. Findings from this study have the potential to improve identification of children with language and literacy deficits.

Chapter II

LITERATURE REVIEW

NAEP Writing Results

National assessments of children who attend schools in the United States date back to the 1960s. In 2011, NAEP changed their assessment framework to be more reflective of cultural expectations (U.S. Department of Education, 2011). One of the most significant changes was in how the writing test was administered. From 1998 to 2007, writing assessments were paper and pencil for grades 4, 8, and 12. Additionally, writing assessments measured three modes of writing: persuasive mode, informative mode, and narrative mode. In 2011, writing assessments for grades 8 and 12 were computer-based and it was recommended that 4th grade students participate in computer-based assessments by 2019. The 2011 framework assessed three communicative purposes for writing: to persuade, to explain, and to convey experience.

Children's writing difficulties have persisted over elementary and secondary grades. In 2011, samples of 8th and 12th graders were tested using the new NAEP writing framework on the computer. Writing performance was scored as *Below Basic, Basic, Proficient,* or *Advanced*. NAEP defined *Basic* as "denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade. *Proficient* was defined as "solid academic performance. Students reaching this level have demonstrated competency over challenging subject matter." *Advanced* is defined as "represents superior performance" (NAEP Report Card, 2011). Findings from this assessment indicated that 74% of 8th graders performed at the *Basic* or *Below Basic* level and 27% were *Proficient* or *Advanced*. Twelfth graders exhibited similar results; 73% of

12th graders performed at *Basic* or *Below Basic* level and 27% performed at *Proficient* or *Advanced* level.

Fourth graders' writing has been assessed sparsely over the years. In 2002, writing skills of a representative sample of 4th graders were assessed on paper. Findings indicated that 72% of 4th graders were at *Below Basic* or *Basic* and 28% were at *Proficient* or *Advanced* (U.S. Department of Education, 2003). In 2012, NAEP conducted a pilot study to analyze the feasibility of conducting a computerized writing assessment for 4th graders (White, Kim, Chen, & Liu, 2015). A representative sample of 4th grade students participated in a computer-based pilot writing assessment. The writing samples of the pilot study were scored on a scale from 1 to 6. These scores were put into three categories: *Low, Middle,* and *High*. *Low* had a mean score of 1.5 and indicated low or marginal writing skills, *Middle* had a mean score of 3.0 and indicated writing skills in a developing state, and *High* had a mean score of 4.8 which indicated close to competent writing skills. Of the 4th graders that completed the assessment, 68% scored in the bottom half of the 1 to 6-point scoring scale. Findings from the 2012 pilot study indicated that only 20% of 4th graders scored in the *High* level (White, et al.,2015).

As part of the pilot study, NAEP compared the writing results from the computer-based assessment to paper-based assessments. Using the 6-point scale, children who scored a 3 or lower on the computer-based assessment scored higher with paper-based assessments. This means that lower performing children exhibited better writing on paper. Children who scored a 4 or higher on the computer-based assessment scored worse on paper-based assessment. This means that higher performing children exhibited better writing on the computer. These results indicated mixed benefits for using the computer-

based assessments or the paper-based assessment depending on the child's writing performance. Thus, writing results from computer-based assessment would increase the achievement gap between lower and higher performing children.

Common Core State Standards

The Common Core State Standards (CCSS) were formed to ensure that every student graduates high school with the necessary knowledge and skills that are needed for success in college or the workforce (Common Core State Standards Initiative, 2017, a.) Additionally, CCSS provide a common ground for children to be compared across each state and to equalize standards from state to state. The CCSS outline specific grade level standards for what children should know and be able to do in each grade from kindergarten through 12th grade.

All children are expected to meet *Speaking and Listening* standards, including typically developing children and children with language impairment. Meeting the speaking and listening standards are dependent on children's oral language. By the end of 3rd grade, children should be able to "report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace" (Common Core State Standards Initiative, 2017, b.). This means that children should be able to tell a story with main ideas and descriptive details as well as provide narrative macrostructure elements such as an episode. Under the *Writing* standards, 3rd grade children are also expected to write opinion pieces with supporting reasons, write informative and explanatory texts and write narratives to develop real or imagined experiences (Common Core State Standards Initiative, 2017, c.) This means that children should be able to write a "real or imagined" story with main

ideas and descriptive details as well include narrative macrostructure elements. Nevada State Standards recognize and uphold the CCSS for 3rd graders' speaking, listening and writing skills (State of Nevada Department of Education, 2012).

Importance of Narratives

Narrative language refers to "an account of experience or events that are temporally sequenced and convey some meaning" (Engel, 1995 pg. 19). Narratives occur in conversational speech when children tell personal or fictional events, or during academic instruction (Hughes, McGillivray, & Schmidek, 1997). Oral and written narratives share the same internal structure (Hughes, et al.,1997); each narrative contains macrostructure and microstructure elements. Narrative macrostructure elements may include cohesion, story organization (Fey et al.,2004), and story grammar elements such as setting, initiating event, attempt, and consequence (Stein & Glenn, 1979). Narratives microstructure elements are words and phrases that contain literate features such as coordinating conjunctions, subordinating conjunctions, elaborated noun phrases, adverbs, and metacognitive and metalinguistic verbs (Gilliam, Gilliam, Fargo, Olszewski & Segura, 2016).

Narratives are sensitive to a child's linguistic development and early literacy skills because they require the simultaneous use of lower and higher level of language skills (Paul & Norbury, 2012). For example, the ability to produce narratives has predicted higher-level language and cognitive abilities, specifically for children with specific language learning difficulties (Bishop & Edmundson, 1987; Kaderavek & Sulzby, 2000; Westby, 1989). Understanding narrative structure is a foundational skill for reading comprehension, which is important for academic success (Oakhill & Cain, 2007).

Thus, narratives are considered a "bridge to literacy" because they are used frequently within and outside of academic settings, yet require the use of complex language structures (Boudreau, 2006; Elster, 1994; Hedberg & Westby, 1993; Paul & Norbury, 2012). When children encounter narratives, they are exposed to cohesive discourse units and decontextualized written texts throughout their primary and secondary education (Westby, 1989).

Children who are transitioning from 3rd to 4th grade are at a critical time in their literacy development. This is the time when children begin to "read to learn" rather than "learn to read" (Paul & Norbury, 2012). Similarly, children are learning to write for a multitude of reasons (Paul & Norbury, 2012). For example, children write to tell a story and to inform. Children who are in 3rd and 4th grades are demonstrating writing that is now as complex as their speech. For example, their writing is more abstract than before and consists of literate language features.

Narratives develop dramatically between 3rd and 4th grades. By 3rd grade, children should have an understanding and be able to use basic narrative structure (Suddarth, et al.,2012). By 4th grade, children are understanding and producing multiple and complex episodes (Hughes, et al.,1997). Narrative is especially important in the academic setting because narrative discourse is used during instruction. Further, narrative structure is imperative for children's comprehension of academic content and their ability to demonstrate knowledge when speaking and writing (Paul & Norbury, 2012). Thus, children who have a good understanding of narrative structure will have improved academic success.

Narratives of Typically Developing vs. Language Impaired Children

Narratives are a diagnostic tool that have been used to differentiate children who are typically developing from children with language impairment (Paul & Norbury, 2012). Differences in narratives are present at the word, sentence, and discourse levels.

At the word level, children with language impairment have demonstrated poorer lexical diversity consisting of fewer number of total words and number of different words compared to children who are typically developing (Koutsoftas & Gray, 2012; Suddarthe, et al.,2012). Typically developing 3rd grade children produced around 137 total number of words and 69 number of different words (Paul & Norbury, 2012). Children with language impairment also have a higher rate of spelling errors (Koutsoftas & Gray, 2012; Price & Jackson, 2015; Suddarth, et al.,2012).

Word level abilities influence sentence length. Children with language impairment produced fewer words in sentences and fewer words that contain more than seven letters compared to typically developing children (Paul & Norbury, 2012; Suddarth et al.,2012). Children with language impairments also demonstrated more syntactical (Mackie & Dockrell, 2004) and grammatical errors (e.g. Gilliam & Johnston 1992) in their sentences than typically developing peers. Children with language impairment typically had less complex sentences and sentence structure compared to typically developing peers (Miller, Andriacchi, & Nockerts, 2015).

Overall sentence length, syntax, and complexity impact the overall of narrative discourse. Children with language impairments demonstrated difficulty with macrostructure and microstructure elements when producing spontaneous narratives (Roth & Spekman, 1986). Children with language impairments demonstrated less cohesiveness, story grammar elements, content, and story organization than typically

developing children (Kaderaverk, 2000). Children with language impairments use less linguistic markers and temporal terms compared to typically developing peers, which affects narrative cohesiveness (Paul & Norbury, 2012).

Although children with language impairments exhibited deficits at the word, sentence and discourse level, narrative intervention has demonstrated improved oral narrative skills (Green & Klecan-Aker, 2012). As children with language impairment learned to develop narrative macrostructure and microstructure elements, their success improved in the classroom (Green & Klecan-Aker, 2012). Narratives are important for identifying children who have a language disorder and are a promising method to improve narrative structure and later academic success.

Narrative Language Modalities

Children develop four functional language systems through the modalities of listening (ear), speaking (mouth), reading (eye), and writing (hand; Berninger, Abbott, Abbott, Graham & Richards 2002; Nelson, 2010). The four functional language systems are developed through sensory input and motor output between the brain and body organs: ear (listening), mouth (speaking), eye (reading), and hand (writing). Children use language modalities of listening (ear) and reading (eye) to understand narratives, while they use the language modalities of speaking (mouth) and writing (hand) to produce narratives. For example, when children produce oral narrative tells, they are developing the functional language system through the mouth. When children write narrative stories, they develop their functional language system by hand.

There is a well-established relationship between functional language systems developed through the modalities of speaking (mouth) and writing (hand; Kahmi & Catts,

2012; Hulme & Snowling, 2013). Both speaking and writing modalities share knowledge of semantics, phonology, syntax, morphology, and pragmatics (Berninger, et al.,2002). However, speaking and writing modalities are separate skills and use different sensory inputs and motor outputs to develop (Berninger et al.,2002). Each modality has its own developmental time line, with its own internal organization. Reading and writing modalities use more complex processes than speaking and listening. The main function of the human visual system is not "biologically adapted" to process print, which makes the development of reading and writing a more complex process (Kahmi & Catts, 2012). Sensory input and motor output for listening (ear) and speaking (mouth) are subconsciously developed, whereas sensory input and motor output for reading (eye) and writing (hand) are consciously developed. This is largely due to the fact that the human brain was primarily programmed to communicate through speaking and listening (Kahmi & Catts, 2012).

Compared to speaking, writing is uniquely difficult because it is decontextualized and lacks the contextual supports that are typically provided by a communication partner during speaking (Suddarth, et al.,2012). During writing, the intended communication partner cannot support topic selection, give cues for a breakdown, or support sentence and word generation (Nelson, Bahr & Van Meter, 2004).

Although much is known separately about the physical, situational, functional, form, vocabulary, grammatical, and processing differences between the development of language through speaking and writing modalities (Kamhi & Catts, 2012), much less is known about how oral language knowledge influences written language knowledge. Researchers have long debated whether language development through speaking (mouth)

and writing (hand) develop sequentially or concurrently (e.g. Beers & Nagy, 2008; Nagy, Berninger & Abbott, 2006; Semel, Wiig, & Secord, 2003). Kousoftas and Gray (2012) call for a better understanding of the relationship between oral and written language measures of children. Insight to this relationship may become clearer by examining oral narrative tells and written narrative stories of children who are typically developing and children with language impairments because children with language impairments often have difficulty learning to read and write (ASHA, n.d.).

Purpose and Research Questions

Although literature suggests children with language impairment perform more poorly on narrative measures compared to typically developing peers (Kaderaverk, 2000; Koutsoftas & Gray, 2012; Price & Jackson, 2015; Suddarth, et al.,2012) much is still to be learned about the relationship between speaking and writing modalities. This study extends the current literature by examining the relationship between oral narrative tells and written narrative stories of 3rd grade children with and without language impairment. The specific research questions were asked:

1. Do word, sentence, and discourse language measures of children differ between oral narrative tells and written narratives stories?
2. Do children with language impairment perform differently than children with typical development on word, sentence, and discourse language measures when telling oral narrative tells and writing narratives stories?

CHAPTER III

METHODS

Participant Recruitment

Participants were recruited from elementary schools in northern Nevada. The researcher obtained a letter of support from 8 different principals representing 8 different schools. The lead speech-language pathologist for the northern Nevada county identified potential participants. Children who were identified as having a primary or secondary language impairment met the following criteria: a) monolingual English speakers b) third graders and c) children who were clinically identified as having a language impairment.

A control group was also identified that met the following criteria: a) cognitively were identified as typically developing, b) age within one year of peer with language impairment and c) same gender as peer with language impairment. Blank consent forms and envelopes were provided to the lead county speech-language pathologist who mailed consent forms home inviting children to participate in the research study.

The family was given one week to determine whether or not they wanted their child to participate in the study. If interested in participating, the child returned the signed consent to their school speech-language pathologist. The speech-language pathologist contacted the researcher who then picked up all signed consents and immediately entered children's information in a spreadsheet. All signed consents were placed in a locked filing cabinet.

Participants

There were 37 children who returned signed consents. Nineteen of these children were clinically identified as having a language impairment and 18 children were

identified as an age and gender control. Out of these children, there were 30 (15 pairs) who matched on age within 6 months and gender. There were 7 children who did not match on gender and age, therefore, they were excluded from the study. The Test of Nonverbal Intelligence-4th Edition (TONI-4; Brown, Sherbenou, & Johnsen, 2010) and the Clinical Evaluation of Language Fundamentals-5th Edition (CELF-5; Wiig, Semel, & Secord, 2013) were administered to further describe the cognitive and language abilities of the children in the study.

The TONI-4 is a norm referenced test that is designed to assess intelligence, aptitude, abstract reasoning, and problem solving for individuals ages 6;0 to 89;11. It has good psychometric properties with .83 sensitivity and .92 specificity. Children's cognitive abilities were classified as *very superior* (>130), *superior* (121-130), *above average* (111-120), *average* (90-110), *below average* (80-89), *poor* (70-79), and *very poor* (<70).

The CELF-5 is a norm-referenced comprehensive language battery that assesses receptive and expressive language skills of individuals age 5 through 21. It has good psychometric properties with .86 sensitivity and .98 specificity. Children's language skills were classified as *above average* (115 and above), *average mild* (86 to 114), *moderate* (78 to 85), *severe* (71-77), and *profound* (70 and below) based on the number of standard deviations (SD) below the average on the CELF-5 results. If the performance of the child fell between 1.0 to 1.5 SD below the mean, they were given a *mild* severity rating. If the performance of the child was between 1.5 to 2.0 SD below the mean, they were given a *moderate* severity rating. If the performance of the child was 2.0 to 2.5 SD below the mean, they were given a *severe* severity rating. (Wiig et al., 2013).

Table 1

Descriptive Results of Children

Group	TONI-4 M (SD)	Severity Rating	CELF-5 M (SD)	Severity Rating
Language Impairment (n = 15) (9 Males 6 Females)	93.00 (11.7)	10= Above Average 2 = Below Average 3 = Poor	82.93 (16.85)	1 = Above Average 5 = Average Mild 5 = Moderate 3 = Profound 1 = Severe
Typically Developing (n = 15) (9 Males 6 Females)	105.08 (16.49)	2 = Superior 5 = Above Average 7 = Average 1 = Poor	107.27* (12.84)	3 = Above Average 9 = Average Mild 2 = Moderate

Note. TONI-4 = Test of Nonverbal Intelligence- 4th Edition, CELF-5 = Clinical Evaluation of Language Fundamental-5th Edition; *Two CELF-5 protocols were excluded from the mean in the typically developing group due to an incomplete subtest in both instances.

General Procedures

Data collection day, times, and location were agreed upon between the researcher, each school principal and each school speech-language pathologist. Children were seen a total of two times. During the first session, children individually participated in cognitive and language testing. The researcher/research assistant individually picked the children up from their respective classrooms and led them to a quiet room or space at their school that was specified by the speech-language pathologist or the principal. The TONI-4 was administered for approximately 20 minutes and the CELF-5 was administered for approximately 40 minutes. Session one took approximately one hour per child.

During session two, the researcher/research assistant and the child returned to the quiet space at their school where children individually produced four stories. Separate story starter prompts were used to elicit one oral narrative tell and one oral expository

speech as well as one written narrative story and one written expository text. The order of the four stories were counterbalanced across children to reduce an order effect. Oral narrative tells and expository speeches were digitally recorded. Written narrative stories and expository texts were collected using paper and pencil. Although there was no time limit for completing written stories, the length of time to write narrative stories and written expository texts was recorded. To ensure the child's spelling was accurately analyzed during coding, the research assistants wrote intended words above misspelled words during data collection. Session two took approximately 20 minutes per child. After completing four stories, the children were given a small toy as compensation for their time. The oral expository speeches and written expository texts will be analyzed in a different manuscript.

Story Starters. The current study used *twin themed* story starter prompts to elicit narrative and expository genre stories that were adapted from Furtado and Johnson (2010). *Twin themed* refers to a common theme between narrative and expository genres. Furtado and Johnson (2010) examined the summarization skills of four first grade children using narrative and expository twin themed genres. During one week of instruction, children were introduced to graphic organizers, vocabulary instruction, and think alouds. With assistance, children summarized one written narrative story and one written expository text. The following week, children summarized a different one written narrative story and one written expository text independently. Results indicated that children made improvements in their written narrative story and written expository text summary rubric scores. This score was based on ideas, word choice, smooth sentences, and correct copy as well as on their use of narrative and expository graphic organizers.

Twin themed texts were successful in improving summarization skills of children in elementary school. Thus, the twin themed procedure was used in the current study.

Prior to the current study, a pilot study was conducted to determine which twin themed story starter prompts elicited the longest language productivity measures of 18 children who were in 2nd to 4th grades. Procedures in the pilot study mirrored the procedures of the current study. Children were asked to provide four stories; one oral narrative tell and one oral expository speech as well as one written narrative story and one written expository text. The authors created twin themed story starter prompts based on the content previously covered in the Common Core State Standards. Twin themed story starter prompts were *pets, recess, planets, superheroes, water,* and *birthday.* The order of modality (oral versus written) and genre (narrative versus expository) were counterbalanced. Findings indicated that all the twin themed story starter prompts did not yield significantly different language productivity measures. Therefore, the authors selected twin themed story starter prompts of *animals* and *planets* for the current study. These were selected because the authors determined *animals* and *planets* were the most familiar topics to the children and would pique their interest the most.

In addition, the wording of the twin themed story starter prompts was based on procedures used in the literature (Furtado & Johnson, 2010). Each twin themed story starter prompt consisted of four to five sentences. Sentence *one* was the introduction to the theme. For each theme (i.e., *pets, recess, planets, superheroes, water,* and *birthday*) the narrative and expository story began with the same starting sentence to ensure the child knew the theme. For example, “pets play an important role in our lives” was the first sentence for the pet theme. Sentence *two* to *three* set up the scenario for the story.

Sentence *four* cued the child to provide a narrative or an expository tell using a prompt similar to Craig et al. (2009). For example, the narrative prompt instructed children to "include a beginning, a middle, and an end." The oral expository speech and written expository text instructed the children to "tell your friend three ways." See Appendix A for examples of the twin-themed story starters.

Outcome Measures

Outcome measures were used to analyze narrative oral and written stories at the word, sentence, and discourse level for narrative oral and written stories.

Word Level. Word level outcome measures examined vocabulary and spelling. Vocabulary was measured for oral narrative tells and written narratives stories, whereas spelling was measured for only written narrative stories.

Number of Different Words. Number of different words (NDW) is an overall measure of vocabulary diversity (Price & Jackson, 2015). Vocabulary skills are important because they correlate with reading skills, cognitive ability, and academic achievement (Nader, 2013). Furthermore, children with language impairment typically show a smaller diversity in their vocabulary words (SALT, 2012). NDW was calculated in Systematic Analysis of Language Transcripts (Miller et al., 2015) software by summing each different word (Miller et al.,2015).

Number of Total Words. Number of total words (NTW) is another overall measure of vocabulary diversity (Paul & Norbury, 2012). NTW increases with age and also differentiates children who are typically developing from children with language impairment (Tilstra & McMaster, 2007; Paul & Norbury, 2012). Children with language

impairment typically show a lower NTW (Miller et al., 2012). NTW was calculated in SALT by summing all the words. Words in mazes were not included in this calculation.

Proportion of Words Spelled Correctly. Spelling is a measure of the ability to encode sound-letter correspondence knowledge and represents how "letters and letter patterns in words represent sounds and meanings" (Bear, Invernizzi, Templeton, & Johnston, 2016). Being able to quickly and accurately spell allows a writer to attend to making meaning (Bear et al.,2016). Children with language impairments tend to have a higher percentage of spelling errors compared to words spelled correctly (e.g., Mackie & Dockrell, 2004). Similar to other research studies (Asker-Arnason et al., 2010; Nelson, 2010), the current study calculated the proportion of words spelled correctly by taking the total correct spelled words divided by the total number of spelled words. Words in mazes were excluded. Proportion of words spelled correctly was only measured in written narrative stories.

Spelling Error Type. Spelling error analysis has been conducted to determine error types and provide information for instruction (Bahr, 2012; Brimo, 2013). The current study analyzed spelling errors based on the Brimo (2013) spelling system. Spelling errors were categorized into any of the following types: 1) *phonemic awareness (PA), 2) morphological awareness (MA), 3) orthographic pattern awareness (OPA),* or 4) *mental graphemic representation (MGR;* Brimo, 2013).

Phonemic awareness errors are errors where there is not a letter to represent a specific phoneme (e.g. *bockt* for *bucket*). In this specific example, the phoneme /^/ was not represented by the letter "e".

Morphological awareness errors are errors that demonstrate the child does not have the awareness of morphological endings (e.g. *wheelz* for *wheels*). In this example, the speller did not demonstrate the awareness of the morphological ending of plural –s that is changed in certain words.

Orthographic pattern awareness errors are categorized as a phoneme being represented with a letter(s) that is never permitted in the English Language (Brimo, 2013). For example *gum* being spelled as *gom* would be considered a OPA error because the short "u" sound can never be represented with the letter "o" in a consonant – vowel – consonant (CVC) word.

Finally, a mental graphemic awareness error is demonstrated when it is an acceptable spelling pattern phonetically, but is not the correct spelling for that particular word. For example, spelling *dream* as *dreem* would be a MGA error. *Dreem* is an acceptable orthographic pattern, where "ee" in certain CVVC words would be acceptable (e.g. *seed*), but is not acceptable in this case.

The researchers used the spelling notation that the researchers wrote above the word during data collection to help determine the target word and type of spelling error. Each spelling error was first coded as either *PA, MA, OPA,* or *MGA* and then each type was summed to determine the number of errors in the category.

Sentence Level. Sentence level outcome measures examined language complexity and grammaticality. Mean length utterance (MLU), subordination index (SI), and percentage of grammatical C units were measured for oral narrative tells. Mean length of terminal units (MLTU), SI, and percentage of grammatical T-units were measured for written narrative stories.

MLU/MLTU. Oral narrative tells were segmented into communication units (C-units), which is "an independent clause with its modifiers" (Loban, 1976). Written narrative stories were segmented into terminal units (T-units), which is "one main clause plus the subordinate clauses attached to or embedded within it" (Hunt, 1970). An incomplete clause without a noun and a verb was not considered a T-unit and was subsequently mazed. Grammatical complexity measured as C-units or T-units have differentiated children who are typically developing from children who have a language impairment (Koutsoftas & Gray, 2012). Research has demonstrated that children with language impairment produced (Miller et al., 2015) and wrote (Mackie & Dockrell, 2004) fewer words and sentences. MLU and MLTU were calculated in SALT (Miller et al., 2015) by adding the number of C- or T-units and dividing by the total number of utterances.

Discourse Level. A discourse measure will examine a child's use of larger linguistic units. The Macrostructure Subscale of the Monitoring Indicators of Scholarly Language (MISL; Gilliam et al.,2016) was used to measure narrative discourse for oral narrative tells and written narrative stories.

MISL. Children with language disabilities have reduced narrative discourse skills (e.g., Koutsoftas & Gray, 2012). For example, they produce less story grammar elements than typically developing children, which affects overall narrative quality. To measure narrative macrostructure in this study, the MISL was used. It is a progress monitoring tool that measures a child's macrostructure and microstructure discourse abilities. The MISL has good overall reliability (Cronbach's alpha = .79) and macrostructure reliability (Cronbach's alpha = .71; Gilliam et al., 2016). A confirmatory factor analysis (CFA)

indicated a good fitted model for items within a subscale that correlated with the respective subscales-- Macrostructure or Microstructure. The Macrostructure subscale consisted of setting, initiating event, internal response, plan, attempt, and consequence (Gilliam et al.,2016). For purposes of this study, only the Macrostructure subscale was measured. The MISL macrostructure subscale was calculated by hand using the rubric to identify story grammar elements of character, setting, initiating event, internal response, plan, attempt, and consequence. This yielded Macrostructure subscale with 21 potential points.

Research Assistant Training

There were three different sets of research assistants who were trained for this study: data collection, orthographic transcription, and scoring. Nine Collaborative Institutional Training Initiative (CITI) certified research assistants who were blind to the purpose of the study attended a two-hour training for data collection procedures.

Data Collection. For data collection, Nine Collaborative Institutional Training Initiative (CITI) certified research assistants who were blind to the purpose of the study attended a two-hour training for data collection procedures. Training consisted of data collection procedures and test administration practice of the CELF-5 and TONI-4. Research assistants listened to a 20 minute training, practiced giving the tests, and asked questions. The PI observed administration and deemed the research assistants to be ready to administer tests to study participants. During data collection, the PI observed each research assistant administering the tests with a child in the schools during the first session to ensure accurate data collection.

Orthographic Transcription. Two CITI certified research assistants who were blind to the purpose of the study attended a two-hour training for orthographic transcription. Training consisted of a 20 minute presentation of Systematic Analysis of Language Transcription (Miller et al., 2015), coding procedures for narratives for bound morphemes, c-units, and mazed utterances according to Appendix M in SALT, and practice. The training consisted of rules and procedures to orthographically transcribe oral and written stories using the Systematic Analysis of Language Transcription (SALT) software (Miller et al., 2015). Research assistants orthographically transcribed pilot data for narratives for bound morphemes, c-units, and mazed utterances. Each research assistant achieved point-by-point inter rater reliability of 90% on each section of the transcription (i.e., words, C- or T- units, and coding of bound morphemes) for three consecutive transcripts to be considered reliable. After achieving inter rater reliability, the research assistants orthographically transcribed data for the study.

Inter-rater Reliability

Transcription. One hundred percent of the oral narrative tells and written narrative stories were double transcribed by the PI and a research assistant. Inter-rater reliability was calculated every six-stories. Point-by-point inter-rater reliability was deemed accepted if 85% was achieved on all categories. If 85% was not achieved, the discrepancies were discussed and independently transcribed again. Inter-rater reliability was calculated by dividing the number of item agreements by the total number of potential agreements. The overall percentage for research assistants for oral transcriptions were: bound morphemes was 99% (705 agreements divided by 715 potential agreements), for C-units was 99.6% (928 agreements divided by 931 potential

agreements), for mazed words was 98% (836 agreements divided by 853 potential agreements), and for total words was 99% (7524 agreements divided by 7601 potential agreements). The overall percentage for research assistants for written transcriptions were: bound morphemes was 91% (135 agreements divided by 148 potential agreements), T-units was 98% (332 agreements divided by 338 potential agreements), spelling codes were 99% (351 agreements divided by 354 potential agreements), total words was 99.8% (2119 agreements divided by 2122 potential agreements).

Scoring Six CITI certified research assistants attended a two-hour training specific to the outcome measures to be scored. Training for the word level measures consisted of definitions of spelling errors, identifying the specific errors, and practice identifying each type of spelling error based on the errors defined by Brimo (2013). Research assistants then completed reliability trials on data collected in a pilot study. One research assistant reached 90% or higher reliable for accurately identifying each type of spelling error on three consecutive transcripts. Training for discourse level measures consisted of explanation story grammar elements, tutorial using the MISL rubric (Gilliam et al., 2016) and practice scoring narratives. Two research assistants then scored transcriptions from a pilot study for the current study. Both research assistants reached reliability with 90% or higher on a total MISL score for three consecutive transcripts. After achieving reliability research assistants double scored the transcripts for the current study.

One hundred percent of the oral narrative tells and written narrative stories were double transcribed by the PI and a research assistant. Inter-rater reliability was calculated every six-stories. Point-by-point inter-rater reliability was deemed accepted if 85% was achieved on all spelling errors. If 85% was not achieved, the discrepancies were

discussed and a final determination was made by collaboration. Inter-rater reliability was calculated by dividing the total number of item agreements by the total number of potential agreements. The overall percentage for research assistants for written transcriptions spelling identification were: orthographic pattern awareness errors 96% (126 agreements divided by 130 potential agreements), phonemic awareness 100% (32 agreements divided by 32 potential agreements), mental graphemic representation 90% (19 agreements divided by 21 potential agreements), morphological awareness 75% (3 agreements divided by 4 potential agreements).

One hundred percent of the oral narrative tells and written narrative stories were double transcribed by two reliable research assistants. Inter-rater reliability was calculated every six-stories. Point-by-point inter-rater reliability was deemed accepted if 85% was achieved on all spelling errors. If 85% was not achieved, the discrepancies were discussed and a final determination was made by collaboration. Inter-rater reliability was calculated by dividing the total number of item agreements by the total number of potential agreements. The overall percentage for research assistants for oral stories final MISL score was 86% (184 agreements divided by 213 potential agreements). The overall percentage for research assistants for written stories final MISL score was 95% (229 agreements divided by 240 potential agreements).

Data Analysis and Hypothesis

Research Question One Hypotheses. There are mixed findings in the literature when comparing oral narratives tells and written narrative stories of school-aged children. At the word level, previous research has shown that oral stories yielded a larger number of total words (NTW) and a larger variety of vocabulary words (NDW) compared to

written stories of early elementary school children (Fey et al., 2004). However, later elementary school age children exhibited more lexical diversity (NDW) in written stories compared to oral stories (Gillam & Johnston, 1992). Given the mean age of the children in the current study is 8.7, it was hypothesized that NTW and NDW would be higher in oral narrative tells than written narrative stories.

At the sentence level, direct comparisons of language complexity between oral and written modalities has been difficult due to the methods used to analyze narratives. Although C-units are typically used to analyze oral narratives and T-units are used for written language samples (Price & Jackson, 2015), researchers have used these methods with each language modality. For example, Fey and colleagues (2004) analyzed oral and written stories using C-units and found that mean length utterance in children in 2nd grade was higher in oral narrative tells than written narrative stories. Gillam and Johnston (1992) analyzed oral and written stories using T-units and found that oral stories had a greater MLTU than written stories. Although the current study did not use the same measure for oral and written stories, it was hypothesized that oral narrative tells would have a higher MLU with C-units when compared to written narratives MLU with T-units.

At the discourse level, researchers have analyzed stories for their story structure. Fey and colleagues used an 18 point scale to measure story grammar elements in oral and written narratives. Oral stories had a significantly greater narrative quality score on an 18-point scale compared to written stories. It was hypothesized that oral stories would have a higher MISL score than written stories.

Research Question One Data Analysis. Due to the small sample size, non-parametric analyses were conducted. To answer research question one, separate

Wilcoxon Signed Rank tests were conducted to determine mean differences between oral narrative tells and written narrative stories on the following outcome measures: word level measures (NDW, NTW, proportion of words spelled correctly, spelling error type), sentence level measures (MLU/MLTU, Subordination Index, Percentage of grammatical C- or T- Units) and discourse measures (MISL).

Research Question Two Hypotheses. There are consistent findings in the literature when comparing children with language impairment to children with typical development. At the word level, research showed that children who have a language impairment produced fewer number of total words (NTW), smaller vocabularies (Fey et al.,2004; Koutsoftas & Gray, 2012), and a higher percentage of spelling errors (Houck & Billingsly, 1989; Mackie & Dockrell, 2004; Moran, 1981) than children with typical development. Therefore, it was hypothesized that children with language impairment would have lower NTW and NDW in their narrative oral tells and written stories as compared to children with typical development. It was also hypothesized that there would be more spelling error totals in children with language impaired when compared to children with typical development (Houck & Billingsly, 1989; Mackie & Dockrell, 2004; Moran, 1981).

At the sentence level, research has shown that a low MLU or MLTU suggested that a child was using simpler syntax and was subsequently used as the primary measure to identify a language disorder (Fey et al.,2004; Koutsoftas & Gray, 2012). Children with typical development committed less grammatical errors in their sentences compared to peers with typical development (Koutsoftas & Gray, 2012). Grammaticality is the weakest area for children who have a language disorder when compared to children who

are typically developing (Koutsoftas & Gray, 2012). Thus, it was hypothesized children with language impairments would have a lower percentage of grammatical C- or T-units when compared to children with typical development.

At the discourse level, research has demonstrated that children with language impairments have less story grammar elements and episodes than children with typical development (Paul, Hernandez, Taylor, & Johnson, 1997; Fey et al.,2004). It was hypothesized that children with language impairment would achieve a less overall macrostructure score as measured by the MISL than their typically developing peers.

Res*earch Question Two Data Analysis.* To analyze question two, separate nonparametric independent sample t-tests or Mann-Whitney U tests were conducted comparing performance between children with language impairment and children with typical development on oral narrative tells and written narrative stories for the following outcome measures: word level measures (NDW, NTW, proportion of words spelled correctly, spelling error type), sentence level measures (MLU/MLTU, Subordination Index, Percentage of grammatical C- or T- Units) and discourse measures (MISL).

CHAPTER IV

RESULTS

Oral versus Written

The first research question asked whether oral narratives differed in word, sentence and discourse measures from written narratives on the analytic measures. A nonparametric (Wilcoxon) test was used to determine the mean difference between performance on the oral narratives and written narratives. Table 2 provides the results for the descriptive measures. At the word level, findings indicated that children produced greater language productivity and diversity in oral modalities when compared to written modalities. There were statistically significant differences between oral and written modalities on NTW (Z = -3.99, p = .00) and NDW (Z = -3.88, p =.00). Children produced a greater NTW (112.4, 48.67) and NDW (51.97, 29.37) in oral stories compared to written stories.

At the sentence level, findings indicated that there were no statistically significant difference between oral and written modalities on MLU-C/MLU-T (Z = -1.74, p = .08). Children produced similar language complexity in oral and written stories. Although findings were not significant, children had a greater oral MLU as compared to the written stories.

At the discourse level, findings also indicated that there were not statistically significant difference between oral and written modalities on the MISL (Z = -1.58, p = .113).

Table 2

Descriptive Results for Narrative Outcome Measures

	Oral Stories			Written Stories		
	M M (SD)	TD M (SD)	LI M (SD)	M M (SD)	TD M (SD)	LI M (SD)
Word						
NTW	112.4 (124.95)	98.67 (73.85)	126.13 (162.73)	48.67 (40.3)	52.33 (27.23)	45 (51.06)
NDW	51.97 (39)	51.87 (30.67)	52.07 (47.01)	29.37 (15.88)	32.67 (12.72)	26.07 (18.36)
Proportion of Words Spelled Correct				84.3% (13.24)	88.8% (12.8)	79.93% (12.54)
Sentence						
MLU	8.61 (2.26)	9.09 (2.04)	8.13 (2.43)	7.6 (1.6)	7.74 (1.89)	7.46 (1.45)
Discourse						
MISL Score	7.20 (4.5)	7.60 (4.33)	6.80 (4.78)	8.07 (4.0)	9.53 (3.35)	6.60 (4.2)

Note. M = Mean; TD = Typical Developing; LI = Language Impaired; NTW = Number of total words, NDW = Number of different words, Spelling = Proportion of words spelled correctly; MLU = mean length utterance; SI = Subordination index; MISL = Monitoring Indicators of Scholarly Language macrostructure subtest.

Language Impaired versus Typically Developing

To analyze measures between children with language impairment and with typical development, separate nonparametric Mann-Whitney U tests were conducted. At the word level there were no significant findings between children with language impairment

and children with typical development in oral measures of NTW (Z = -3.11, p = .76), NDW (Z = -.58, p = .56). Although these findings were not significant, children with language impairments produced more NTW (126.13, 98.67) and NDW (52.07, 51.87) in their oral stories than children with typical development. There were statistically significant findings for written NTW (Z = -2.19, p = .02) and NDW (Z = -2.41, p = .032). Children with typical development produced significantly more NTW (52.33, 45) and NDW (32.67, 26.07) with written stories than children with language impairment. The proportion of words spelled correctly for written stories were analyzed. Children with language impairments had significantly less words spelled correct when compared to their peers with typical development (Z = -2.09, p =.037).

At the sentence level there were no statistically significant findings between children with language impairment and typical development on the oral measures of MLU (Z = -1.39, p = .171) and the written measure of MLU (Z = -.04, p = .96). Children with typical development produced a greater MLU in oral stories (TD = 9.09, LI = 8.13). Children with typical development had a greater written MLU as compared to children with language impairments (TD = 7.74, LI = 7.46)

At the discourse level there was a statistically significant finding between children with typical development and children with language impairment on written MISL total score (Z = -2.45, p = .015). There was not a statistically significant finding with the oral MISL test score (Z = -.563, p = .595).

CHAPTER V

DISCUSSION

The purpose of this study was to compare oral and written narrative stories in third grade children with and without language impairments. Children with and without language impairments told narrative stories in oral and written language modalities. Narrative performance was made across language modality and across children. This adds to the literature on narrative skills because it fills the gap regarding third grade children. Previous literature has either focused on second grade, fourth grade, or later elementary school aged children.

Oral vs. Written Language Modalities

Findings from this study confirmed the hypothesis that NTW and NDW would be greater in the oral modality than the written modality. Children produced a significantly greater amount of NTW and NDW in their oral stories compared to written stories. These results are similar to the research findings of Fey and colleagues (2004) and Gillam and Johnston (2012) who found that children produced more linguistic productivity and lexical diversity in the oral language modality compared to written language modality.

One reason that children produced better linguistic productivity and lexical diversity in oral stories than written stories could be because children's oral language in third grade is further developed and more complex than their written language. Children have had more practice speaking than writing so they use more NTW and NDW in their oral stories. Another reason could be due to the fact that during oral language, there is less online editing and revising, where stories could reflect more of a stream of consciousness than a story that has been revised and edited in writing.

At the sentence level, the results did not confirm the hypothesis that MLU would be higher in oral stories than written stories. Differences between MLU on oral and written narratives were not statistically significant. Children used comparable linguistic complexity when telling narrative stories orally and in writing. This is a new finding in the literature because no other study has compared C-units for oral stories and T-units for written stories to calculate MLU. Other studies in the literature that compared oral and written modalities used only C-units (Fey et al., 2004) or T-units (Gillam & Johnston, 1992) to compare linguistic complexity.

One reason why there was no difference between language modalities could be due to the fact that there is a major shift in the Writing Common Core State Standards. In third grade, there is an increase in written language expectations to include more skills in regards to narrative and expository writing. Subsequently, there could be an emphasis on written language instruction instead of oral language instruction. Thus, it may be expected that there would be a plateau in oral language while instruction focuses on written language and there would be no statistically significant differences between these two modalities on linguistic complexity measures.

Another reason could be due to the unique relationships between oral and written language modalities. Berninger and Abbott (2010) found that listening comprehension and oral expression were correlated with written expression. However, these language modalities are separate skills but they do interact. Therefore, even though they are related, they may not be developing similarly. Thus, written linguistic complexity may be developing at a different rate than oral language and is why there might not be differences between the modalities.

At the discourse level, the results did not confirm the hypothesis that oral narratives would have a significantly greater narrative quality (MISL score) when compared to written narratives. Differences between the oral MISL score and written MISL score were not statistically significant. The findings are in contrast to the findings in the literature. Previously, Fey and colleagues (2004) found that oral stories had a greater narrative quality score when compared to their written stories for second and fourth grade children.

It is likely that the study found no differences in narrative quality for third graders because second through fourth grade is a critical time for increasing narrative skills in oral and written language. Fey and colleagues (2004) found second graders had statistically significant better narrative quality in oral stories compared to written stories. It is possible that in third grade, children are able to transfer their oral narrative quality to written stories by using temporal and causal linguistic structures from their oral language to writing, consequently their written language caught up to their oral language. Thus, we saw no statistical difference between oral and written stories in third grade. Then, children used their written narrative quality to further inform and develop their oral language narrative quality in fourth grade to continue the dynamic relationship between oral and written stories, where there was another gap between oral and written language modalities. Fey (2004) found statistically significant differences between oral and written stories in fourth grade children, favoring oral stories.

Children with and without Language Impairment

Findings from this study partially confirmed the hypothesis that children with language impairments would have a lower NTW and NDW for both oral stories and

written stories. Findings indicated there were no significant differences children with language impairment did not differ in NDW and NTW in their oral stories compared to children with typical development. This is a new finding when compared to the literature. Gillam and Johnston (1992) found that children with language impairments performed lower in both oral and written measures when compared to their peers with typical development. This was further corroborated by Fey et al., (2004). Whereas in the current study, only written measures were significantly different. One possible reason why children with language impairments did not differ from children with typical development in oral stories was because of the story starter topics. The twin-themed story starters were based on CCSS subjects that were relevant and currently being covered in the children's classes. It is unlikely that children were required to write a lot on these topics.

In contrast to oral stories, children with language impairment had significantly fewer NDW and NTW on their written stories compared to children with typical development. These finding was corroborated by Fey et al. (2004), who found that children with language impairments had significantly less language productivity and lexical diversity in their written narratives when compared to children with typical development. One reason why children with language impairments had a harder time with written lexical diversity and language productivity than children with typical development could have been due to the cognitive processing abilities of the children with language impairment. Writing a narrative is a complex cognitive process that has three major processes: plan, translate, and review (Flower & Hayes, 1981). The children with language impairments had a significantly lower TONI-4 score than children with

typical development. Considering the difference between the two group's nonverbal cognitive scores, the results suggests that cognitive ability could play a significant role in writing. Thus, children with language impairment did not use higher cognitive functions to plan, translate, and revise their written stories and as a result their written stories were shorter and contained less lexical diversity than children with typical development.

The hypothesis was also confirmed that children with language impairments exhibited a lower proportion of words spelled correctly when compared to their peers with typical development. This is in agreement with the previous literature that children with language impairments had more spelling errors than children with typical development (Fey et al., 2004). It is likely that we saw these results because children with language impairments have an impaired phonological system, which plays a large role in encoding. Therefore, it is expected that children with language impairment would produce more spelling errors than children with typical development.

The hypothesis that children with language impairments were going to have lower MLU and MLTU when compared to children with typical development was not confirmed. The results found that the two groups had comparable MLU and MLTU in both their oral and written stories. This finding is supported by the literature (Fey et al., 2004) who found that MLU differed between children with language impairments and children with typical development in the second grade, however, by the fourth grade there was no significant difference between the two groups. It is possible that children with language impairments take longer to develop complex syntax than their peers with typical development, but they eventually develop complex syntax and by the third grade are comparable to children with typical development.

The findings regarding overall narrative quality partially confirmed the hypothesis. Results from the study found that the oral stories of children with language impairments did not differ from children with typical development on the overall quality score of their narrative (MISL).

This finding was not corroborated in the literature. Prior literature demonstrated significant differences between children with language impairment and typical development on narrative quality for the oral stories (Fey et al., 2004; Gillam & Johnston, 1992). The finding that oral stories of children with language impairment were not significantly different than children with typical development was new. There might not have been statistical difference between children with language impairment and children with typical development on their oral narrative quality because of the influence linguistic productivity and lexical diversity have on narrative production. For example, language productivity measures have been shown to affect the overall quality of a narrative (Paul & Norbury, 2012). Since NDW and NTW were not significantly different, this could explain why oral narrative quality was subsequently not different.

In contrast to oral stories, children with language impairment performed significantly worse on their written narrative quality (MISL) than children with typical development. This finding is supported by the literature because that has found children with language impairments had an overall narrative quality score that was significantly lower than children with typical development in written stories (Fey et al., 2004; Gillam & Johnston, 1992). A potential reason why there were significant differences between the children's written narrative quality could be children with language impairments had significantly less NDW and NTW in their written stories as compared to children with

typical development affecting their overall written narrative quality creating a significant difference between the two groups. It has been shown that NTW and NDW affect overall narrative quality (Paul & Norbury, 2012). Another reason could be that children with language impairment did not know how to transfer their oral skills to their writing. This means that although children with language impairment could produce good narrative quality in oral stories, they had a harder time producing stories when asked to write stories. Writing requires additional cognitive skills to plan, execute, and revise (Flower & Hayes, 1981) as well as the use of different vocabulary.

CHAPTER VI

CONCLUSION

In conclusion, oral and written language modalities were only significantly different on one out come measure, lexical diversity. Children produced oral narrative stories with more lexical diversity than in written stories. In contrast, children's oral and written stories had similar language productivity, grammaticality, and narrative quality as oral stories. Furthermore, children with language impairments had significantly less NTW, NDW, proportion of words spelled correctly, and narrative quality compared to their written stories. Additionally, children with language impairment produced written stories with significantly less lexical diversity, total length, and overall narrative quality than children with typical development.

Limitations

This study is unique in that it compared narrative stories in oral and written language modalities. To the best of our knowledge, there were no studies that compared these modalities in children who were third graders. This study collected narrative samples of third grade children in the spring of the school year. This study could be improved if narratives were collected at multiple time points during the school year. Collecting data over multiple time points can provide information regarding patterns and trend in producing narratives.

Although great attention was taken to clinically identify children with a language impairment or with typical development, the tests did not consistently corroborate with clinical identification. Not knowing the full test battery that was used to clinically

identify the children with and without language impairments could potentially cause some misidentification and therefore yield different results. This study could be improved by understanding which tests were used to clinically identify these children with language impairment.

Clinical Implications

This study posed clinical implications for educators such as teachers and SLPs. The results showed that at the word level, the only difference between oral and written modalities was with number of different words. This suggests that classroom teaching could focus on adding diverse words into instruction and explicitly teaching lexical diversity in written stories. Instruction could focus on teaching how to make written language more complex than oral stories to help support the lack of context for the reader. For example, educators could teach coordinating and subordinating conjunctions to increase the complexity of sentences.

In comparing oral and written stories at the sentence level, there were no significant differences between written and oral stories for MLU and MLTU. Therefore, instruction could focus on increasing use of complex and compound sentences for both oral and written stories. For example, educators could teach compound and complex sentence structure.

At the discourse level, there were no significant differences between oral and written narrative qualities. This suggests that instruction could focus on explicitly teaching temporal and causal complexities for both oral and written stories.

In comparing children with language impairment to children with typical development, we learned that although children with and without language impairments

had equal performance at the word, sentence, and discourse levels for oral stories, their written language productivity, lexical diversity, and overall narrative quality was significantly less than their peers. This suggests that literacy instruction for children with language impairments could focus on the ability to write grammatically complex sentences while incorporating diverse vocabulary with explicit instruction on narrative structure and quality in writing.

Future Research

This study added to the literature by comparing oral and written narratives for third grade children with and without language impairments. However, more could be learned about the progression of oral and written language development in third grade children. Future studies should focus on collecting data from the same children at different points throughout their third grade year. Furthermore future studies could have a center focus on measuring sentence complexity by mean length of utterances using C-units and mean length of utterances using T-units and if there is a significant difference between the two.

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Appendix

Story Starter Prompts

Topic	Narrative Story Starter
PET/ANIMAL	Animals play a role in people's lives. Imagine you have a pet that can talk. Your pet lost its toy. Make up a story how your pet looks for the toy. Make sure your story has a beginning, middle, and end.
HEALTH/FOOD/EXERCISE	We know that water is important for our bodies. Imagine you saw a person who was stranded and lost in the desert. Make up a story how this person searches for water. Make sure your story has a beginning, middle, and end.
BIRTHDAY	Everybody has a birthday. Imagine you are at your friend's birthday party and it is time for cake. Oh no! The cake is missing. Tell me a story about how you look for the cake. Make sure your story has a beginning, middle, and end.
RECESS	Recess is a time when you can play with your friends. Imagine your school's playground turned into an ocean. Tell me a story about your adventure in the ocean. Make sure your story has a beginning, middle, and end.
SUPERHERO	Superheros have special powers that they use for good reasons. Imagine you have superhero powers and need to protect your school form evil villains. Tell me a story about how you used your superhero powers. Make sure your story has a beginning, middle, and end.
SCIENCE	Our solar system is composed of 8 planets that revolve around the sun. Imagine that you were able to ride in a spaceship out to the Moon. Tell me A story about your journey. Make sure your story has a beginning, middle, and end.