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The Impact of Language Status on Bilingual Language and Literacy Development

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Dedication

This thesis is dedicated to my family: Dad, Mom, siblings, and grandparents in honor of the sacrifices you have made in my lifetime to allow me the opportunity to not only pursue higher education but also to be able to find my passions and ultimately my career.

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Abstract

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This study investigated narrative and literacy differences between monolingual and bilingual children with Developmental Language Disorder (DLD) and examined caregivers' perspectives on their language and literacy development. This mixed methods project involved semi-structured ethnographic interviews and case histories for caregiver measures, and it included a narrative production task and a literacy skills assessment for child measures. There were two participant groups: monolingual children with a DLD in kindergarten to sixth grade (Group 1) and bilingual children (English + additional language) with a DLD (Group 2). Thematic analysis of caregiver interviews revealed that monolingual families engaged in storytelling and reading activities to enhance literacy skills, while bilingual caregivers highlighted challenges in language and literacy, with less emphasis on storytelling. On literacy assessments, both groups exhibited varied performance with no systematic differences between groups observed. This varied performance for the participants could indicate an influence on their skills from their existing diagnosis. Overall performance did not suggest that there was an observable difference between monolingual and bilingual children in this study. Future research is needed to investigate these dynamics across larger and more demographically and linguistically diverse populations.

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List of Abbreviations

ASHA	American Speech-Language-Hearing Association
DLD	Developmental Language Disorder
SLP	Speech-Language Pathologist
WM	Working memory
VWM	Verbal working memory
SLI	Specific Language Impairment
ELI	English literacy instruction
EAL	English + Additional Language
CELF-P2	*Clinical Evaluation of Language Fundamentals Preschool-2*
SPELT-P 2	*Structured Photographic Expressive Language Test-Preschool, Second Edition*
SALT	*Systematic Analysis of Language Transcripts*
NIH	National Institute on Deafness and Other Communication Disorders
PLI	Primary Language Impairment
GE/CU	Grammatical errors per communication unit
MLUw	Mean length of utterance in words
SI	Subordination index
PGU	Percent grammatical utterance
IRB	Institutional Review Board
RCLC	RiteCare Childhood Language Center
LLC	Language-Literacy Center
ID	Intellectual Disability

ASD	Autism Spectrum Disorder
SLD	Specific Learning Disability
LSA	Language Sample Analysis
ADHD	Attention-deficit/hyperactivity disorder
TPAS	*Test of Phonological Awareness in Spanish*
PAP	*Phonological Awareness Profile*

CHAPTER 1: INTRODUCTION

Language is a complex system that plays a fundamental role in human communication. Language can be used verbally, gesturally, in written mediums, and through our bodies' movements. Spoken language is the words we use and how we use them to share ideas and get what we want (American Speech-Language-Hearing Association (ASHA), n.d.-a) When language is read or through written mediums, it is considered an aspect of written language, or literacy (ASHA, n.d.-a). While these definitions are simple and surface-level, the reality of the acquisition is much more nuanced. Spoken and written language together allow individuals to cognitively process written text, creating the foundation for literacy development. Thus, both literacy deficits and developmental language disorders (DLD) may impact performance in different domains of language and reading and writing skills. Speech-language pathologists (SLPs) play a crucial role in the assessment management of both DLD and literacy deficits by performing comprehensive assessments of language and literacy skills using standardized assessment tools, qualitative measures including language sample analysis, and phonological awareness measures. Furthermore, extensive research in language and literacy assessment has delved into understanding the wide range of impairments and deficits that may be present, particularly in monolingual children with DLD. Although clinically practiced, traditional methods of assessment, especially standardized testing, are not always adequate for exploring the language and literacy skills of children from bilingual and/or multicultural backgrounds. Additionally, language status and its use in a multicultural society may influence a child's language and literacy development. However, these differences are often not sufficiently explored even through qualitative language assessment measures, including use of morpho-

syntactic markers in language samples or story grammar assessments (Kapantzoglou et al., 2017).

Purpose of the Study

While there is some literature exploring various aspects of literacy in bilingual children, especially in those who are typically developing, there is a lack of research focused on literacy skills in bilingual DLD children, and this study aims to fill in some of the gaps in this area of research. This study also explores the impact of language status on both language and literacy development by comparing the linguistic performance of monolingual and bilingual children with DLD with literacy deficits.

Research Questions

The following research questions guided this study:

1. Do caregivers of bilingual children with DLD report differences in literacy skills as compared to caregivers of monolingual children with DLD?
2. Do bilingual children with DLD display differences in their narrative production skills as compared to monolingual children with DLD?
3. Do bilingual children with DLD display differences in their literacy skills as compared to monolingual children with DLD?

Significance of the Study

The findings of this research will provide preliminary insight into some of the differences in narrative and emergent literacy skills in bilingual versus monolingual children with DLD and caregivers' perspectives on their language and literacy development. In addition, this research will provide insights into using language sample analysis as a tool for exploring narrative skills

in bilingual children with DLD, particularly using microstructure (lexical diversity, grammaticality, sentence length, and complexity) and macrostructure (story grammar) measures.

CHAPTER 2: LITERATURE REVIEW

Overview of Language

Language is a complex system that plays a fundamental role in human communication and interaction which is not confined to one modality and can be used verbally, gesturally, in written mediums, and through our bodies' movements. Language is broken down into three components: form (phonology, morphology, syntax), content (semantics), and use (pragmatics/discourse) (Bloom & Lahey, 1978). Phonology refers to the system of sounds within the world's languages (e.g., English has 44 speech sounds that comprise the language). Morphology refers to how words are formed (e.g., when the suffix "-ed" is added to a root word like "walk", the derived word is "walked" which signifies past tense). Syntax refers to how words are formed into phrases, clauses, and sentences (e.g., in English, a sentence is comprised of a subject and a verb. Semantics refers to the linguistic meaning and interpretation of the words used in phrases, clauses, and sentences (e.g., in the sentence "The dog followed the cat.", it is understood that there are two animals interacting in such that one is following the other). Pragmatics/discourse refers to the conversational implicature and social use of language (e.g., taking turns in a conversation when appropriate). These domains describe a person's linguistic system that may be accessed to communicate through any modality.

A multilingual individual is anyone who has linguistic access to more than one language. This linguistic access can occur simultaneously (access to two or more languages at the same time (bilingual)) or sequentially, access to a second language (L2) after the onset of acquisition of the first/heritage language (L1). We refer to someone who is actively learning English as an English as an additional language learner (EAL), which is often seen in sequential bilingualism

in the United States. Language acquisition patterns in multilingual children follow a similar pattern to monolingual children, with typically developing bilingual children using their first words by the time they are 1 year old, and by age 2, most bilingual children use two-word combinations (ASHA, n.d.-b).

As a field, we understand bilingualism as an amalgamated system of forward and backward transfer of strategies (Hernandez et al., 2005). Hernandez and colleagues (2005) define forward transfer as the characteristics of a child's L1 being carried over to L2, and backward transfer as aspects of L2 carried over to L1. Bilingual language acquisition is a complex process, and there is a potential for language loss in the competency of a child's L1 as their skills in L2 are acquired if L1 is not appropriately supported, leading to subtractive bilingualism. Once a child is proficient and confident in both languages, it is common for code-switching, alternating between two languages, to occur. This means we need to look at language development in both languages, rather than in one specific language, to understand overall language acquisition.

Language acquisition starts in early infancy, and literature has categorized the development into age-specific milestones regardless of language status (i.e., monolingual versus bilingual), with early language milestones being similar for monolingual and bilingual children (Pearson & Fernandez, 2001). Regardless of a child's language background, language typically develops at the same age milestones (Hoff et al., 2012). By 6 months of age, infants are able to discriminate and recognize the basic sounds of their L1 language (National Institute on Deafness and Other Communication Disorders (NIH), 2022). Around 1 year of age, children begin to produce their first words/signs which is the hallmark of expressive language. Their average expressive vocabulary size is between 50 to 100 words at 18 months of age (Paul, 2018). Between two and three years of age, children begin to combine two words, speak in a way that is

understood by family and friends, and use grammatical morphemes (present progressive and plurals) (NIH, 2022). At this age, their average expressive vocabulary size is between 200 and 300 words with Brown's stage 1 elements emerging and their speech is judged to be 75% intelligible (Paul, 2018). By age five, typically, children can answer simple WH questions, combine more than four words, their speech is judged to be 100% intelligible, and use adjectives and Brown's Stage V elements of later developing morphemes (Paul, 2018). As children get older, we expect by age 8, children will retell stories in a logical order using complex sentences and will explain their ideas (ASHA, n.d.-c).

Language Disorders

When children have difficulty with any aspect of language such as syntax, morphology, semantics, phonology, and/or pragmatics, they could have a DLD. Children are diagnosed with DLD when there are deficits in comprehension and or expression of spoken language that cannot be attributed to a medical cause (ASHA, n.d.-d). In recent practice, the term DLD is now used for developmental language diagnoses such as primary language impairment (PLI) and specific language impairment (SLI).

However, in bilingual children, diagnoses of DLD must be more nuanced and thorough. There is a prevalence of both under-identification and over-identification of DLD in bilingual children. Under-identification occurs when a true/existing language delay is attributed to learning two languages. These children are often identified at a later age, and, thus, miss out on receiving services and support for their language deficits. Over-identification occurs when aspects of typical language acquisition of two languages are attributed to a disorder. For example, children learning both Spanish and English will sometimes drop the subject when speaking in English. This is because Spanish is a "pro-drop" language, and a subject is not always used (Vande

Casteele & Palomares Ortiz, 2022). Children learning both English and Spanish may extend these language-specific grammatical rules across languages, thus resulting in a difference and not a disorder. Thus, assessment using appropriate tools for accurate diagnosis is particularly important when working with bilingual children.

Regardless of language status, DLD is likely to impact their emergent language skills for form (phonology, morphology, syntax), content (semantics), and use (pragmatics/discourse) (Bloom & Lahey, 1988).

Assessment of Language

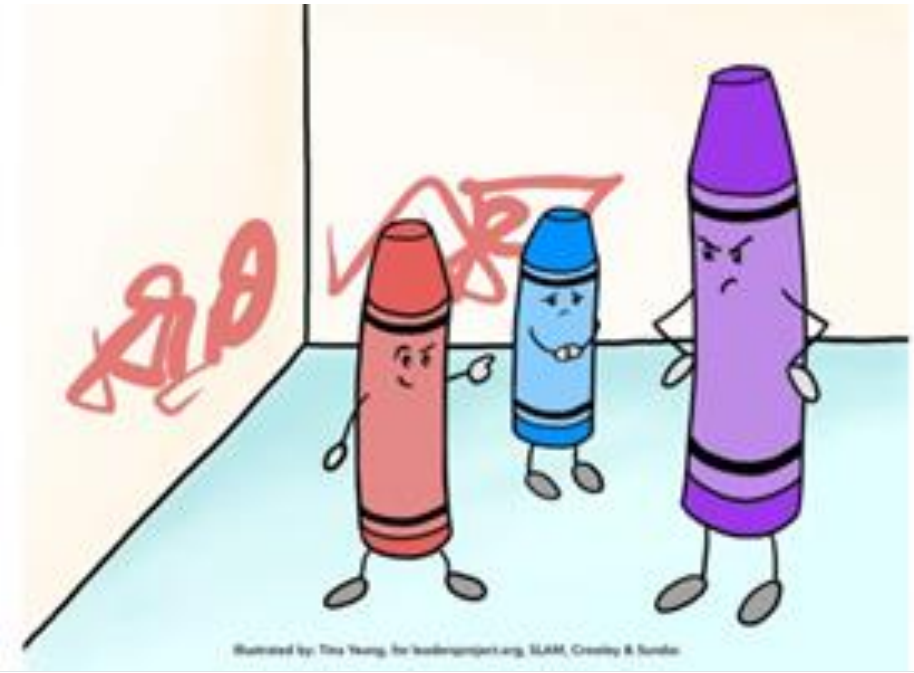
When children do not meet the developmental norms of language acquisition, SLPs are tasked with assessing their language skills to find out if there are language delays or deficits. While a number of standardized assessments exist for monolingual English-speaking children, assessment paradigms become more complex with bilingual children. In such scenarios, assessment tools such as language sample analysis (LSA) are invaluable. LSA is a method used in clinical settings to transcribe and analyze a child's spontaneous language to provide an understanding of a child's overall language use. LSA is widely accepted for all children regardless of their language status and diagnosis because it is a more naturalistic and ethically valid way to evaluate a child's language performance (Klatte, van Heugten, Zwitserlood & Gerrits, 2022). LSA offers SLPs the opportunity to obtain and analyze language samples that represent linguistic performance in real-life situations, such as spontaneous conversation or during child-led play, or in more structured communication tasks such as narratives and story retelling, (Klatte et al., 2022; Price et al., 2010).

Common materials used for LSA include a textless picture book and tools such as the Leader Project's *Crayon SLAMc Card* (Crowley et al., 2018). A common textless picture book is

"Frog, Where Are You?" which tells the story of a boy and his pet frog as read aloud by a clinician using a published script (Mayer, 1969). The *SLAMc card* depicts a pragmatically rich scene of personified crayons (Figure 1). Children are asked to verbally produce a story about the image, provide an interpretation of the scene, and/or are asked to craft a narrative of their own guided by WH questions provided by the clinician if needed (Crowley et al., 2018).

Figure 1

Crayon SLAM Card



While both are acceptable materials to use, the SLAM pictures are often used with bilingual populations since they are adaptive to different narrative styles and require a shorter amount of time for administration. Furthermore, textless picture books may artificially penalize someone who doesn't use the academic narrative style specific to the script read aloud (Arif &

Fatimah, 2009). In addition, the SLAM pictures are used for narrative production tasks, whereas the "*Frog, Where Are You?*" story is used for narrative retelling tasks.

LSA is typically used to analyze and build a linguistic profile of a child's expressive language macrostructure and microstructure. Macrostructure (e.g., story grammar) forms the organizational structure of a narrative which involves eight specific characteristics: character, setting, initiating event, internal response, plan, attempts, direct consequence, and reaction (Stein & Glen, 1979; Whaley, 1981; Hughes, McGillivray & Schmidek, 1997). Microstructure is the sentence-level aspects of language, such as vocabulary, syntactic complexity, morphology, and mean length of utterance (Justice et al., 2010; Petersen & Spencer, 2014). Commonly used measures include the mean length of utterance in words (MLUw), type-token ratio (TTR), and percent grammatical utterance (PGU). MLUw is calculated by dividing the total number of words by the total number of utterances in a language sample, whereas the mean length of utterance in morphemes (MLUm) is calculated by dividing the total number of morphemes by the total number of utterances (Brown, 1973). TTR is calculated by dividing the types (the total number of different words) occurring in a text or utterance by its tokens (the total number of words). PGU is calculated by dividing the number of grammatically correct utterances by the total number of utterances.

For monolingual English speakers, these measures (MLUm and TTR) can provide informative LSAs. However, measures such as MLUw are more appropriate for bilingual children, especially children who speak Spanish as one of their languages because MLUw does not penalize a child for grammatical morphemes used that are influenced by the systematic differences between English and Spanish (Escobedo et al., 2023). Further, using measures of grammaticality, such as PGU, provides rich information on a bilingual child's language abilities

to help understand the potential influence of heritage language on English (Escobedo et al., 2023).

LSA is particularly beneficial in practice for assessing bilingual children's language skills and overall use. Previous literature has found that bilingual children achieved lower scores than monolingual children on standardized tests, but not on measures from language samples (Cleave et al., 2010). For standardized assessments, Cleave et al. (2010) used the *Clinical Evaluation of Language Fundamentals Preschool-2* (CELF-P2) and the Structured *Photographic Expressive Language Test-Preschool, Second Edition* (SPELT-P 2) in their research. For the LSA, children were asked to verbally produce the "Renfrew Bus Story", part of the *Renfrew Language Scales*, which is a collection of 12 pictures depicting a story that does not contain any text. Lower literacy scores from narrative sample measures were found in both groups (monolingual and bilingual children with DLD) which suggested that using narrative samples is a more sensitive language measure as compared to other possible methodologies (Cleave et al., 2010).

Another argument for using LSA has come from the understanding that standardized language tests are often biased to be used with bilingual children. Squires et al. (2014) conducted a study focused on story retelling by bilingual children with DLD to determine whether bilingual children with and without DLD present predictable growth from kindergarten to first grade in the macrostructure and microstructure elements of stories told in Spanish and English. This was a longitudinal study where each bilingual child with DLD was matched to a bilingual typically developing child. Participants retold stories from wordless picture books in Spanish and English. Bilingual typically developing children outperformed those with DLD. For the macrostructure of the stories, researchers found improvements in both languages in typically developing children as compared to the DLD group. For the microstructure of the stories, typically developing

children made more gains on their Spanish retelling task than their English retelling task. The primary language impairment (PLI) children's microstructure did not differ from either grade in either language. The results from this study further demonstrate that using materials, such as wordless picture books, is an appropriate elicitation stimulus for bilingual language sample collection.

Expanding on Squires et al. (2014), Kapantzoglou (2017) examined whether the language sample elicitation technique (i.e., storytelling and story-retelling tasks with pictorial support) affects lexical diversity, grammaticality (grammatical errors per communication unit [GE/CU]), sentence length (MLUw), and sentence complexity (subordination index [SI]), which are commonly used indices for diagnosing DLD in Spanish-English-speaking children in the United States. Twenty bilingual Spanish-English-speaking children with typical language development and 20 with DLD participated in the study. The data were analyzed to evaluate the effect of the language elicitation technique on lexical diversity, GE/CU, and sentence complexity. Kapantzoglou (2017) also evaluated which indices were more effective for story retelling and storytelling and their classification accuracy across elicitation techniques. The researchers found that lexical diversity, MLUw, and SI were influenced by the type of elicitation technique, but GE/CU was not. The classification accuracy of language sample analysis was greater in story retelling than in storytelling, with GE/CU and lexical diversity being useful indicators of language abilities in story retelling and GE/CU and SI in storytelling. A prominent conclusion of their study was that using two indices that were outlined in the study in LSA may be sufficient for diagnosis in 4- to 5-year-old bilingual Spanish and English-speaking children. This suggests further that using measures such as MLUw and PGU are best practices for LSA specifically with bilingual children.

Overall, LSA appears to be a more reliable metric to accurately explore bilingual children's lexical and grammatical complexity. Elicitation techniques like storytelling and narrative retelling are useful in providing meaningful analysis of their language sample. Using macrostructure (story grammar) and microstructure (MLUw, TTR, and PGU) to analyze a child's sample regardless of language status provides a more holistic and naturalistic view of a child's spontaneous language and overall language use.

Literacy

While children are only expected to read and write in elementary school, pre-literacy skills start in infancy. These pre-literacy skills are also referred to as emergent literacy skills and refer to all behaviors demonstrated by young children as they begin to respond and approximate skills relating to reading (Braunger & Lewis, 2006). Literacy acquisition requires multiple aspects of language and encompasses speaking, listening, reading, and writing (Braunger & Lewis, 2006). Because of this, the progression of a young child as their literacy skills emerge is on a continuum. This continuum might look like first holding a book in the proper orientation, then pointing, talking about the pictures, making your own story as you flip the pages, and asking questions. It is understood that around the same time that more complex language emerges at 1 year of age, children will begin to receptively understand what the pictures on the page represent (Braunger & Lewis, 2006).

Some aspects of cognition and language form the building blocks for emergent literacy, specifically working memory (WM) and phonological awareness. WM is the area of cognition involving how we process information which includes verbal working memory. Verbal working memory is the ability to temporarily store verbal information, with or without further manipulation of this information, to fulfill cognitive tasks such as language processing or

reasoning (Baddeley, 1992). Tasks such as complex span tasks (e.g., reading span, counting recall, listening recall), letter memory, or backward span tasks (e.g., digit span backward, word span backward) refer to phonological memory. Working, verbal, and phonological memory all intersect into the development of emerging literacy and are typically areas that are assessed in literacy.

Phonological awareness skills are prerequisite skills necessary for a child to begin to read and write in early elementary grades. Phonological awareness refers to a child's overall awareness and recognition of spoken words that represent larger strings of connected speech sounds (e.g., discrimination between minimal pairs that derive different meanings such as "cat" vs "bat"). Other important phonological awareness skills that lead to reading abilities include rhyming, segmentation of words, manipulation of sounds, and phonemic awareness. One of the first skills to emerge is rhyming, which refers to a child's ability to produce real and nonreal rhyming words, meaning a child can identify if two words have similar sounds and/or endings, and this skill is typically acquired around two to three years of age (Horowitz-Kraus et al., 2016). Segmentation refers to a child's ability to identify the boundaries between words, syllables, and speech sounds (i.e., the word "cat" is one syllable with three speech sounds). Manipulation refers to a child's ability to substitute or delete a syllable or phoneme in a given word (e.g., an elision task such as changing the /k/ in "cat" to a /b/ to form "bat"). Phonemic awareness refers to the ability to identify, segment, and manipulate individual sounds (phonemes), and it's one important aspect of phonological awareness (the broader term that also encompasses other tasks involving larger linguistic units such as words, syllables, and onset-rime). This is often assessed in "isolation" tasks. Segmentation and manipulation involve more complex phonological awareness for tasks relating to isolating a phoneme or syllable and manipulating that segment to

a different position in each word. These phonological awareness skills should all be developed by first grade to prepare a child for reading independently (Horowitz-Kraus et al., 2016).

These aspects of emerging literacy contribute to good reading development cultivated in the early years of elementary school. However, for children who are acquiring language and have emerging literacy skills, literacy intervention is often needed to support the development of phonological awareness, word recognition/decoding, reading comprehension, written expression, and spelling. In addition, instruction that supports vocabulary development is often part of literacy programs, as vocabulary knowledge is foundational for reading and academic success (Adlof & Patten, 2017; McGregor et al., 2013; Nagy & Townsend, 2012; Nagy, 1988; Perfetti & Stafura, 2014).

For bilingual children, previous research has identified that bilingualism does not interfere with the development of English literacy and ultimately the ability to read. Furthermore, young children who have access to both languages simultaneously have been shown to have increased literacy development (Ramirez, 2000). There is debate about how bilingualism influences literacy development in the areas of print, metalinguistics, and decoding (Bialystok, 2001). Current research has suggested that bilingualism is not an obstacle to literacy development, and it also seems to provide the learner with an increased skill set because of their metalinguistic abilities (Ramirez, 2000). Overall, bilingual children do not have observable differences in literacy, in fact, bilingual children should perform better on literacy tasks when the appropriate materials are implemented (Ramirez, 2000; Bialystok, 2001).

Literacy Disorders

Emerging literacy skills (e.g., rhyming, segmentation, manipulation, phonological memory, isolation) are often assessed to identify relative strengths and weaknesses in a child's

development toward proficient reading and writing. When children have difficulty with any aspect of emerging literacy skills, they will likely have disorders of reading and writing. These disorders include dyslexia, reading disability, reading disorders, specific reading disorder, and specific reading comprehension deficit (ASHA, n.d.-d). Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge." (International Dyslexia Association, 2002). When there is a specific skill area that is the main deficit, the diagnosis of specific reading disorder may be used. For children who specifically have deficits in reading comprehension, the diagnosis of a "specific reading comprehension deficit" may be used. Children who have difficulties with both word recognition and comprehension may be described as having a "mixed decoding/comprehension deficit" (Catts, Adlof, & Weismer, 2006).

In monolingual and bilingual children with DLD, literacy disorders are often under-identified. Children are often not identified until the later childhood years, which becomes a problem when they need strong reading skills to access academic material. Previous research has identified relative strengths and weaknesses for monolingual and bilingual children. Typically, monolingual children perform better than bilingual children in most literacy tasks, except for phonological awareness, in which no differences were found between the groups (Bar & Shaul, 2021). Research conducted by De Bree and colleagues (2022) found that monolingual and

bilingual children do not differ in word learning (decoding), meaning that decoding deficits are due to DLD influences and not language status. Research conducted by Bellocchi and colleagues (2017) found that word or pseudoword reading speed between monolinguals and bilinguals does not differ either. Saez and Leafstet (2004) found that children proficient in language have stronger WM than children with reading disabilities, and children with reading disabilities performed poorly on Spanish measures of short-term memory. For children with dyslexia, English as a foreign language presents a challenge for students with dyslexia but as a strength for bilingual language-minority children (Bonifacci et al., 2017). While we understand the difference in specific literacy skills for monolingual and bilingual children, we do not yet understand the systematic differences that language status could have in literacy disorders.

Assessment of Literacy

Formal assessment provides specific areas that can be addressed in formal intervention and monitors whether a child has acquired the necessary skills to cultivate good reading. It is particularly important in practice to identify children who may benefit from formal intervention to teach these skills directly to avoid potential challenges as a child enters higher grades in elementary school when the focus of literacy shifts from learning to read to reading for learning academic content. For the older school-aged population, literacy is used to learn, and a breakdown in literacy skills could have implications for a child's academic success (Westby et al., 2015).

Some commonly used standardized assessments for emergent literacy skills include the *Comprehensive Test of Phonological Awareness, Second Edition* (CTOPP-2) (Wagner et al., 2013). The CTOPP-2 is administered to English-speaking children to assess their phonological awareness using standardized measures of elision, blending, sound matching, phoneme isolation,

non-words, and memory (Wagner et al., 2013). While the CTOPP-2 is widely used and effective, it is not appropriate to use with bilingual children due to the restrictions of the normative sample. For Spanish-speaking bilingual children, the *Test of Phonological Awareness in Spanish* (TPAS) is often administered to assess the child's foundational literacy skills as it is one of the only published assessments with a bilingual normative sample (Riccio et al., 2004). The TPAS can be used to identify children who may benefit from instructional activities to enhance their phonological abilities to aid reading instruction (Riccio et al., 2004). Phonological awareness is assessed using subtests focused on rhyming, phoneme isolation, and segmentation. When standardized assessments are not appropriate, there are informal assessments used by SLPs to assess the development of these skills. The *Phonological Awareness Profile* (PAP) is often used to assess the same foundational literacy skills using raw accuracy to quantify a child's skills using subtests focused on rhyming, phoneme isolation, segmenting, and manipulation (Robertson & Salter, 1995). The TPAS and PAP are very similar in practice as they assess the same areas; these assessments only differ in the language used during the administration. While traditional literacy assessments are not always adequate for exploring literacy disorders in bilingual children, the TPAS and PAP can be used to assess their emergent literacy skills.

Caregiver Perceptions

Caregiver's perceptions of their child's reading abilities provide insight into the development of their skills across their life. Generally, research has found that caregivers, who are active participants in speech/language therapy, have a presence of reading in the home environment, and are active readers themselves, are likely to perceive their child's literacy development positively.

Selin et al. (2018) implemented a study with monolingual caregivers of children with language disorders who received language intervention. Caregivers generally held positive perceptions regarding outcomes; however, they were less positive about their child's skills in using language functionally. These positive perceptions were attributed to the outcomes of trust that the parents had in the SLP's training because they had received parent education, and, thus, had felt benefitted.

The presence of reading in the home environment has been shown to create positive and significant reading outcomes. Research by Melzi et al. (2022) extended previously known knowledge on the implications of storytelling and cultural influence to demonstrate that parents who enriched their children's experiences through both activities at home and in their cultural community provided richer and longer narratives which contributed to an increase in reading in their homes. However, families whose children have DLD have increased difficulty, as creating an environment rich in reading is difficult when their child already experiences challenges with reading in the first place (Tambyraja et al., 2017). Caregivers who are active readers themselves are likely to have a more positive home literacy environment compared to those caregivers who are not active readers (Tambyraja et al., 2017).

Summary

SLPs play a vital role in assessing and managing both DLD and literacy deficits. They conduct comprehensive evaluations of language and literacy skills using standardized assessment tools, language sample analysis, and phonological awareness skill measures. However, traditional assessment methods, particularly standardized testing, may not be sufficient when evaluating the language and literacy skills of children from bilingual and/or multicultural backgrounds. In recent years, the field of speech-language pathology has expanded its focus to

address the complexities of language development within multicultural communities. Recent research has explored the impact of language-sample elicitation techniques, specifically storytelling tasks, on linguistic measures in Spanish-English bilingual children. These studies highlight the importance of considering cultural and linguistic influence when assessing language and literacy skills, emphasizing the need for more nuanced and inclusive assessment methods in the field of speech-language pathology.

This study aims to address these knowledge gaps, particularly concerning the influence of language status on bilingual children with language and literacy deficits. It also seeks to explore the impact of language status in both language and literacy development by comparing the linguistic performance of monolingual and bilingual children with DLD and literacy deficits.

CHAPTER 3: METHODOLOGY

Statement of the Problem

The intersection between literacy and bilingualism is not fully understood in speech-language pathology. While many researchers have asked novel questions, there are many gaps in the literature in this area. Specifically, within the context of cultural considerations and multi-cultural aspects of language assessments, not much has been explored on the relationship between DLD, language status, and their combined impact on narratives and literacy development. Few studies involve school-aged children, particularly in the range of third to fifth grade. This creates an issue for understanding the impact of language, particularly with literacy. In the higher grades of elementary education, the focus of literacy shifts from learning to read to reading to learn academic content. For the older school-aged population, literacy is used to learn, and a breakdown in literacy skills could have implications for a child's academic success (Westby et al., 2015). However, there is a dearth of understanding about how these factors interplay as children progress academically. This study included semi-structured interviews, qualitative language profiles, qualitative language sample analysis, and an assessment of literacy skills. The specific aim of this study is to compare the performance of monolingual and bilingual children with DLD and deficits in literacy on select language and literacy measures to better understand if there are differences in their language and literacy skills, and, if so, what are the overall effects of these differences.

Participants

The Institutional Review Board (IRB) at the University of the Pacific reviewed and approved the study (IRB#2023-139). Informed consent procedures were followed, and consent

from the caregivers and assent from the child participants were obtained at the beginning of the session.

The participants in the study (*n*=6) were speech-language therapy pediatric clients and their caregivers. All participating children were between the ages of 6 – 13 years (kindergarten – 6th grade). The sample was made up of two groups: Group 1, monolingual children in kindergarten to sixth grade with DLD; Group 2, bilingual children (English + additional language) with DLD. Two of the bilingual children had access to Spanish as their additional language and one child had access to Hindko and Urdu. Children in both groups had a history of literacy-related deficits as specified in their case history and previous clinic reports. All recruited participants were children receiving speech and language services at the university's pediatric clinics: the RiteCare Childhood Language Center (RCLC) and the Language-Literacy Center (LLC). There were six participant dyads (Table 1), three in the monolingual group (Participants 101, 102, 103) and three in the bilingual group (Participants 201, 202, 203). Of the six child participants, five out of six reported male gender, and one out of six (16%) reported female gender. All six caregiver participants were female and shared the same racial identity as their child. Five participant dyads (83%) reported Hispanic American race and one participant dyad chose to not disclose race.

Table 1

Demographics of Study Sample for Child Participants

Participant ID	*Age*	*Gender*	*Grade*	*Language*	*Race*	*Diagnosis*
101	9	Female	Fourth	English	Hispanic	DLD
102	10	Male	Fourth	English	Hispanic	DLD
103	10	Male	Fourth	English	Hispanic	DLD
201	9	Male	Third	Spanish/English	Hispanic	DLD
202	12	Male	Sixth	Spanish/English	Hispanic	DLD
203	7	Male	Kindergarten	Hindko/English	N/A	DLD

Caregiver Measures

A brief case history was obtained from the caregivers. The questions included demographic information about the child, their language status, and their language development. The investigators conducted a semi-structured ethnographic interview with the caregivers of children participating in the study. This interview style allows caregivers to provide a vivid description of their life experiences. To achieve this goal, one must ask the right kinds of questions in the right kinds of ways (Westby et al., 2003). This requires descriptive open-ended questions with no preconceived notion of what an acceptable answer might be. It is supportive of the caregivers and allows the caregivers to share whatever they are comfortable disclosing. For this study, caregivers were asked to respond to questions provided by study personnel (see Appendix A).

Child Measures

Language Profiles

Monolingual participants:

Participant 101 is a nine-year-old female, in fourth grade, diagnosed with DLD secondary to Intellectual Disability (ID) with a monolingual language status of English. Assessment data

from Spring 2024 indicated an overall difficulty with producing simple sentences, plurals, present progressive, and verbs. Her receptive and expressive language in general was significantly below average for her age and gender.

Participant 102 is a ten-year-old male, in fourth grade, diagnosed with DLD secondary to autism spectrum disorder (ASD) with a reported monolingual language status of English. Assessment data from Spring 2024 indicated that he could follow directions when not distracted, understand direct questions and comments, provide appropriate responses in complete thoughts/sentences, ask relevant questions when clarification was needed, and maintain topics of personal interest.

Participant 103 is a ten-year-old male, in fourth grade, diagnosed with DLD with a monolingual language status of English. Assessment data from Spring 2024 indicated that his receptive and expressive language abilities were below average.

Bilingual participants:

Participant 201 is a nine-year-old male, in third grade, diagnosed with DLD and Specific Learning Disability (SLD) with a reported bilingual language status of English and Spanish. Assessment data from Spring 2024 showed deficits in expressive vocabulary specifically in sentence expression and grammatical morphemes.

Participant 202 is a twelve-year-old male, in sixth grade, diagnosed with DLD with a reported bilingual language status of English and Spanish. Assessment data from Spring 2024 indicated deficits in morphology and syntax, specifically errors in subject-verb agreement, irregular past tense, and negation.

Participant 203 is a seven-year-old male, in kindergarten, diagnosed with DLD and Attention-deficit/hyperactivity disorder (ADHD) with a reported bilingual language status of

Hindko and English. However, his caregiver did report that he had some exposure to Urdu. Assessment data from Spring 2024 indicated that his receptive language was within the average range. He produced inconsistent age-appropriate sentences but with above-average vocabulary.

Narrative Language Sample

A LSA was completed through a narrative production task to assess participants' linguistic performance using a common rubric used in clinical settings by SLPs to quantify the child's literacy skills. Child participants were presented with the *Crayon SLAMc* card.

Literacy Assessment

Subsequently, the child participants were administered one literacy skills assessment. The *Test of Phonological Awareness in Spanish* (TPAS) was administered to measure phonological awareness skills in Spanish-speaking children (Participants 201 & 202). All four subtests (initial sounds, final sounds, rhyming words, and deletion) for the TPAS were administered in Spanish to bilingual Spanish-English-speaking participants (Riccio et al., 2004). In the case where a participant was bilingual in another language other than Spanish (participant 203) or identified as monolingual (Participants 101, 102, 103), The *Phonological Awareness Profile* (PAP) was administered and scored using the assessment manual to determine the criterion-referenced descriptive characteristics used to interpret the meaning of the score obtained (Robertson et al., 1995). Only three subtests (Rhyming Words, Isolation, and Deletion) were administered which correlated with the specific skills measured on the TPAS. This ensured that all participants were assessed on the same foundational literacy skills of rhyming, isolation, and deletion.

Data Analysis

Ethnographic Interviews

Ethnographic interviews with caregivers were evaluated using thematic analysis to identify recurring themes and shared values. The thematic analysis conducted followed the guidelines and flexibility needed to respond appropriately to the demographic population of this study (Braun & Clarke, 2006).

Narrative Language Sample

Language samples were analyzed to develop a linguistic profile. This was comprised of calculating the MLUw, PGU, and TTR. The linguistic profile was then used to understand whether the child's sample demonstrated age-appropriate language skills and to understand the potential influence of heritage language on English (Escobedo et al., 2023; Yang & Bernstein, 2022). Additionally, the samples were analyzed to identify the microstructure and macrostructure that the children used in their narrative samples (Squires et al., 2014; Kapantzoglou, 2017; Whaley, 1981; Hughes, McGillivray & Schmidek, 1997; Justice et al., 2010; Petersen & Spencer, 2014).

Literacy Assessment

The TPAS assessment is typically scored using normative data found within the assessment manual based on a child's chronological age. The PAP is scored using the child's raw score accuracy for each item to calculate the percentage of accuracy on each subtest. To best align with the PAP, both assessments were scored using the child's raw accuracy on each item to calculate an overall accuracy raw score for each subtest administered.

Summary

This study compared monolingual and bilingual children with DLD and deficits in literacy to help understand the effect of language status on their literacy and language development. This study included semi-structured interviews, a clinical report review, a qualitative language sample analysis, and an assessment of literacy skills. This provided an opportunity for a more in-depth analysis to lead to a deeper understanding of the implications of the study relevant to the research questions.

CHAPTER 4: RESULTS

This study compared monolingual and bilingual children who have DLD and deficits in literacy to help understand the effect of language status on their literacy and language development. Semi-structured ethnographic interviews with caregivers were analyzed to identify common themes and values shared in areas relating to language and literacy. Participants' performance in narrative production using the SLAMc card was analyzed using macrostructure (story grammar elements) and microstructure (MLU, PGU, TTR) measures to better understand participants' overall narrative skills as compared to children of the same age and gender. Performance on a literacy skills assessment was used to qualitatively compare the two groups of participants.

Caregiver Ethnographic Interview Findings

Ethnographic interviews with caregivers were evaluated using thematic analysis to identify recurring themes and shared values. The thematic analysis followed the guidelines and flexibility needed to respond appropriately to this study's demographic population.

Monolingual Families

The emerging theme among the caregivers was an overall observation of delayed language development when comparing their child to specific developmental milestones (i.e., first words, combining words, and first spoken sentences) and literacy challenges (i.e., decoding, reading aloud, and comprehension) throughout much of their child's life which led to seeking speech-language pathology services. When asked about the prevalence of storytelling in their homes, the caregiver of participant 101 reported that storytelling in their home involved narrating all events taking place. The caregiver of Participant 102 reported that storytelling was a very

active part of the family dynamic and often is integrated into games such as dice with story grammar elements. This caregiver reported that their child finds pleasure in reading, and reading, in general, is an everyday event.

Specific to literacy development, common challenges included more complex literacy skills such as comprehension and generation of longer paragraphs, writing, and including details in their work. The caregiver of Participant 103 reported that while literacy development has been difficult, their child was enrolled in a literacy program at school that requires thirty minutes of reading nightly which has drastically improved their child's literacy skills. Overall, caregivers acknowledged that while literacy is difficult for their children, there is an active prevalence of seeking support to better their children's literacy skills.

Bilingual Families

Bilingual caregivers reported an overall understanding that their child has had delayed language development (i.e., first words, vocabulary, and spoken sentences) and literacy challenges (i.e., foundational skills necessary for reading: decoding, letter-sound-identification, and blending) that they have observed throughout their child's life. When asked about the prevalence of storytelling in their homes, the caregivers for participants 201 and 203, reported that formal storytelling, reading, and general storytelling among family members and at home were not an active part of their family dynamic and were relatively absent from their child's development. Caregivers reported common challenges with language development including their child expressing themselves and observed challenges related to learning language and learning to read. Specific to literacy development, common challenges included decoding words and blending sounds. For example, the caregiver of Participant 202 reported that their child is not able to recognize sounds or blend sounds and typically uses context from visual stimuli to

compensate for their difficulty. Overall, caregivers acknowledged that their child has been challenged with both language development and increasing challenges with learning to read as they have grown older.

Narrative Language Sample Analysis Findings

Language samples were analyzed, and the following microstructure measures were computed: lexical diversity (TTR), grammaticality (PGU), sentence length, and complexity (MLUw). These samples were additionally analyzed to identify the macrostructure that the children used in their narrative retelling.

Overall, most participants' macrostructure included a character, internal response, direct consequence, and reaction in the narrative macrostructures (Table 2). The macrostructure for bilingual participants was more complete compared to the monolingual participants. The microstructure (MLUw, TTR, PGU) was varied across all participants (Table 3).

Table 2

Language Sample Analysis Macrostructure Results

Participant ID	*Story Grammar Elements*
101	N/A
102	Character(s), Internal Response(s), Direct Consequence, and Reaction
103	Character(s), Setting, Internal response(s), Direct Consequence, and Reaction
201	Character, Internal Response(s)
202	Character(s), Internal Response(s), Direct Consequence, and Reaction
203	Character(s), Internal Response(s), Direct Consequence, and Reaction

Table 3

Language Sample Analysis Microstructure Results

Participant ID	*MLUw*	*TTR*	*PGU*
101	2.2	0.53	100%
102	7.00	0.46	20%
103	9.79	0.45	70%
201	5.33	0.611	88.89%
202	6.46	0.48	97.14%
203	11.00	0.393	75.76%

Monolingual Participants

Participant 101 did not narratively express a story; thus, no story grammar elements were obtained. However, when encouraged by the study personnel, the participant spoke five short utterances accompanied by pointing, gestures, and non-verbal communication such as head nodding to the questions asked by the clinician. The LSA yielded an MLUw of 2.2, a PGU of 100%, and a TTR of 0.53 (53%). Analysis of the microstructure demonstrated that she did not have any compound and complex sentences, had limited vocabulary overall despite achieving a higher TTR percentage, did not use age-appropriate grammatical morphemes, and did not use age-appropriate pronouns. Based on her age of 9 years, her microstructure was significantly below what is expected of her age (Yang & Bernstein, 2022). Participant 102 included four of the eight-story grammar elements which included character(s), internal response(s), direct consequence, and reaction. Notable utterances in their sample included, “The red crayon drew on the wall, and he is pointing to blue” and “I mean, look at the colors, they match?”. The LSA yielded an MLUw of 7.00, a PGU of 20%, and a TTR of 0.46 (46%). Analysis of the microstructure demonstrated that he had limited compound and complex sentences with coordinating conjunctions, limited vocabulary, limited age-appropriate grammatical morphemes,

and did not use age-appropriate pronouns. Based on his age of 10 years, his microstructure was below what is expected of his age (Yang & Bernstein, 2022). Participant 103 narratively expressed a story with five story grammar elements (character(s), setting, internal response(s), direct consequence, and reaction). Notable utterances in their sample included, “When the red crayon and the blue crayon were in the room” and “The purple crayon was in the living room or something”. The LSA yielded an MLUw of 9.79, a PGU of 88.89%, and a TTR of 0.45 (45%). Analysis of the microstructure demonstrated that he had limited compound and complex sentences with coordinating conjunctions and somewhat varied vocabulary. He had age-appropriate morphemes and pronouns. Based on his age of 10 years, his microstructure was what is expected of his age (Yang & Bernstein, 2022).

Bilingual Participants

Participant 201 included two of the eight-story grammar elements, character(s), and internal response(s), in their narrative. Notable utterances included, “The red crayon writes something in the wall”, and “I think the red write something mean for him”. The LSA yielded an MLUw of 5.33, a PGU of 88.89%, and a TTR of 0.611 (61%). Analysis of the microstructure demonstrated that he had some compound and complex sentences with coordinating conjunctions, varied vocabulary, age-appropriate grammatical morphemes, and use of age-appropriate pronouns. Based on his age of 9 years, his response’s microstructure was below what is expected of his age (Yang & Bernstein, 2022). Participant 202 included four of the eight-story grammar elements: character(s), internal response(s), direct consequence, and reaction. Notable utterances included, “The crayons colored the walls and they were complaining” and “The purple crayon is gonna tell his parents”. The LSA yielded an MLUw of 6.46, a PGU of 97.14%, and a TTR of 0.48 (48%). Analysis of the microstructure showed he had limited compound and

complex sentences with coordinating conjunctions and a varied vocabulary. He had some age-appropriate grammatical morphemes and pronouns. Based on his age of 12 years, this response's microstructure was below what is expected of their age (Yang & Bernstein, 2022). Participant 203 included four of the eight-story grammar elements: character(s), internal response(s), direct consequence, and reaction. Notable utterances included, "I would say you detention because I wouldn't know that because he was acting scared" and "He will have to go to the doctor and then he will be broke because it's expensive". The LSA yielded an MLUw of 11.00, a PGU of 75.76%, and a TTR of 0.393 (39%). Analysis of the microstructure demonstrated that he had limited compound and complex sentences with coordinating conjunctions, a limited vocabulary, grammatical morphemes, and pronouns. Based on his age of 7 years, his response's microstructure was above average for what is expected of his age (Yang & Bernstein, 2022).

Comparison Between Groups

For the macrostructure, monolingual participants included most of the story grammar elements. The average number of story grammar elements used by the monolingual cohort were four of the eight possible story grammar elements: Character(s), Internal Response(s), Direct Consequence, and Reaction. Only one participant included a setting in their narrative retelling. The average number of story grammar elements used by the bilingual cohort were four of the eight possible story grammar elements: Character(s), Internal Response(s), Direct Consequence, and Reaction. Monolingual and bilingual participants on average produced the same four-story grammar elements.

For microstructure, two out of three monolingual participants demonstrated age-appropriate skills for the LSA measures. The average MLUw for the monolingual cohort was 6.33. The average PGU for the monolingual cohort was 63.33%. The average TTR for the

monolingual cohort was 0.48. For the bilingual cohort, the average MLUw was 7.59. The average PGU for the bilingual cohort was 87.26%. The average TTR for the bilingual cohort was 0.49.

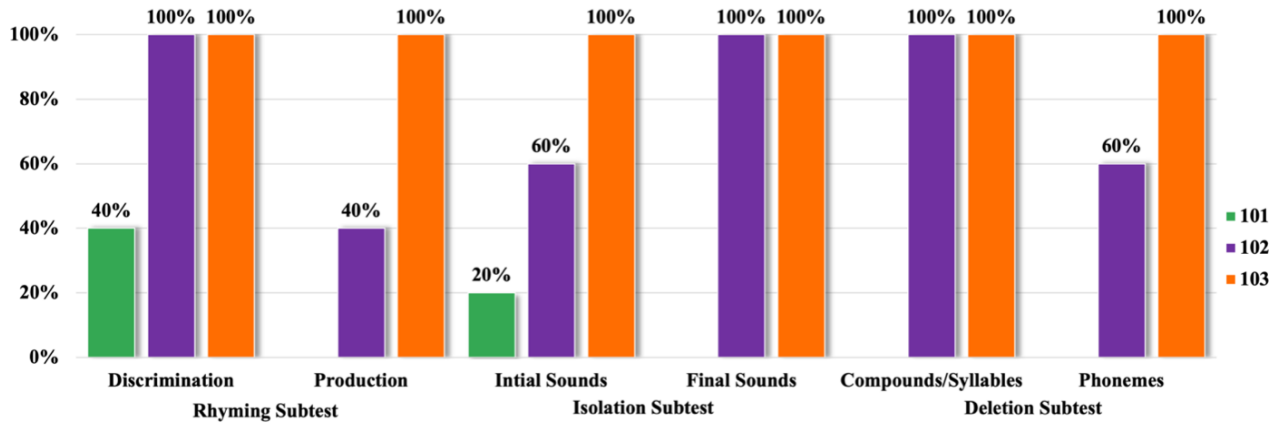
Literacy Assessment Results

Monolingual Participants

Monolingual participants demonstrated varied performance on the PAP literacy assessment (Figure 2).

Figure 2

Monolingual Performance on Literacy Assessment



Participant 101 was able to discriminate whether two words rhymed with 2/5 (40%) accuracy and was not able to produce a rhyming word given a stimulus word resulting in 0/5 (0%) accuracy for the Rhyming subtest. For the Isolation subtest, participant 101 was able to identify initial sounds in words with 1/5 (20%) accuracy and final sounds in words with 0/5 (0%) accuracy. For the Deletion subtest, participant 101 was not able to complete any of the sample items, and, therefore, testing was discontinued. Participant 102 was able to discriminate whether

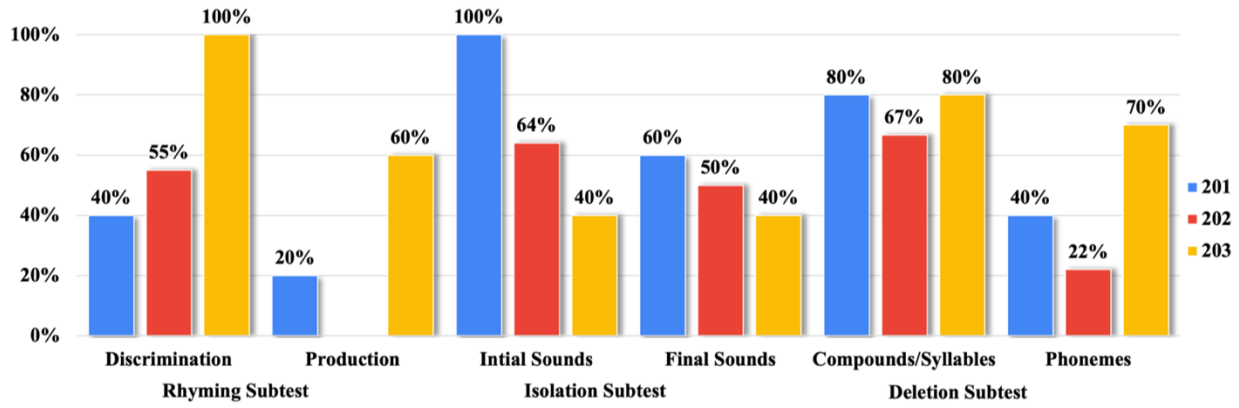
two words rhymed with 5/5 (100%) accuracy and was able to produce a rhyming word given a stimulus word with 2/5 (40%) accuracy for the Rhyming subtest. For the Isolation subtest, participant 102 was able to identify initial sounds in words with 3/5 (60%) accuracy and final sounds in words with 5/5 (100%) accuracy. For the Deletion subtest, participant 102 was able to delete compounds and syllables with 5/5 (100%) accuracy and delete phonemes in given words with 6/10 (60%) accuracy. Participant 103 was able to discriminate whether two words rhymed with 5/5 (100%) accuracy and was able to produce a rhyming word given a stimulus word with 5/5 (100%) accuracy for the Rhyming subtest. For the Isolation subtest, participant 103 was able to identify initial sounds in words with 5/5 (100%) accuracy and final sounds in words with 5/5 (100%) accuracy. For the Deletion subtest, participant 103 was able to delete compounds and syllables with 5/5 (100%) accuracy and delete phonemes in given words with 10/10 (100%) accuracy.

Bilingual Participants

Bilingual participants demonstrated varied performance on the TPAS and PAP literacy assessment (Figure 3).

Figure 3

Bilingual Performance on Literacy Assessment



Based on participant 201's language background, the TPAS was initially administered in Spanish. The test was ultimately discontinued as the child could not correctly answer the subtest sample questions and the PAP was then administered. For the Rhyming Words subtest, participant 201 was able to discriminate whether two words rhymed with 2/5 (40%) accuracy and was able to produce a rhyming word given a stimulus word with 1/5 (20%) accuracy. For the Isolation subtest, participant 201 was able to identify initial sounds in words with 5/5 (100%) accuracy and final sounds in words with 3/5 (60%) accuracy. For the Deletion subtest, participant 201 was able to delete compounds and syllables with 4/5 (80%) accuracy and delete phonemes in given words with 4/10 (40%) accuracy. Based on participant 202's language background, the TPAS was administered in Spanish. For the Rhyming Words subtest, participant 202 was able to discriminate whether two words rhymed with 11/20 (55%) accuracy. For the Isolation subtest, participant 202 was able to identify initial sounds in words with 16/25 (64%) accuracy and final sounds in words with 10/20 (50%) accuracy. For the Deletion subtest, participant 202 was able to delete compounds and syllables with 2/3 (67%) accuracy and delete

phonemes in given words with 6/27 (22%) accuracy. Based on participant 203's language background and caregiver interview, the PAP was administered in English. For the Rhyming Words subtest, participant 203 was able to discriminate whether two words rhymed with 5/5 (100%) accuracy and was able to produce a rhyming word given a stimulus word with 3/5 (60%) accuracy. For the Isolation subtest, participant 203 was able to identify initial sounds in words with 2/5 (40%) accuracy and final sounds in words with 2/5 (40%) accuracy. For the Deletion subtest, participant 203 was able to delete compounds and syllables with 4/5 (80%) accuracy and delete phonemes in given words with 7/10 (70%) accuracy.

Summary

This study compared monolingual and bilingual children who have DLD and deficits in literacy to help understand the effect of language status on their literacy and language development. Semi-structured ethnographic interviews with caregivers were analyzed to identify common themes and values shared in areas relating to language and literacy. Participants' performance in narrative production using the *SLAMc* card was analyzed using macrostructure (story grammar elements) and microstructure (MLU, PGU, TTR) measures to better understand participants' overall narrative discourse skills as compared to children of the same age and gender. Performance on a literacy skills assessment was used to qualitatively compare the two participant groups.

CHAPTER 5: DISCUSSION

When an individual has a breakdown in language, there is a gap between themselves and their ability to communicate socially. In the classroom, this gap is systematically seen in language and literacy deficits. Both literacy deficits and DLD may impact performance in different domains of spoken and written language skills.

This overlap has created an increase in related research in recent years that explored the nuances of language development within diverse and multicultural communities. The specific aim of this study was to compare the performance of monolingual and bilingual children with DLD and deficits in literacy on selected informal and formal language and literacy measures to help understand if there are differences in their literacy skills, and, if so, what the overall effect is on their language and literacy development.

Caregiver Measures

The emerging theme among the monolingual caregivers was an overall observation of delayed language development when comparing their child to developmental milestones (i.e., first words, combining words, and first spoken sentences) and literacy challenges (i.e., decoding, reading aloud, and comprehension) throughout much of their child's life which led to seeking speech-language pathology services. Storytelling in their homes was prevalent through narrating events taking place and incorporating games with story grammar elements. Monolingual caregivers reported that their child finds pleasure in reading, and reading, in general, is an everyday event. One caregiver mentioned that their child was enrolled in a literacy program at school that requires thirty minutes of reading nightly which has drastically improved their child's

literacy skills. Overall, caregivers acknowledged that while literacy is difficult for their children, there is an active prevalence of seeking support to better their children's literacy skills.

For the bilingual caregivers, common challenges were reported with language development including their child expressing themselves and observing challenges related to learning language and learning to read (decoding, blending, etc.). Previous literature identified these difficulty areas as challenging, especially for bilingual children (Adlof & Patten, 2017; McGregor et al., 2013; Nagy & Townsend, 2012; Nagy, 1988; Perfetti & Stafura, 2014). However, there is literature that has shown that it's not language status increasing their difficulty, but perhaps other variables such as their diagnoses (Ramirez, 2000). Storytelling was not an active part of their family dynamic and was absent from their child's development.

The similarities between caregiver's reports highlighted an overall understanding that these skills are difficult and can often lead to frustration (Tambyraja et al., 2017). However, the difference between responses was that those families who have integrated storytelling to be an active part of their family dynamic spoke highly of their child's literacy skills as they have noticed a positive influence throughout their overall development. This finding does align with the prior research that suggests that the caregivers are generally more positive when they are active participants in their child's language and literacy development (Stein et al., 2018). This finding further aligns with previous studies that have found that enriching their children's experiences through both activities at home and in their cultural community provided richer and longer narratives (Melzi et al., 2022). The difference between caregivers is that monolingual caregivers reported that storytelling and reading were more prevalent compared to bilingual caregivers. Based on their responses, the lack of reading for bilingual families was attributed to the challenges that their child faces due to their developmental diagnosis. It is not surprising for

caregivers to share this conclusion; previous studies have found similar results. Tambyraja et al. (2017) found that families whose children have DLD have increased difficulty, as creating an environment rich in reading is difficult when their child already experiences challenges with reading in the first place. Overall, these findings suggest that creating a home environment that is rich in storytelling can bolster a child's literacy skills in both monolingual and bilingual homes.

Child Measures

Previous assessment data from Spring 2024 indicated that two out of three monolingual participants had expressive language deficits in producing simple and complex sentences with intact morphology and syntax. One monolingual participant's (103) assessment data indicated that while expressive language was a relative strength, receptive language was within the average range, and he produced inconsistent age-appropriate sentences with above-average vocabulary skills. For bilingual participants, previous assessment data indicated that all three participants had expressive language deficits in producing sentences with correct grammatical morphemes (subject-verb agreement, irregular past tense, and negation).

Narrative Language Sample

Monolingual participants' macrostructure demonstrated production of four of the eight-story grammar elements (character, internal response, direct consequence, and reaction) on average. Additionally, the monolingual participants' microstructure demonstrated that two out of three monolingual participants performed with age-appropriate skills. The group's LSA for microstructure demonstrated an overall low MLUw, varied vocabulary (TTR), and average PGU.

The bilingual participants' macrostructure demonstrated the production of four of the eight-story grammar elements (character, internal response, direct consequence, and reaction) on

average. Furthermore, the bilingual participants' microstructure showed that two out of three performed with age-appropriate skills, and one participant performed above average for their age. The group's LSA for microstructure demonstrated an overall low MLUw, a relatively varied vocabulary from the calculations of TTR, yet a relatively high PGU.

Comparison across monolingual and bilingual macrostructures showed their narrative discourse skills were similar to most participants and included the same four of the eight possible story grammar elements on average. The microstructure demonstrated differences between groups. The MLUw and PGU for monolingual participants were lower than for bilingual participants. However, the TTR for both groups was nearly the same, with less than a .01 difference. In this study, bilingual children had higher performance compared to monolingual participants on microstructure measures. This finding diverges from the literature that found that microstructure did not differ between groups differing in language status (Squires et al., 2014). The difference in performance for the bilingual children in this study is likely due to the narrative elicitation methodology. This study used the *SLAM*c card, while textless picture books have been used in previous research. Textless picture books can penalize someone who doesn't use the academic narrative style specific to the script read aloud (Arif & Fatimah, 2009).Thus, the *SLAMc* cards likely reduced some of the bias inherent in textless books, resulting in higher scores seen in this study. It is also important to note that textless picture books are often used for narrative retelling versus narrative production tasks which require the use of different language skills/abilities.

The similar performance in macrostructure measures suggests that using LSA tools such as the *SLAMc* card continues to be sensitive to a child's language status and can still be analyzed in a meaningful way. This aligns with the literature indicating that bilingual children typically

do not differ in performance on grammatical and semantic complexity from typical monolingual peers despite lower vocabulary and phonological awareness demonstrated in language sample data analysis (Kapantzoglou, 2017; Zeretsky, 2020). Further, LSA is an appropriate diagnostic tool for bilingual children with DLD, particularly considering indices like MLUw, PGU, sentence length, and TTR (Escobedo et al., 2023, Kapantzoglou, 2017; Squires et al., 2014, Yang & Bernstein, 2022)

Literacy Assessment

For monolingual participants, the overall performance indicated relatively strong skills in rhyming discrimination, identifying final sounds, and deletion of compound syllables. For two out of the three monolingual participants, their performance demonstrates strong skills in rhyming discrimination, identifying final sounds, and deletion of compound syllables. For one participant, literacy skills demonstrated a relative weakness overall. Caregivers perceived these difficulties due to their child's DLD diagnosis, which is confirmed in the varied performance indicating that DLD could be the underlying source causing this difficulty.

For all three bilingual participants, the overall performance in their given assessment yielded varied scores with hills and valleys for their respective strengths and weaknesses. Remarkably, the participants who had early literacy exposure as mentioned by their caregivers achieved higher accuracy when compared to their bilingual peers. This suggests that their overall literacy exposure could lead to higher accuracy. For example, participant 102 scored much lower than their peers for rhyming discrimination (40%) but was more accurate than their peers in identifying initial sounds (100%). Another example of this is shown by participant 103 who scored much higher for rhyming discrimination (100%) but scored much lower than their peers for both initial and final sound identification (40%).

Between and within both groups, their performance on the literacy skills assessment did not yield a systematic pattern. Previous literature suggests that bilingual children with DLD should have achieved lower scores on the literacy assessment (Cleave, 2010; Ramirez, 2000); however, bilingual and monolingual children with DLD did not perform better or worse than their comparison group in this study. This performance overall does not suggest that there is an observable difference between monolingual and bilingual children with DLD in this study as the previous literature would have predicted.

Summary of Observations

For caregiver measures, the monolingual caregivers observed delays in their child's language development and literacy challenges, which led them to seek speech-language pathology services. The monolingual caregivers actively engaged in storytelling and reading, which they felt positively impacted their child's literacy skills. Bilingual caregivers also reported language development challenges, but storytelling was less prevalent in their homes. Overall, these findings suggest that creating a home environment that is rich in storytelling can bolster a child’s literacy skills in both monolingual and bilingual homes. Both monolingual and bilingual children with DLD showed similar skills in macrostructure but differed in microstructure measures, with the bilingual children with DLD performing better in microstructure measures diverging from previous literature that suggested that there would be no difference in performance between the two groups. The literacy assessments revealed no systematic pattern of performance between monolingual and bilingual children with DLD, which diverges from the findings in previous literature suggesting that bilingual children should have achieved lower scores on the literacy assessment.

Limitations

In the current study, some limitations are important to acknowledge. First, the population sample size of this study was limited because recruitment was derived from clients receiving speech and language therapy at the university's clinic during the Spring 2024 semester. The limitation in recruitment did not allow for the population sample to have a diverse range of DLD within the specific age range. A larger sample would allow for a more representative range of children and diagnoses to investigate the impact of language status on language and literacy development.

Another limitation of this study is demonstrated in the diversity within the sample population. The demographic makeup of the population sample was limited in diversity of gender and race. A more diverse demographic population would allow for more cultural influences to be investigated within this topic area. There was a limited number of languages outside of English addressed in the study, as languages spoken by participants in the study were English, Spanish, Urdu, and Hindko. A larger range of languages would allow for further research to evaluate the influence and nuances of language on microstructure and macrostructure measures.

Additionally, only one caregiver was present during data collection. This provided a limitation in terms of the perspectives shared in the conversation within the ethnographic interview. Having more than one caregiver present would increase the level of discussion and ultimately more perspectives would be shared for each child participant.

Conclusions and Future Research

Language is crucial for human interaction and cognition, encompassing verbal and written modalities, which significantly impacts literacy development. Disruptions in language

create social communication gaps, notably evident in literacy deficits observed in educational settings, impacting various language domains. Recent research focuses on language development in diverse, multicultural communities, aiming to compare literacy skills between monolingual and bilingual children with DLD and literacy deficits.

In caregiver ethnographic interviews, monolingual caregivers reported delayed language development and literacy challenges in their children, though they actively engage in storytelling and reading activities, enhancing literacy skills. Comparatively, bilingual caregivers highlighted challenges in language and literacy, with storytelling being less prominent in their family dynamic. Nonetheless, enriching experiences positively influence children's literacy skills, particularly in storytelling-rich environments.

Child assessment data from Spring 2024 indicated expressive language deficits in both monolingual and bilingual participants. There were differences in performance observed in narrative language samples. Bilingual children with DLD demonstrated higher performance in microstructure measures compared to monolingual peers with DLD. Overall, LSA findings suggest an analysis of a child-led language sample as an effective diagnostic tool for bilingual children with DLD.

In literacy assessments, monolingual participants with DLD exhibited varying performance, potentially influenced by their existing diagnoses. Bilingual participants with DLD also showed varied performance, with those exposed to early literacy achieving higher accuracy. Despite expectations of lower standardized test scores for bilingual children, no systematic patterns/differences were observed in the performance between between monolingual and bilingual children with DLD.

However, the study faces limitations, including a small and non-diverse sample size, limited demographic representation, and a focus on a narrow range of languages. These constraints hinder a comprehensive understanding of the impact of language status on language and literacy development.

Future research is needed to investigate how language status ultimately influences literacy using a larger population that is more demographically diverse to further investigate across different populations.

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Appendix A: Caregiver Ethnographic Interview Questions

1. Can you provide some background information about your child's bilingualism? What languages are spoken at home, and how are they used in daily life?
2. How do you tell stories at home? What does the structure of those stories look like?
3. When did you first notice that your child was experiencing language deficits and literacy difficulties? Were there specific signs or behaviors that raised concerns?
4. How does your child's bilingualism impact their language development and literacy skills? Are there any noticeable differences between their proficiency in the two languages?
5. Can you describe some of the specific challenges your child faces regarding reading, writing, or understanding language? Are there particular aspects of language that are more problematic?
6. Are there any cultural or societal factors that influence your child's bilingualism and the perception of their language deficits? How do these factors impact your child's self-esteem and identity?
7. Is there anything else you would like to share about your child's bilingualism, language deficits, or literacy difficulties that you think would be important for us to know?

*These questions were adapted with appropriate language status for monolingual caregivers.