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Spanish Narrative Language Growth in Young Spanish-English Bilingual Children

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by

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## ABSTRACT

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**Purpose:** The purpose of this study was to examine the Spanish narratives of 113 Spanish-English bilingual preschoolers over one academic year. The proportion of story grammar elements, episodic complexity, and high character development scores were evaluated at three different time points and across two different narrative models.

**Method:** The current study examined data collected from a potential S-IDGI narrative retell substest. Preschool children between the ages of 4 years and 6 years were asked to retell two narratives, one from a 4-picture narrative model and one from a 6-picture narrative model, at three time points (fall, winter, spring). Children who produced a narrative retell for both narrative models at all three time points in 100% Spanish were included in this study. There were a total of 113 participants that met the inclusion criteria. Children's Spanish narratives were scored for proportion of story grammar elements (PSGE Index), episodic complexity (EC Index), and the highest character development. Three research assistants who were blinded to the purpose of the study scored 100% of the narratives for inter-rater reliability. Inter-rater reliability for proportion of story grammar elements, episodic complexity, and character development was 86% or better.

**Results:** Overall, PSGE and EC Indices were statistically significant over time for both story models for all participants. The mean Character High Score was statistically significant over time for the 4-picture story model but not for the 6-picture story model. When comparing the results across different age groups, our findings revealed that the effect sizes varied across age groups, story models, and outcome measures with no consistent patterns. There were only clinically significant differences with medium to large effects between Group 3 (72 to 77 months) and Group 1 (60 to 65 months) on the PSGE and EC Indices for both story models. When comparing performance between different gender groups, our results consistently demonstrated no statistically significant difference between males and females across all story models, outcome measures, and time points. The results of this study found a significant correlation between Character High Score and PSGE Index for the 4-picture and 6-picture story model in the fall, winter, and spring.

**Conclusion:** Our findings demonstrated that particular attention should be paid to the story model when collecting narrative language samples from SEB children. Children's performance varied depending on the outcome measure examined. It appeared that SEB children performed better on the outcome measure elicited from the story model that more closely matched their language abilities. Children performed better on PSGE and EC Indices when provided with a story model that was less linguistically complex. However, the opposite was true for Character High Score, where children performed better when given models of higher character levels. Our findings revealed that PSGE Index was more sensitive than EC Index and Character High Score in distinguishing performance across different age groups for SEB preschool children. The skill of

producing a complete episode (EC Index) is either absent or beginning to emerge in young SEB preschool children.

**Key words:** *bilingual children, narrative development, story retell, microstructure, macrostructure, and character development*

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## **Chapter I**

### **Introduction**

Language is an indispensable tool used by people all around the world. Not only is language ubiquitous, but it is also a dynamic phenomenon influenced by the speaker, their culture, and their environment. If people have difficulty using language, a speech language pathologist (SLP) is often the professional who can analyze language through the use of language samples to determine if a language disorder exists. A common type of language sample that an SLP elicits, especially for children, is a narrative language sample. A narrative can be defined as “an account of experience or events that are temporarily sequenced and convey some meaning” (Engel, 1995, p. 19).

One type of narrative is a narrative retell. It can be defined as a type of narrative that is elicited through a model or a reading and the individual is asked to “retell” the narrative (Hughes, McGillivray, & Schmidek, 1997). A narrative language sample would be analyzed for information about sentence structure, grammar, story elements, and vocabulary. Ultimately, these variables provide diagnostic value in identifying a language disorder (Hughes, McGillivray, & Schmidek, 1997).

For children who speak languages other than English, narrative assessments provide more diagnostic value than norm-referenced testing because narratives are used as a mode of thought to relate past experiences (Bruner, 1985; Gutiérrez-Clellen, 1995; Oller & Damico, 1991; Fiestas & Peña, 2004). SLPs use language samples rather than norm-referenced tests to get a more detailed understanding of the child’s language skills because language samples are more sensitive to changes in language production. Differences in language may be particularly noted in discourse production, in other terms

narratives or story telling. Narratives, more specifically narrative retells, provide diagnostic value because they require additional processing demands and the ability to organize and temporally sequence the elements of a narrative in a coherent way (Gutiérrez-Clellen, 2002; Hughes, McGillivray, & Schmidek, 1997).

With an increase in the number of Spanish-English bilingual (SEB) children in the United States schools, SLPs are required to accurately identify SEB children with language disorders. Therefore, it is important that SEB children are not erroneously identified as having a language disorder when they may have a language difference. One way to determine language abilities of SEB children is by assessing their narrative language skills (Gutiérrez-Clellen, 1995; Oller & Damico, 1991; Fiestas & Peña, 2004).

Understanding how early literacy skills develop in bilingual children has been derived from the research on monolingual children and can be used to understand narrative development in SEB children (August & Shanahan, 2006). Narratives serve as an important diagnostic tool because the relationship between narrative language skills and future academic success are well established for monolingual English-speakers (Bishop & Edmonds, 1987; Paul & Smith, 1993; Hughes, McGillivray, & Schmidek, 1997). Analyzing narratives of SEB children may yield diagnostic information regarding a language disorder and future academic success.

There is mounting evidence to suggest that monolingual English-speaking children with primary language disorder (PLI) produce narratives that contain more simple sentence structure and vocabulary (Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; Greenhalgh & Strong, 2001; Paul & Smith, 1993), more grammatical errors (Colozzo, Gillam, Wood, Schnell, & Johnston, 2011) and less story grammar elements

and episodic complexity (Colozzo, et al., 2011; Merritt & Liles, 1987; Ukrainetz & Gillam, 2009) compared to their typically developing peers. The analysis of story grammar elements to assess the overall complexity of a narrative sample has also been used to document language impairments in monolingual English-speaking children. Bishop and Edmundson (1987) found that story retelling to pictures was the best predictor in identifying temporary versus persistent language disorder in monolingual English-speaking preschoolers. Many preschool children who demonstrate difficulties with narrative retelling tasks continue to show language difficulties as they become older (Bishop and Edmundson, 1987; Hughes, McGillivray, & Schmidek, 1997; Paul & Smith, 1993).

Currently, research for SEB is growing with studies investigating and comparing various linguistic variables across languages for preschool and school-aged children. Some studies focused on analyzing morphology (MLU and grammar), semantics, and verb use with no relationship to narratives. Other researchers have used narratives to elicit language samples in both Spanish and English and analyzed language features (e.g., MLU or vocabulary) instead of the development of story grammar elements, while others have analyzed story grammar elements from narratives. Research on narrative development for SEB children is in its infancy with only a handful of studies examining English story grammar development and even fewer studies examining Spanish story grammar development in preschool children.

In recent years, researchers have begun establishing norms for English and Spanish narratives for typically developing SEB children and SEB children with primary language impairment (Squires, Lugo-Neris, Peña, Bedore, Bohman, & Gillam, 2014;

Olszewski, 2013; Rojas & Iglesias, 2014). However, research on English and Spanish growth patterns for narratives is limited in number. Although assessing narrative language development would be considered best practice, SLPs face difficulty diagnosing language disorders because information about developmental patterns in typical and atypically developing SEB children's narratives is limited. It is unknown whether emergent literacy skills are determined by first-language acquisition, amount of time in the country, and other factors such as preschool attendance (August & Shanahan, 2006). Due to the limited amount of research surrounding SEB children, it is also not clear how early literacy skills might relate to later literacy outcomes (August & Shanahan, 2006).

Similarly to monolingual English studies, some researchers have examined SEB children with PLI in their second language (English) in comparison to their monolingual English-speaking peers with PLI. Gutiérrez-Clellen, Simon-Cerejido and Wagner (2008) found that monolingual and bilingual children with PLI scored significantly lower on measures of verb marking and subject use. This study suggests that the assessment of the second language can be used as an indicator of PLI but only to a certain extent. Because bilingual children with PLI will demonstrate difficulties in both their first and second language, it is imperative that an assessment in both languages is conducted (Gillam, Peña, Bedore, Bohman, & Mendez-Perez, 2013; Goldstein, 2006).

To date, there are few studies that examine Spanish narrative production of preschoolers. The purpose of this study is to investigate SEB children's Spanish narrative development (i.e., macrostructure and microstructure) during preschool. This analysis will serve to supplement SEB children's Spanish narrative development normative data for the Spanish Individual Growth and Development Indicators (S-IGDI),

a universal screening tool for preschool-aged SEB children, which is currently under development (Wackerle-Hollman, Duran, & Rodriguez, 2015).

## Chapter II

### Literature Review

#### U.S. Demographics of Spanish-Speakers

There has been a 10% increase in English-language learning (ELL) students attending schools in the United States since 2002. This rate is projected to increase 25% by 2020 (U.S. Department of Education NCES, 2013a). Currently, ELL students represent approximately 9% of the total number of student attending public schools in the United States (U.S. Department of Education NCES, 2013a). With an increase in SEB children in the public school system, schools are required to continue to provide appropriate academic assistance as needed.

With the overall increase in ELL students in public schools, there continues to be a concern for the disproportionate number of SEB children in special education programs (United States Department of Education, 1998). Many typically developing SEB children who are learning English as a second language are often misdiagnosed as having a language disorder because their language skills appear similar to their monolingual English-speaking peers with PLI, especially for traditional language measures such as standardized tests (Paradis, 2010; Restrepo, 1998).

The number of Spanish-speakers in the United States is one of the fastest growing populations with a 233% increase since 1980 (López & González-Barrera, 2013). The large increase in the number of SEB children has posed challenges for SLPs in the way that they have typically provided services, in terms of assessing and treating (Goldstein, 2006). Ultimately, Goldstein (2006) suggests that a comprehensive evaluation in both languages be conducted, as well as provide intervention in both languages.

## **Bilingual Language and Narrative Development**

The development of a bilingual's linguistic system(s) is a complex and not yet fully understood process. Children who are learning two languages develop in a unique way compared to their monolingual peers. Unlike monolinguals, that learn a language in a sequenced manner, bilingual children demonstrate variable patterns of growth between the first (L1) and second (L2) language (Kohnert, Windsor, & Ebert, 2009). According to Goldstein (2006), there are two ways in which researchers in the past have described the development of the linguistic systems of bilingual children. One theoretical standpoint is known as the *Unitary Systems Model* in which bilingual children begin with a single linguistic system and later separate into two systems. In this model, bilingual learners will transfer concepts and forms such as grammar across languages. For example, when bilingual children produce narrative macrostructure elements in one language that are conceptually similar in another language, the narrative macrostructure element in one language may facilitate transfer of this concept to the other language.

The second model is known as the *Dual Systems Model* and refers to the idea that bilingual children have two separate linguistic systems from birth; however, the model does consider that some interdependence exists between the two languages. Evidence from this model comes from the examination of the differences in lexicon, grammar syntax, and phonology between the linguistic systems and can be assessed in narrative samples. For example, bilingual children may be able to produce the past tense irregular in English, but not necessarily be able to transfer this skill in Spanish. This contrast in theories between the two models adds complications to SLPs not fully understanding how

language is truly represented in bilinguals and how they acquire their two languages (Goldstein, 2006).

Because of the different rates and patterns of acquisition and unknown ways that a second language develops, as well as the lack of a “gold standard” for assessing bilingual children for PLI, it is necessary to look at developmental norms in order to accurately determine if the child is typically developing or has a language disorder. To make a determination if a child has a language disorder, comparisons need to be made to either their peers or to their self. Kohnert (2010) discusses three methods in assessing language performance for SEB children: (1) comparing to their monolingual speaking peers, (2) comparing to their bilingual peers, and (3) within-in child comparisons. Each method serves a different purpose and each has its own set of limitations. The two methods that are pertinent to this study are methods one and two.

The first method in assessing language performance in SEB children is to compare various linguistic elements to their monolingual English-speaking peers. Studies have compared language skills between English monolingual children with PLI and the English (second language acquired (L2)) of typically developing SEB children (Paradis, 2005; Restrepo & Gutiérrez-Clellen, 2001; Kohnert, Windsor, & Yim, 2006). For example, on measures of English non-word repetition tasks, typically developing SEB children performed worse than the typically developing monolingual English children but performed slightly better than the monolingual English group with PLI. If the SEB children perform well in English, PLI may be ruled out. However, if SEB children perform lower in English than their monolingual English peers, it could mean either a language difference or PLI.

Although one method to assess language performance is to compare SEBs to monolingual English-speaking children, there are some limitations in doing so because comparing the typically developing SEB child's L2 (English) with the monolingual English-speaking child with PLI would misidentify the SEB child as having PLI. Therefore, language testing in both languages is necessary. Simply comparing to monolingual English-speakers would provide little clinical significance since SEB children and monolingual English-speaking children demonstrate similarities for certain language measures. For example, studies measuring grammaticality and vocabulary have found significant overlap between SEB children and monolingual English-speaking children. Using these measures would falsely identify a bilingual child as having PLI and ultimately does not provide clinical significance.

In sum, when comparing the language skills of typically developing SEB children with monolingual children with PLI, it may be possible in some cases to rule out the presence of PLI, but due to vast language similarities it may not provide enough information to make a diagnosis of PLI. This also emphasizes the importance of assessing an SEB child in both languages since a typically developing bilingual child's emerging L2 may look like monolingual PLI.

A second method for assessing the language skills of bilingual children is by comparing to their bilingual speaking peers with and without the presence of PLI. Studies have found significant differences on various language tasks between both groups. For example, studies have found that typically developing SEB children outperformed their SEB peers with PLI on grammatical measures in both languages (Gutiérrez-Clellen & Simon-Cerejido, 2007; Restrepo & Gutiérrez-Clellen, 2001). In older children,

differences have been noted in morphological inflection in English between typically developing SEB children and SEB children with PLI (Jacobson & Schwartz, 2005). In Spanish, measures of utterance length were an effective method to distinguish between typically developing SEB children and SEB children with PLI for young, predominately Spanish-speaking children living in the United States (Restrepo, 1998). Non-word repetition tasks have also been found to be methods for assessing differences between typically developing SEB children and SEB children PLI. These studies highlight the importance of bilingual-to-bilingual, specifically SEB, comparisons within those that are typically developing to those with PLI across various linguistic variables.

In summary, although studies have identified various language tasks such as grammatical measures, mean length of utterance, and non-word repetition tasks that can effectively separate bilingual children who are typically developing from those with PLI, there are some things to consider when assessing and diagnosing PLI in SEB children. First, SLPs need to consider assessing both languages since significant variation exists within any typically developing SEB group. Second, static measures such as norm-referenced tests of certain language skills at any given point in time may be problematic when assessing this population that is acquiring two languages with varying levels of exposure because their language system is going through different rates of first and second language acquisition. Third, there is a lack of Spanish-speaking SLPs to administer Spanish language assessments and interpret results. Lastly, comparing performance on an assessment measure to bilingual peers is helpful in making a diagnosis of PLI in SEB children.

### **Primary Language Impairment**

**Identification of PLI.** Typically developing bilingual children can learn two languages simultaneously when provided with sufficient exposure, models, and meaningful experiences in both languages (Kohnert, 2010). However, when a same-age bilingual child appears to have difficulty learning both languages they may be labeled as late talkers, language impaired, language-based learning disabled, or specific language impairment (SLI) (Kohnert, 2010). SLI is a common developmental language disorder that affects 6-8% of kindergarten children (Tomblin, Records, Buckwalter, Zhang, Smith, & O'Brien, 1997). Children with SLI demonstrate difficulty learning a language in the absence of a cognitive deficit, hearing impairment, neurological dysfunction, oral motor/structure dysfunction, or impaired social interactions (Leonard, 1998). For bilingual children, SLI affects both languages (Goldstein, 2006).

SLI has been used as the standard label for children who have a developmental language disorder. However, recently in the literature there has been a transition from the use of the label of SLI to primary language impairment (PLI). Kohnert (2010) describes three reasons why PLI is preferred over other terms: (1) the definition allows for other subtle nonlinguistic processing difficulties (e.g., perceptual, fine motor sequencing, and cognitive imaging tasks) that may accompany a language disorder (Kohnert, Windsor & Ebert, 2009), (2) rather than changing the label to describe the impact of a child's language disorder over time (e.g., late talker to SLI to language-based learning disability), PLI may be used for both younger and older children to identify language disorders over time, and (3) the acronym "LI" for Language Impairment adds visual confusion when discussing the first language ("L1"). For these reasons, the term PLI is the preferred label for children with language impairment for this paper.

The research on children with PLI for monolingual English-speakers is abundant and well established in the areas of language and narratives. Monolingual English children with PLI have demonstrated language deficits that are particularly noted in lexical abilities (e.g., verbs, vocabulary acquisition, syntax, grammatical morphology, and phonology) (Leonard, 1998). For example, their speech samples may contain a low type-token ratio and low MLU, as well as demonstrate difficulty with noun-verb agreement, regular past inflection, third person singular, copula “be” forms, and auxiliary “do” (Leonard, 1998).

Monolingual English-speaking children with PLI also have difficulty with narratives. For example, the macrostructure of a monolingual English child with PLI is less complex than a child who is typically developing (Bishop & Donlan, 2005; Reilly, Losh, Bellugi, & Wulfeck, 2004). In addition, these children tend to produce less complete episodes than their peers who are typically developing (Merritt & Liles, 1987). Because of these deficits, monolingual English children with PLI require guidance on storytelling, even for simple story elements (Ukrainetz & Gillam, 2009). Although we know a lot about monolingual English-speaking children with PLI, less is known about the narrative development of SEB children with PLI, particularly regarding macrostructure and microstructure narrative development.

The literature for SEB children has demonstrated that narratives can be used to determine whether SEB children present with PLI. Emerging literature has revealed that performance on narrative macrostructure and microstructure elements could be used to differentiate SEB children who are typically developing from those who have PLI. Squires et al. (2014) conducted a longitudinal study on the macrostructure and

microstructure elements of 21 SEB children with PLI from kindergarten to first grade. Overall, SEB children who were typically developing performed significantly better on measures of macrostructure and microstructure than SEB children with PLI in both languages. This study suggests that narrative performance differences exist in both languages between SEB children who are typically developing and SEB children with PLI. Therefore, narrative performance measures can be used to differentiate children who are typically developing from those with language impairment in English and Spanish.

Mixed results were found when examining narrative performance of older children. McCabe and Bliss (2005) compared narrative macrostructure performance of 8- to 9-year-old SEB children who were typically developing to those with PLI. Similar to Squires et al. (2014), findings revealed that SEB children with PLI produced significantly fewer actions than typically developing SEB children in Spanish. However, there were no significant differences between the number of actions produced between typically developing SEB children and SEB children with PLI in English. These findings are in contrast to Squires et al. (2014) who found significant differences in macrostructure across Spanish and English of younger children.

Differences between these studies may be due to the age of the participants and the exposure to each language. It is possible that we would expect to see differences between narrative English and Spanish performance in older children. As these children age, they may have increased exposure to English rather than Spanish because they may have been exposed to English in academic settings and social settings or they may have received more direct instruction on story telling in English. Additionally, these children

may use English more frequently as their primary language in various settings (i.e., home or school).

As you may recall, McCabe and Bliss (2005) examined only actions and Squires et al. (2014) examined a composite of narrative macrostructure. Although this literature demonstrates conflicting results, it is difficult to synthesize this information because one study examined a macrostructure composite score and another study examined an individual macrostructure element. Since Squires, et al. (2014) obtained an overall composite score for macrostructure, it is unknown which specific story grammar elements were used by the children in the study and which ones influenced the overall macrostructure score. Therefore, it is unclear whether or not these findings support or refute each other. More research is needed for younger SEB children on specific story grammar elements in order to distinguish between SEB children who are typically developing and those with PLI. For diagnostic purposes, it would be beneficial to identify the specific story grammar elements present in the narratives of younger SEB children who are typically developing and those with PLI.

Narrative microstructure analysis has also been used to differentiate typically developing SEB children from those with PLI. Significant differences have been found between SEB children with PLI and those who are typically developing on microstructure elements in both languages. For example, Peña, Gillam, and Bedore (2014) found that SEB children entering kindergarten with PLI produced fewer main verbs in their English narratives than their typically developing matched peer. Furthermore, Gutiérrez-Clellen, Simon-Cerejido, and Wagner (2008) investigated verb accuracy of 24 SEB children ranging from 4- to 6-years of age. Results of the study found that SEB children with PLI

produced a lower verb accuracy count compared to typically developing peers during the production of English narratives. Simon-Cerejido and Gutiérrez-Clellen (2009) found similar results in that preschool and school-aged SEB children with PLI produced a lower number of different verbs (NDV) and di-transitive verbs compared to typically developing peers in Spanish and English. In terms of language productivity, SEB children ages 8 to 11 with PLI produced a fewer number of propositions in narratives in both Spanish and English (McCabe & Bliss, 2005).

In sum, analyzing the specific microstructure element of verbs can provide diagnostic value by adequately identifying SEB children with and without PLI. These studies mostly examined verbs in English narratives and did not provide developmental information regarding metacognitive or metalinguistic verbs in either language.

**Narrative Development of PLI.** The literature for SEB children has demonstrated that SEB children produce narratives in a developmental pattern. Squires, et al. (2014) found that typically developing SEB children and SEB children with PLI made improvements from kindergarten to first grade on composite macrostructure and microstructure scores in both Spanish and English. However, the PLI group showed fewer improvements from kindergarten to the first grade for certain story grammar elements in both Spanish and English. For example, in Spanish, the PLI group made fewer improvements in producing actions. In English, the children with PLI made fewer improvements on characters and internal responses. Although the study provided an overview of the growth patterns in composite scores for macrostructure and microstructure for typically developing and PLI children, the study did not perform a fine grain analysis on the specific macrostructure and microstructure elements in both Spanish

and English that could be used to distinguish between SEB children who are typically developing and those with PLI. More research is needed to identify how specific story grammar elements in Spanish and English develop in SEB preschool children.

In summary, SEB children with PLI can be identified based on their narrative performance in English and Spanish. However, much is yet to be learned from examining specific story grammar elements in both Spanish and English. Furthermore, research has demonstrated that SEB children with PLI develop narratives differently than SEB children who are typically developing. However, much is yet to be learned on the developmental patterns of specific story grammar elements in Spanish over time for young preschoolers. Therefore, it is imperative to perform narrative assessments in both languages during the preschool years in order to rule out the presence of a language disorder.

Numerous studies have demonstrated the direct relationship between narrative skills and future academic and literacy performance for SEB children (August & Shanahan, 2006; United States Department of Education, National Center for Education Statistics, 2003; Miller, Heilman, Nockerts, Iglesias, Fabiano, & Francis, 2006). Assessing narratives in both Spanish and English for the detection of a language disorder in the preschool years would allow for early intervention services to remediate any difficulties that could impact their academic future. The identification and remediation of PLI in preschool is critical for academic success and can be diagnosed by conducting a fine grain analysis of the development of specific story grammar elements and verb production.

### **Macrostructure Elements in a Narrative**

Although research has demonstrated that analyzing the macrostructure of narratives produced by SEB can be used as a clinical diagnostic tool, the literature is limited in understanding how macrostructure develops for SEB children. One way to analytically assess macrostructure is by examining story grammar elements (Stein & Glenn, 1979). Story grammar elements vary but typically include elements such as setting, character, initiating event, internal response, plan, attempt/action, and consequence (Fiestas & Pena, 2004; Stein & Glenn, 1979; Justice, Bowles, Kaderavek, Ukrainetz, Eisenberg, & Gillam, 2006; Berman, 1995). Story grammar elements can be further grouped into an episode (initiating event, plan, action, and a consequence). An *initiating event* is a statement about the problem. A *plan* involves the character's formulation of a plan in order to achieve aims, while the *consequence* is the result of the attempt or action (Hughes, McGillivray, & Schmidek, 1997; Fiestas & Peña, 2004). Narrative production provides insight into a child's ability to use higher order processing skills to organize story grammar elements and compose a coherent narrative (Lucero, 2015). However, children do not tell complex narratives at an early age but develop this skill over time. Most children produce story grammar elements in a developmental pattern. Therefore, it may be viable to use developmental patterns as a diagnostic tool to determine if PLI exists at an early age.

It is documented in the literature that analyzing narrative macrostructure is an appropriate method for assessing language proficiency across different cultural and linguistic groups. Similar story grammar elements have been used to tell narratives across cultural groups and languages (Berman & Slobin, 1994). For example, several cultural groups with varying languages use the story grammar elements of character,

setting, initiating event, and consequence to convey a story. It is also well established in the literature that macrostructure elements are developmental in nature and increase in complexity as children become older (Berman & Slobin, 1994). However, there is growing evidence that suggests that performance on specific story grammar elements may differ depending on the language being analyzed for preschool and school-aged children (Fiestas and Pena, 2004; Gutierrez-Clellen, 2002). To date, no studies have analyzed the development of story grammar elements for Spanish narrative retells in SEB preschool children.

Fine grain analysis of story grammar elements across Spanish and English have only recently been explored and are limited in number. Fiestas and Pena (2004) assessed the complexity of narratives (combination of story grammar elements) and the use of individual story grammar elements for 12 SEB children ages 4;0 to 6;11 years in Spanish and English. Although the children produced narratives with equal complexity in both languages, the children included significantly more initiating events and attempts (actions) in Spanish than they did in English. Children included significantly more consequences in English than they did in Spanish. The authors hypothesized that the differences observed in narrative styles might be reflective of cultural-specific narrative styles that incorporate contextualized languages versus decontextualized. Due to linguistic differences in Spanish and English narratives, the results indicate the importance of considering eliciting narratives in both languages when testing bilingual children.

Although this study provides data that compares story grammar elements in both languages, it does present with some limitations in regards to knowledge of narrative

development for SEB children. For example, the study only included 12 participants that ranged from 4- to 6-years of age. The study did not separate developmental age groups (i.e., 4;0 to 4;11 years, 5;0 to 5;11 years, etc.) but rather grouped the data as a range of ages. It would be beneficial to compare the performance at each individual age to identify developmental patterns with aims to identify children with PLI at early ages.

Gutierrez-Clellen (2002) assessed the narrative retells in English and Spanish of typically developing SEB children in preschool to second grade. Individual story grammar elements for four out of 33 children who demonstrated English macrostructure scores that were 1.5 standard deviations below the mean were analyzed. Findings revealed that the children used more story grammar elements when telling a spontaneous narrative opposed to a narrative recall. This analysis is indicative of the importance of fine grain analysis of macrostructure story grammar elements in spontaneous narratives and narrative retells for both typically developing SEB children and SEB children with PLI. The limited number of studies that examined the development of individual story grammar elements makes it difficult to synthesize and identify normative data for using narratives to identify children with PLI.

Olszewski (2013) examined the proportion of story grammar elements and episodic complexity in English narratives of SEB children from preschool to second grade. Although individual story grammar elements were analyzed, they were measured as two different composite scores. The proportion of story grammar elements (i.e., a ratio score of total number of story grammar elements (i.e., initiating event, action, obstacle, consequence) increased over time. The episodic quality (i.e., a ratio score of complete and complex episodes [i.e., combination of initiating event, action, consequence])

increased over time. Although individual story grammar elements were used in an index score, the development of individual story grammar elements were not reported.

Furthermore, these children were followed from kindergarten to second grade, making detection of PLI in preschool difficult.

Overall, studies examining the narrative development of macrostructure suggest that the use of story grammar elements vary across languages. Results from these studies also suggest that assessing narrative retells can be a sensitive indicator of developmental changes in bilingual narrative competence. It is important to establish developmental norms for narratives in Spanish and English at a young age to improve identification of SEB children who may have PLI. Similar to the few studies that have examined basic story grammar elements of older SEB children (e.g., Fiestas & Pena, 2004; Olszewski, 2013), this study will examine composite scores for story grammar elements (i.e., initiating event, action, and consequence) and an episode (combination of initiating event, action, consequence) of Spanish narratives retold by preschool SEB children.

### **Microstructure Elements in a Narrative**

Similar to macrostructure, narrative microstructure has been used to identify SEB children with PLI. Research has analyzed the microstructure of narratives produced by SEB children with and without PLI and findings suggest that it can be used as a clinical diagnostic tool. Microstructure elements are also developmental in nature; however, little is known about the growth patterns of specific microstructure elements in SEB children and it is unknown if they will develop in the same pattern as monolingual-speaking children.

Microstructure elements in narratives refer to the internal linguistic structure of language, which have been categorized and examined in a variety of ways. Paul and Norbury (2012) refer to microstructure as the vocabulary and sentence structure that contributes to the narrative's overall complexity. Justice et al. (2006) defined microstructure as vocabulary and sentence structure that can be analyzed for conjunctions, noun phrases, and dependent clauses (Justice, et al., 2006). Halliday and Hasan (1976) analyzed microstructure elements for cohesion analysis, which refers to linguistic features that tie individual story events together between and across sentences. They categorized cohesive markers into five categories: references, conjunctive, lexical, substitution, and ellipsis.

Additionally, others such as Liles, Duffy, Merritt, and Purcell (1995) analyzed microstructure elements for grammatical units, which assist in identifying children with language disorders. They measured grammatical units for mean number of words per subordinate clause, mean number of subordinate clauses per T-unit, percent of grammatical T-units, or percent of complete cohesive ties. Paul (1995) analyzed microstructure elements for lexical diversity, which adds richness to the narrative. She measured lexical diversity for vocabulary choice and literary language style. All of the different ways to measure and analyze microstructure elements are developmental in nature and can be used to track narrative growth as well as diagnose a language disorder for both Spanish and English.

Microstructure elements may be more sensitive to identifying language differences and children with PLI than macrostructure elements. It is established in the literature that microstructure elements, compared to macrostructure elements, are more

susceptible to individual variability as well as cross-linguistic transfer due to their inherent linguistic nature (Berman & Slobin, 1994). Microstructure elements may be more influenced by differences in the specific vocabulary and grammatical forms used depending on the language used (Berman & Slobin, 1994). For example, although typically developing monolingual English and monolingual Spanish speakers produce the same number of verbs, they differed in the types of verbs that were used (Slobin, 1996). Differences in the types of verbs used in each language may influence a clinical diagnosis. It is important that developmental data be obtained for specific microstructure elements in each language in order to identify potential language differences versus language disorders in SEB children.

**Character Development.** The literature is mixed on whether it categorizes character as a macrostructure or microstructure element. Some researchers define character as a macrostructure element (Heilmann, Miller, Nockerts, & Dunaway, 2010; Petersen, Gillam, & Gillam, 2008). However, other researchers include the following as macrostructure elements, which character is not one of them: initiating event, internal event, action, plan, and consequence (Stein & Glen, 1979). Additionally, other researchers categorize character as a microstructure element where character's internal states are embedded within the actions of a narrative (Nicolopoulou & Richner, 2007).

When analyzing character development at the microstructure level, the character engages in goal-oriented behavior through the macrostructure elements (Nicolopoulou & Richner, 2007). The thoughts and actions of the character are embedded in macrostructure elements using micro-linguistic features. For example, when the character responds to an initiating event, the character is known to have an internal response (i.e.,

goals, consequences)--“There was thunder and lightening and Johnny was *scared*.”

“*Scared*” would be the micro-linguistic feature that depicts the character as an “Agent” who either possesses intention or simple consciousness rather than an “Actor” who is simply represented by actions (Nicolopoulou & Richner, 2007). The current study examined character as a microstructure element.

Character development received limited attention in the literature for monolingual speakers and even less for bilingual children. Children who tell good narratives use micro-linguistic features to represent characters and their internal states. Specifically, linguistic features are used to describe characters’ goal-oriented actions such as desires, thoughts, plans, and feelings (Nicolopoulou & Richner, 2007). During the school-age years, children begin to develop decontextualized language that includes metalinguistic and metacognitive verbs and external descriptions to convey a character’s internal desires, thoughts, plans, and feelings (Nicolopoulou, & Richner, 2007). However, as mentioned earlier, conflicting studies suggest that mental state terms begin to emerge in a child’s speech as young as 2 ½ years of age.

Nicolopoulou and Richner (2007) assessed the character development of 30 preschool monolingual English-speaking children who produced narratives without any restrictions on the type of stories they produced. The researchers analyzed the use of micro-linguistic features such as verbs to depict landscape of action and consciousness. *Landscape of action* refers to agent actions, intentions or goals, and situations. Whereas *landscape of consciousness* refers to what the character thinks, feels, or knows. Results of the study found that children at age 3 moved from a more predominant use of *actors* (defined simply by actions; they act or are acted upon) to an increase in use of *agents*

(manifest basic psychological capacities that can be in two forms: landscape of action or consciousness) at age 4. By age 5, most children in the study began to portray characters as *mental agents* or *persons* (defined as having higher psychological capacities that include desires, intentions, or beliefs). Depicting characters as agents and persons suggests that there is a manifestation of theory of mind and development of higher order verbs.

We wanted to integrate character development into this investigation because most of the focus in narrative research has been on story grammar elements. The current study will examine the different levels of character development (from actors, agents, to persons) and the highest level of character development in Spanish for SEB preschool children to determine whether it is feasible to detect incremental language development. Because character can be analyzed as both macrostructure and microstructure element, we wanted to investigate the relationship between Character High Score and PSGE and EC Indices. No study to date has investigated the relationship between character development and story grammar elements.

### **Summary of Literature Review**

In summary, current literature suggests that some aspects of narrative production for SEB children is similar to their monolingual peers but other aspects of narrative production demonstrate a different developmental growth pattern. For example, both Spanish and English speakers use macrostructure story grammar elements to tell a narrative. However, research has shown that SEB children produce certain story grammar elements more frequently depending on the language being spoken. For example, Fiestas and Peña (2004) found that SEB preschool and school-aged children produce more

initiating events and actions in Spanish than they did in English but included significantly more consequences in English than they did in Spanish.

With such a high increase in SEB children attending public schools, it is imperative to identify those children who are struggling with academic material. Understanding narrative development assists in the diagnosis of a language disorder and can determine whether the child is eligible to receive services. Narrative retells have demonstrated value as a diagnostic tool for identifying monolingual English children with PLI. The gold standard for identifying bilingual children with a language disorder is to include a narrative sample in both languages in combination with observations and parent/teacher concerns (Paradis, Schneider, & Duncan, 2013). Although the standard is to assess in both languages, much is to be learned of the Spanish narrative development of SEB children. Furthermore, there is a lack of research in regards to the norms expected for SEB children when telling a narrative in both English and Spanish languages.

### **Purpose and Research Aims**

The purpose of this study is to investigate the macrostructure and microstructure elements found in narrative retells in SEB preschool children. The data collected in this study will supplement information for the Spanish Individual Growth and Development Indicators (S-IGDI) (Wackerle-Hollman, Durán, & Rodriguez, 2015). S-IGDI is a screener used to identify predominately Spanish-speaking Spanish-English bilinguals who may have difficulty with early language and literacy skills. The S-IGDI is comprised of three subtests including Phonological Awareness, Oral Language, and Alphabet Knowledge. A narrative retell is one task of the Oral Language subtest. The S-IGDI is

currently under development and the purpose of this project is to inform the measurement and analysis of the narrative retell task by determining ways to measure and analyze the narrative language growth. We aim to better identify narrative macrostructure and microstructure language markers that would be indicative of PLI, and consequent literacy difficulties and/or later academic success.

### **Research Questions**

The purpose of this study is to examine the Spanish narratives of SEB preschool children. The specific research questions will be asked:

1. Is there a significant difference in mean scores among each of the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, and Character High Score?
2. Is there a significant difference in mean scores between the different age groups among the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, and Character High Score?
3. Is there a significant difference in mean scores between males and females at each time point in Spanish narratives as measured by: PSGE Index, EC Index, Character High Score?
4. Is there a significant correlation between Character High Score and PSGE and EC Indices?

## CHAPTER III

### METHODOLOGY

#### **Parent Study Participants**

The University of Nevada, Reno Institutional Review Board approved this study. Data for this study was part of a parent study, which was funded by Institute of Education Sciences, Early Learning Services, Goal 5 (CDFA: 83.305A Award: R305A120449) to Principal Investigator Alisha Wackerle-Hollman and titled *Research and development of Spanish individual growth and development indicators (S-IGDIs): Early literacy identification and progress monitoring in Spanish-English bilingual children*. During the development of the S-IGDI, children were asked to complete a variety of tasks in Spanish in the following areas: Phonological Awareness, Oral Language, Alphabet Knowledge, and Narrative Retell.

In the parent study, a total of 751 children were recruited from general education preschool settings. Most children were recruited from Head Start programs. Four hundred ninety-one children returned signed consent forms, of which 107 children were from Minnesota, 159 from Florida, 123 from California, and 102 from Utah. Participants were included in the study if they met the following criteria: between the ages of 4- and 6-years old, Latino, spoke Spanish, and were eligible to move on to kindergarten the following year. Participants were excluded from the study if they had no verbal language or had a severe disability that interfered with their ability to reply to simple questions in Spanish.

There were multiple steps to determine if the children spoke Spanish. First, the teacher identified which children spoke Spanish. Second, a home language survey was

sent home for the parents to complete, which indicated languages spoken and current level of language exposure. Children were determined to be Spanish-English bilinguals if Spanish was spoken in the home according to the survey. The participants ranged from Spanish-dominant to balanced bilinguals with a small number being English-dominant. There was a range of language proficiency, but all participants had some Spanish spoken at home. Children's Spanish dialects varied and included dialects from Central and South America and Mexico.

A small percent of the participants were identified with a disability. However, to be included in the study the children must have passed the examples on the Storybook/!Vamos a la tienda! subtest. For example, if participants did not respond accurately to the first two sample items, the test was discontinued.

### **Current Study Participants**

Participants for this study were identified from the Narrative Retell tasks from the parent study listed above. Out of the 491 participants who retold a 4-picture and 6-picture story model, the following inclusion criteria were applied: (a) produced a narrative retell elicited from a 4-picture sequence model at all three time points (fall, winter, spring), (b) produced a narrative retell elicited from a 6-picture sequence model for all three time points (fall, winter, spring), and (c) all narrative retell were produced 100% in Spanish. There were 113 children (46 males, 67 females) that met the inclusion criteria for the current study. The average age of the children was 5.9 years (70.98 months) and ranged from 5.2 years (62 months) to 6.4 years (77 months). See Table 1.

For this study a narrative retell was defined as a verbal response that was in reference to the narrative model. Due to the fact that the children were dual language

learners, the response was considered a narrative retell if it included a minimal response of a single word related to the story. We wanted to include a single word, although not a true narrative, to demonstrate progress in a child's narrative language over time. Children that responded with "I don't know," "nothing," or counting (e.g., "one, two, three") were excluded because it did not relate to the story. Because this is a retrospective study and there were no video or audio recordings, it was unclear if the children's minimal responses were due to the children not understanding the task, the examiners not accurately documenting the stories, or children not having the language skills to tell a story. Therefore, credit was given to single word responses related to the story model to examine narrative growth over time.

### **Parent Study Procedures**

Spanish-speaking examiners, who were not blind to the purpose of the study, administered a Spanish narrative retell task. Examiners were mostly native Spanish-speakers with the exception of two graduate students who learned Spanish as a second language, read a scripted Spanish narrative to the children. Spanish narrative retells were collected in 2013 across three time points: fall (October-November), winter (January-February), and spring (May-June). Children were asked to view a sequence of colored photographs while the examiners told the narrative using a script. See Appendix A for the narrative scripts. After the examiner told the narrative, the child was asked to retell the narrative using the pictures and were cued, "*Ahora tú cuéntame el cuento.*" Examiners orthographically transcribed the narratives to the best of their ability. The narratives were not audio recorded.

Examiners were allowed to provide additional instructions if the child did not respond after 10 seconds. The examiners were allowed to present additional prompts only once. Prompts included: “*Mira las fotos*” or “Look at the photos,” and asked the questions “*¿Primero, qué es lo que pasa? ¿Y entonces? Y al final?*” or “First, what is happening? And then? And finally?” while the examiner pointed to each picture in order. The number of prompts was not indicated for each child.

### **Examiner Training**

In addition to the author, three Spanish-English bilingual undergraduate students from the University of Nevada, Reno, who were blind to the purpose of the study scored the narrative retells. Two of the research assistants were undergraduates in Speech Pathology and Audiology. One of them was a native Spanish-speaker and the other learned Spanish as a second language. The third research assistant was an international study abroad student from Mexico who was majoring in Mining and was bilingual in Spanish and English.

There was a four-phase training process that included scoring practice on narratives that were excluded from the study. First, research assistants attended a one-hour training where they were trained how to score narrative retells. Second, research assistants scored 10 narrative retells for each of the elicitation models totaling 20 narratives. Research assistants needed to achieve 90% inter-rater reliability for all 20 narrative retells for each dependent variable (i.e., PSGE Index, EC Index, Character High Score). All research participants did not achieve 90% inter-rater reliability on the first round of scoring. Third, an additional training session for one hour was provided to review inconsistencies in scoring. Fourth, research assistants were given a second set of

20 narrative retells to score. All research assistants achieved 90% interrater reliability on all three dependent variables.

### **Current Study Procedures**

Once research assistants achieved 90% reliability scoring training narrative retells, they independently scored narrative retells for the current study. The three research assistants were given one-third of the participants' narrative retells on a spreadsheet. Research assistants read each narrative retell for the 4-picture story model and scored it for PSGE Index, EC Index, and Character High Score using rubrics provided in Appendix B, C, and D. This was then repeated for the 6-picture story model. See Appendix B, C, and D.

### **Narrative Retell Models**

There were two different narrative models that the children listened to. The 4-story model was a story about a little girl who wanted a piñata for her birthday. As the children listened to the story, they viewed four separate colored photographs that were on one page. See Appendix A for the script and pictures. The 6-story model was a story about a little girl buying eggs at the grocery store to make a cake. As the children listened to the story, they viewed six separate colored photographs that were on one page. See Appendix A for the script and pictures.

### **Dependent Variables**

The narratives were analyzed using three measures: Proportion of Story Grammar Elements Index, Episodic Complexity Index, and Character High Score.

#### **Macrostructure.**

***Proportion of Story Grammar Elements Index (PSGE Index).*** The Proportion of Story Grammar Elements Index is a method to assess incremental changes in the use of story grammar elements for complex narratives such as initiating event (IE), actions (A), and consequence (C). The PSGE Index was designed to award points to all story grammar elements recalled, regardless of the order that they were produced and to be able to compare the use of story grammar elements across narratives that could vary in length and complexity (Olszewski, 2013). A ratio score was obtained by dividing the total number of story grammar elements produced by the total number of story grammar elements possible for that narrative (Olszewski, 2013). See Appendix B for scoring rubric.

***Episodic Complexity Index (EC Index).*** The EC Index is a way to measure the structure of story grammar elements in order to make a complete episode. A complete episode includes story grammar elements such as an initiating event (IE), action (A), and consequence (C) (Olszewski, 2013). A complete episode received a score of “3” if all three story grammar elements were present (IE + A + C). If a complete episode was not produced, the participant was awarded a score of “0” and no additional points were awarded. Additional points were awarded if the participant told a complete episode and added additional action items, thus, making a complex episode. One additional point was awarded for each acceptable action. A ratio score was obtained by dividing the total number of points awarded by the total number of points possible. A sample of the scoring rubric is in Appendix C.

### **Microstructure.**

***Character High (CH) Score.*** Character development can be measured by analyzing verbs and adjectives to represent actors, agents, or persons. These three representations can be further divided into eight different levels. The different levels of character development were measured using a coding scheme from the study conducted by Nicopoulou and Richner (2007). Each level was given a corresponding numerical score. Each time a participant demonstrated the use of a particular level, the corresponding numerical score was tallied for all levels. Each level was tallied one time only. The Character High (CH) score was obtained by marking the highest character level evident in each story. A sample of the scoring rubric is in Appendix D.

### **Inter-rater Reliability**

Inter-rater reliability was calculated for 100% of the stories on all outcome measures. Two methods of inter-rater reliability were conducted: point-by-point (PBP) and *kappa*. A PBP inter-rater reliability of 85% or above was deemed acceptable. A *kappa* of .6 or better was deemed good.

The following PBP inter-rater reliability scores were achieved: PSGE Index: 73% (4-picture story) and 86% (6-picture story), EC Index: 92% (4-picture story) and 92% (6-picture story), and Character High Score: 89% (4-picture story) and 76% (6-picture story). Inter-rater reliability of 85% was not achieved for PSGE Index measures for 4-picture story and Character High Score for the 6-picture story.

Because inter-rater reliability was not achieved, the author discussed discrepancies with each of the research assistants. The scoring rubric for PSGE Index was improved and the Character High Score was revised. For the PSGE Index, an additional guideline was created that listed examples and non-examples of acceptable.

For the Character High Score, the author revised the rubric by adding examples and non-examples. At this time, the international bilingual research assistant was unable to re-score the narrative retells due to schedule conflicts. The remaining two research assistants, one native Spanish speaker and one who learned Spanish as a second language, scored 10 narrative retells that were excluded from the study and re-scored the measures that did not initially obtain adequate inter-rater reliability PSGE Index for the 4-picture story model and Character High Score for the 6-picture story model. Because the EC Index is dependent on the scores for the PSGE Index, the EC Index for the 4-picture story model was also re-scored. Inter-rater reliability between each of the research assistants and the author for these 10 narrative retells was achieved at 90% or better on PSGE Index and EC Index for the 4-picture story model and Character High Score for 6-picture story model.

The two research assistants and author rescored the PSGE Index for the 4-picture story model and the Character High Score for the 6-picture study. They earned the following inter-rater reliability: 90% for PSGE Index and 96% for EC Index for the 4-picture story model and 92% for Character High Score for the 6-picture story model. See Table 2 for inter-reliability scores.

Additionally, Kappa scores were calculated for all of the final scores on the dependent variables. The following benchmarks were used for Kappa: .5 moderate agreement, .7 good agreement, and .8 very good agreement (Rovai, Baker, Ponton, 2013). A Kappa of .6 or better was deemed good. All dependent variables except PSGE Index from the 6-story picture model, which was .577 were deemed good. Although the Kappa score for the PSGE Index for the 6-picture story was slightly below the required

benchmark, it met the PBP criteria and, therefore, was not rescored. See Table 2 for inter-reliability scores.

### **Data Analysis & Hypotheses**

**Research Question One.** *Is there a significant difference in mean scores among each of the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, and Character scores?*

To answer research question one, a one-way within subjects repeated-measures analysis of variance (ANOVA) was conducted on each outcome measure. Time was the within-subject variable and PSGE Index, EC Index, and Character High Scores were the between-subjects variable.

**Research Question One Hypotheses.** It was hypothesized that the PSGE Index (quantity) and EC Index (quality) of story grammar elements as well as Character High Score would significantly increase over time for both 4-picture and 6-picture narrative models. It is likely that the PSGE Index will increase over time because children will be better able to retell story grammar elements in the spring because they will have more language skills. It was predicted that the EC Index would increase over time because in the fall, they would not be able to retell a complete episode and over the school year, they would tell more story grammar elements and begin to be able to put them together, which would result in both incomplete and complete episodes in the spring. Character High Score would improve because language develops over time and children developmentally provide more microstructure elements as they get older.

**Research Question Two.** *Is there a significant difference in mean scores between the different age groups among the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, Character High Score?*

To answer question two, participants were divided into three, 6-month increment groups: Group 1: 60 to 65 months, Group 2: 66 to 71 months, and Group 3: 72 to 77 months. We selected 6-month increments because most norms of language tests administered by SLPs are divided into 6-month or 1-year increments. Using the 6-month increments to group the participants, Group 1 consisted of 10 participants, Group 2 consisted of 45 participants, and Group 3 consisted of 58 participants. Because there were unequal amounts of participants in each of the age groups, we were not able to conduct three separate one-way analysis of variances.

Therefore, an effect size (Cohen's  $d$ ) was calculated to determine the clinical significance with a medium to large effect size within each age group from fall to spring (i.e. fall to winter, winter to spring, fall to spring). Additionally, effect sizes were calculated within and across the different age groups at each time to determine if there was clinical significance between the age groups at each time point for each story picture model.

**Research Question Two Hypotheses.** It was hypothesized that there would be clinically significant differences with medium to large effects between each group for PSGE Index, EC Index, and Character High Score for both the 4-picture and 6-picture story model at each time point. Because language is developmental in nature, we suspected that there would be significant differences between the age groups, as typically

seen in normative language tests (Hughes, McGillivray, & Schmidek, 1997) at each time point.

Even though we hypothesized that there would be clinically significant differences between the groups, we hypothesized that each age group would not demonstrate a linear growth pattern, that is, significant growth would not be equal across time points. Because SEB children's language growth has been shown to occur in a non-linear fashion (Olszewski, 2013; Rojas & Iglesias, 2013), we suspected that growth would occur faster during either the first or the second half of the year.

**Research Question Three.** *Is there a significant difference in mean scores between males and females at each time point in Spanish narratives as measured by: PSGE Index, EC Index, Character High and Character Total score?*

To answer research question three, means and standard deviations, as well as a one-way ANOVA between males and females was conducted.

**Research Question Three Hypotheses.** It is hypothesized that there would be no statistical difference between males and females. Because research in SEB children has shown inconsistencies in performance between males and females (Hammer, Davison, Lawrence and Miccio, 2009; Olszewski, 2013; Rojas and Iglesias, 2013; Uchikoshi, 2006), we suspect that no one gender group will significantly outperform the other gender group. However, we hypothesized that there may be trends where one gender group performs slightly better than the other.

**Research Question Four.** *Is there a significant correlation between Character High Score and PSGE and EC Indices?*

To answer question four, a Pearson's correlation was conducted between Character High Score and PSGE and EC Indices, and Character High Score separately at each time point with the 4- and 6-picture story.

**Research Question Four Hypotheses.** It was hypothesized that Character High Score would demonstrate a significant correlation with both PSGE Index and EC Index. It was predicted that children would improve macrostructure elements, measured by PSGE and EC Indices, and microstructure elements, measured by Character High Score over the course of the year. We suspect that since character depictions are embedded with the story grammar elements of a narrative, that it would demonstrate a significant correlation.

## CHAPTER IV

### RESULTS

#### Descriptive Results

**PSGE Index.** The average PSGE Index increased for all participants from the fall (.42) to the spring (.52) for the 4-picture story. However, there was a slight decrease in performance from the fall to the winter (.41). There was a different trend with the 6-picture story model in that performance improved from fall (.38), to winter (.41), and to spring (.46). See Table 3. Unlike the 4-picture story, the participants scored better at each time point for the 6-picture story. See Table 3 and Figure 1.

**EC Index.** The average EC Index increased for all participants from the fall (.05) to the spring (.12) for the 4-picture story. However, there was a slight decrease in performance from the fall to the winter (.01). There was a different trend with the 6-picture story in that performance improved from fall (.19), to winter (.31), and a slight increase from winter to spring (.32). See Table 3. Unlike the 4-picture story, the participants scored better at each time point in the 6-picture story. See Table 3 and Figure 2.

**PSGE Index and EC Index Relationship.** It appeared that the PSGE Index and EC Index demonstrated almost parallel growth patterns for the 4-picture story. The PSGE Index scores were consistently higher than the EC Index scores with similar differences between each at fall, winter, and spring. See Figure 3. In contrast, the PSGE Index and EC Index demonstrated different growth patterns for the 6-picture story. It appeared that the PSGE Index and EC Index demonstrated almost parallel growth patterns for the 6-picture story. The PSGE Index scores were consistently higher than the

EC Index scores with a wider difference in fall, similar differences in winter, and then a wider difference in the spring. The differences overall between the PSGE Index and the EC Index was wider for the 6-picture story compared to the 4-picture story. See Figure 4.

**Character High Score.** The average Character High Score increased for all participants from fall (4.9) to the spring (5.3) for the 4-picture story. However, there was a small decrease in mean score from fall to winter (4.7). The average Character High Score increased for all participants from fall (2.3) to winter (2.6) to spring (2.7). See Table 3. Unlike the 4-picture story, the participants scored better at each time point in the 6-picture story. See Figure 5.

**Gender.** There were 46 males (41%) and 67 females (59%) who ranged in age from 62 months to 77 months. Overall, neither males nor females consistently performed better than each other from fall to spring. For example, males and females did not consistently outperform each other on the PSGE Index when comparing performance across the 4-story and 6-story models. See Figure 6 and 7. The same pattern was observed for the EC Index and Character High Score. See Figures 8, 9, 10, and 11. Furthermore, across the 4-picture story model, either males or females consistently outperformed each on the PSGE Index, EC Index, and Character High Score. See Figures 6, 8, and 10. The same pattern was observed for the 6-picture story model. See Figures 7, 9, and 11. In other words, no growth patterns or trends were evident across outcome measures or story models; no gender group performed better on one outcome measure or story model.

**Age Groups.** Overall, trends in the data demonstrated better performance in older children for PSGE Index and EC Index across both story models. See Figures 12, 13, 14,

and 15. However, these trends were not evident with Character High Score. The data for Character High Score showed more variability and overlap across age groups and time points. See Figures 16 and 17. In terms of growth patterns across age groups, the 4-picture story demonstrated parallel growth patterns for PSGE Index. See Figure 12. No other trends were evident across outcome measures or story models. See Figure 13, 14, 15, 16, and 17.

### **Inferential Results**

**Research Question One: Overall Mean Scores.** *Is there a significant difference in mean scores among each of the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, and Character High Score?*

To answer research question one, three separate one-way repeated measures ANOVAs were conducted for each outcome measure: PSGE Index, EC Index, and Character High Score.

**PSGE Index.** A one-way repeated measures ANOVA revealed statistically significant differences in mean PSGE Index for the 4-picture story among the three time points ( $p = .000$ ). A one-way repeated measures ANOVA with a Greenhouse-Geisser correction determined statistically significant differences in mean PSGE Index for the 6-picture story among the three time points ( $p = .000$ ). These results support our hypothesis that PSGE Index would significantly increase over time. A follow-up pairwise comparison revealed statistically significant differences from fall to spring and from winter to spring for both story models. See Table 4 and 5.

**EC Index.** A one-way repeated measures ANOVA revealed statistically significant differences in mean EC Index for the 4-picture story among the three time points ( $p =$

.001). A one-way repeated measures ANOVA with a Greenhouse-Geisser correction determined statistically significant differences in mean EC Index for the 6-picture story among the three time points ( $p = .000$ ). These results support our hypothesis that EC Index would significantly increase over time. A follow-up pairwise determined a different pattern compared to the PSGE Index result where statistically significant differences were found from fall to spring only for both story models. Statistically significant differences were found from winter to spring for the 4-picture story model and from fall to winter for the 6-picture story model. See Table 4 and 5.

**Character High Score.** A one-way repeated measures ANOVA with a Greenhouse-Geisser correction determined statistically significant differences in mean Character High Scores for the 4-picture story among the three time points ( $p = .011$ ). A one-way repeated measures ANOVA with a Greenhouse-Geisser correction determined no statistically significant differences in mean Character High Scores for the 6-picture story among the three time points ( $p = .063$ ). These results partially confirm our hypothesis that Character High Score from a 4-picture story and 6-picture story would increase over time. It was confirmed for the 4-picture story model but not for the 6-picture story model. A follow-up pairwise comparison determined a similar pattern compared to the EC Index results where statistically significant differences were found from fall to spring for both story models. Statistically significant differences from winter to spring in the 4-picture story model were also determined. See Table 4 and 5.

**Research Question Two: Age Groups.** *Is there a significant difference in mean scores between the different age groups among the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, Character High Score?*

To answer research question two, participants were divided into three, 6-month increment groups. Because there were unequal amounts of participants in each of the age groups (Group 1 consisted of 10 participants, Group 2 consisted of 45 participants, and Group 3 consisted of 58 participant), we were not able to conduct inferential statistics. Therefore, an effect size (Cohen's  $d$ ) was calculated to determine the clinical significance within each age group from fall to spring point (i.e. fall to winter, winter to spring, fall to spring). Additionally, effect sizes were calculated across the different age groups at each time point to determine if there was clinical significance between the age groups at each time point for each story picture model.

***PSGE Index 4-Story.*** All age groups demonstrated the most growth during the second half of the school year from winter to spring on the PSGE Index 4-picture story model. The Group 2 (66 to 71 months) demonstrated the most growth from winter to spring with a medium to large effect size ( $d = .65$ ) on the 4-story model. However, it was the Group 3 (72 to 77 month) that demonstrated the most growth over the course of the school year from fall to spring with a medium effect size ( $d = .52$ ) on the 4-story model. See Table 6. When comparing performance across different age groups, there were medium effects for the 4-story model during winter ( $d = .50$ ) and spring ( $d = .52$ ) between Group 1 (youngest) and Group 3 (oldest). See Table 9.

***PSGE Index 6-Story.*** There was a different pattern for the PSGE Index with the 6-picture story model compared to the 4-picture story model. Group 1 (youngest) and Group 3 (oldest) demonstrated the most growth during the first half of the school year from fall to winter on the PSGE Index for the 6-story model. Group 2 (66 to 71 months) demonstrated the most growth during the second half of the year from winter to spring on

the PSGE Index for the 6-picture story model. Group 1 (youngest) demonstrated the most growth from fall to spring with a large effect size ( $d = .86$ ). See Table 6. When comparing performance between different age groups, there were large effects for the 6-picture story model during the fall between Groups 1 and Group 2 ( $d = .87$ ) and Group 1 to 3 ( $d = 1.34$ ). Further, there was a medium to large effect size ( $d = .72$ ) for the 6-story model during winter between Group 1 and Group 3. See Table 9.

***EC Index 4-Story.*** Age Group 2 (66 to 71 month) and Group 3 (72 to 77 months) demonstrated the most growth during the second half of the school from winter to spring on the EC Index 4-picture story model. The Group 3 (oldest) demonstrated the most growth from winter to spring with a medium to large effect ( $d = .59$ ) on the 4-picture story model. However, Group 2 and Group 3 only demonstrated a small effect over the course of the school year from fall to spring on the 4-picture story model. Group 1 (youngest) demonstrated no growth from fall to winter or from winter to spring on the 4-picture story. See Table 7. When comparing performance between different age groups, there was a medium effect for the 4-picture story model in the fall ( $d = .55$ ) and a medium to large effect size in the spring ( $d = .77$ ) on the 4-picture story model between Group 1 (60 to 65 months) and Group 2 (66 to 71 months). Further, there was a medium effect size for the 6-picture story model during the fall ( $d = .55$ ) between 2 (66 to 71 month olds) and Group 3 (72 to 77 months). See Table 10.

***EC Index 6-Story.*** All groups demonstrated the most growth during the first half of the school year from fall to winter on the EC Index 6-picture story model. The Group 1 (youngest) demonstrated the most growth with a medium to large effect size ( $d = .75$ ) from fall to winter and a large effect size ( $d = 1.08$ ) fall to spring on the 6-picture story

model. See Table 7. When comparing performance between different age groups, there were large effect sizes for the 6-story model during fall between Group 1 to Group 2 ( $d = .95$ ) and Group 1 to Group 3 ( $d = .80$ ). Further, there was a medium to large effect size ( $d = .67$ )-for the 6-picture story model during the winter between Group 1 and Group 3. See Table 10.

***Character High Score 4-Story.*** All groups demonstrated the most growth during the second half of the school year from winter to spring on the Character High Score 4-picture story model. The Group 1 (youngest) demonstrated the most growth with medium to large effect sizes from winter to spring ( $d = .71$ ) and from fall to spring ( $d = .65$ ). See Table 8. When comparing performance between different age groups, there was a small to moderate effect size ( $d = .41$ ) for the 4-picture story model during the spring between Group 1 (youngest) and Group 3 (oldest). See Table 11.

***Character High Score 6-Story.*** There was a different pattern for the Character High Score with the 6-picture model compared to the 4-picture model. Group 1 (youngest) and Group 3 (oldest) demonstrated the most growth during the first half of the school year from fall to winter on the Character High Score for the 6-picture story model. The Group 2 demonstrated the most growth during the second half of the school year from winter to fall for the 6-picture story model. The Group 1 demonstrated the most growth with medium to large effect sizes from fall to winter ( $d = .73$ ) and from fall to spring ( $d = .78$ ). See Table 8. When comparing performance between different age groups, there was a medium to large effect size for the 6-picture story model during the fall between Group 1 to Group 2 ( $d = .57$ ) and Group 1 to Group 3 ( $d = .68$ ). See Table 11.

**Research Question Three: Gender.** *Is there a significant difference in mean scores between males and females at each time point in Spanish narratives as measured by: PSGE Index, EC Index, Character High Score?*

To answer research question three, means and standard deviations, as well as a one-way ANOVA between males and females was conducted. Results revealed no statistically significant differences for the 4-picture story on PSGE Index in the fall, EC Index and Character High Scores across all three time points and stories. (i.e., 4-picture vs. 6-picture) between males and females. See Table 12 for results.

**Research Question Four: Relationship with Character.** Is there a significant correlation between Character High Score and PSGE and EC Indices?

To answer research question four, Pearson correlation coefficients were computed for mean Character High Scores and PSGE Index, and mean Character High Score and EC Index across three time points for both story models.

**PSGE Index and Character High Score.** Pearson correlation coefficients between Character High Score and PSGE Index were significant across all time points for the 4-picture story ( $p = .01$ ) and 6-picture story models ( $p = .01$ ). The 4-picture story demonstrated a moderate, positive correlation across all time points. The 6-picture task demonstrated a moderate, positive correlation in the winter and a weak, positive correlation in the fall and spring. As the children told more story grammar elements the Character High Score improved. These results confirm our hypothesis that a moderate, positive correlation would exist between Character High Score and PSGE Index. See Table 13 for results.

**EC Index and Character High Score.** Pearson correlation coefficients were not significant for mean EC Index and Character High Score across all time points for the 4-picture story and in the fall for the 6-picture story. However, there were significant correlations between Character High Score and the EC Index for the 6-picture story. There was a moderate, positive correlation in the winter and a weak correlation in the spring. As children told more complete episodes, their Character High Score improved. These results partially confirm our hypothesis that Character High Score and EC Index would demonstrate a significant correlation.

## CHAPTER V

### DISCUSSION

The present study used data collected for the development of the S-IGDI to investigate narrative retell tasks in SEB preschool children. More specifically, this study investigated macrostructure elements (PSGE and EC Indices) as well as microstructure elements (Character High Score) to assess growth patterns and significant differences among different variables. The findings in this study will be presented according to the proposed research questions: overall mean scores, age groups, gender, and relationship with Character High Score.

#### **Overall Mean Scores**

*Is there a significant difference in mean scores among each of the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, and Character scores?*

The first research question determined whether mean results from fall to spring were statistically significant. Overall, the mean PSGE and EC Indices were statistically significant over time for the 4-picture and 6-picture story model. Overall, the mean Character High Score was statistically significant over time for the 4-picture story but not for the 6-picture story. Therefore, these results demonstrated that narrative growth when measured by PSGE Index, EC Index, or Character High Score significantly improved from fall to spring and were developmental in nature, except for Character High Score with a 6-picture story model. These results confirm our hypothesis that mean PSGE and EC Indices and Character High Score would be statistically significant over time for the

4-picture and 6-picture story model for all participants, except for mean Character High Score for the 6-picture story.

**Growth Patterns.** Post-hoc comparisons were conducted for each of the outcome variables to determine if the growth from fall to spring was linear. Post-hoc analyses for the PSGE Index, EC Index, and Character High Score revealed that growth from fall to winter and winter to spring were not linear for either the 4-picture or 6-picture story model. Sometimes, there was significant growth from fall to winter, other times growth was significant from winter to spring, and other times there were not significant difference. The results indicated that preschoolers performed better over time but depending on the story model and the outcome measure, the children performed better between different time points (e.g., fall to winter or winter to spring). Based on the findings, it can be concluded that Spanish narrative development for SEB preschoolers was not linear.

**PSGE Index and EC Index Relationship.** Although growth was non-linear for both PSGE Index and EC Index, there appeared to be a relationship between both outcome measures for the 4-picture and 6-story model. The growth pattern for the 4-story model between PSGE Index and EC Index were parallel, with the PSGE Index always higher. The 6-picture model demonstrated almost parallel patterns between the PSGE Index and the EC Index, with the PSGE Index always higher. Both story models followed the same growth pattern similar to the results presented in Olszewski (2013) for kindergarten and 1<sup>st</sup> grade children. Based on results from this study and the literature, it is likely that SEB preschoolers require a certain amount of narrative language skills before they can put individual elements together to create an episode. It appears that

PSGE Index consistently develops first and when there is an adequate amount of story grammar elements, preschoolers begin to create complete episodes.

**Story Model.** Further analyses were conducted to determine if the story model affected performance on the outcome measures. Each outcome measure was compared between the 4-picture model and the 6-picture model.

There were large differences between the 4-picture and 6-picture story model for the Character High Score with the 4-picture story model outperforming the 6-picture story model. It was noted that children used better character development when they were provided with the 4-picture story model compared to the 6-picture story model. The children were better able to demonstrate characters represented as “Actions,” “Agents,” and “Persons” with the 4-picture story model. These findings may be due to the difference in the story models. The 4-picture story model was more linguistically complex containing higher character levels (“Actors,” “Agents,” and “Persons”) and contained more complex sentence structure (i.e., coordinating sentences). On the other hand, the 6-picture story model was composed of simple sentence structures and characters were mostly portrayed as “Actors” and “Agents”.

Our findings suggest that children performed better when provided with a story model that contained higher character levels. When given a model containing “Actors,” “Agents,” and “Persons,” children were better able to demonstrate their abilities in portraying characters as “Agents” and “Persons.” It may be that the 6-picture story did not contain character levels that mirrored the children’s potential. The mean score was around 5, which means children in our study were representing characters as agents and persons. These findings are similar to Nicolopoulou and Richner (2007) who found that

monolingual English speaking preschoolers (age 5) began to portray characters as mental agents or “persons” in their spontaneous narratives.

The mean scores were similar between the 4-picture and 6-picture story model for the PSGE Index. However, there were large differences between the 4-picture and 6-picture story model for the EC Index with the 6-picture story model outperforming the 4-picture story model. The mean scores on EC Index for the 6-picture story were higher than the 4-picture story, which may be attributed not to the number of pictures presented, but rather the complexity of the language in the story model. The 6-picture story model was longer, but contained simple sentence structure, whereas, the 4-picture story model was shorter, but contained more complex sentence structures (subordinating sentences). It appeared that children were better able to demonstrate the emerging skills to create a complete episode when provided with the 6-picture story model.

The EC Index discrepancy in performance across story models supports the theory *Zone of Proximal Development* (ZPD; Vygotsky, 1978). With a narrative story model that is linguistically less complex, the SEB preschoolers were able to demonstrate their ability to use less complex sentences to create the emergence of a complete episode. In contrast, although the narrative structure was given during the 4-picture story model, it was beyond the ZPD of the SEB preschoolers. Even with help of the narrative model, they were unable to create the emergence of complete episodes with more linguistically complex language. Children in this study were more likely to understand and provide structure of a story when presented with a story model that more closely matched their level of functioning.

### **Age Groups**

*Is there a significant difference in mean scores between the different age groups among the three time points from fall to spring in Spanish narratives as measured by: PSGE Index, EC Index, Character High and Character scores?*

The second research question focused on comparing performance across different age groups. Participants were separated into 6-month increment groups. Due to the uneven number of participants in each age group, inferential statistics were not conducted. Instead, effect sizes were calculated to determine if there were clinically significant differences with medium to large effects between each age group during the fall, winter, and spring for each outcome measure.

Findings revealed that the effect sizes varied across age groups, story models, and outcome measures with no consistent patterns. There were only clinically significant differences with medium to large effects between Group 3 (72 to 77 months) and Group 1 (60 to 65 months) on the PSGE and EC Indices for both story models. Group 3 performed better than other age groups on PSGE Index and the EC Index for both story models. In regards to the PSGE Index, there were only medium or large differences between Group 3 and Group 1 during the winter and spring for the 4-picture story model and during the fall and winter for the 6-picture model. In regards to the EC Index, there were only medium or larger differences between Group 3 and Group 1 during the fall and spring for the 4-picture story model and the fall and winter for the 6-picture model. There were no clear patterns between the age groups for the Character High Score. These findings do not support our main hypothesis, which stated that there would be clinically significant differences with medium to large effects between each of the age groups for each outcome measure at each time point.

One reason to explain why there might not have been any differences between the age groups is because growth was not linear for any of the age groups. There was a trend where all age groups demonstrated the most growth during the second half of the school year from winter to spring for the for the 4-picture story model on PSGE Index, EC Index, and Character High Score. The reverse was true for the 6-picture story model in that there was a trend where most groups demonstrated the most growth during the first half of the year from fall to winter on the PSGE Index, EC Index, and Character High Score. Although there were no clinically significant differences with medium to large effects between age groups across all measures and time points, our hypothesis that growth would not be linear and occur faster during either the first or second half of the year was confirmed.

A second reason to explain why there were no differences between the age groups is because growth rates between age groups also differed and did not demonstrate consistent patterns. For example, although Group 3 performed better on the PSGE Index for the 6-picture story compared to the other groups, yet Group 1 had the most growth between fall and winter, Group 2 had the most growth from winter to spring, and Group 3 demonstrated the least growth throughout the school year. Because SEB preschool children exhibited variability in their growth patterns, the older children did not consistently outperform the younger children with clinical significance as we had hypothesized.

Based on the findings, it can be concluded that Spanish narrative development for SEB preschoolers is non-linear and may not significantly differ across age groups. In addition, our findings indicated that mean PSGE and EC Indices may be more sensitive

in detecting differences across age groups than Character High Score. These differences however, may only be evident between younger children (60 to 65 months) and older children (72 to 77 months) in preschool.

The children in the study may be demonstrating different patterns and rates of growth simply due to the inherent nature of learning two languages. There are many confounding factors to consider when analyzing performance in either one of the two languages because bilingual children are going through different stages of first- and second-language acquisition rates (Kohnert, Windsor, & Ebert, 2009). In addition, dual language learners may experience normal patterns of second language acquisition that may hinder the performance of their first language. For example, Roseberry-McKibbin (2002) states that children may experience language loss in their first language due to *interference* or *transfer* from the second language. This may be one of the reasons why Spanish-speakers in the United States have not performed as well on various language measures compared to monolingual Spanish speakers (Páez, Tabors, & López, 2007).

Another explanation for differences in patterns may be due to an alternative language acquisition theory called emergentism (Evans, 2001). The theory of emergentism focuses on the language learning process rather than focusing on static language measures. The theory is based on connectionist modeling theory and is an extension of the dynamic systems theory. Emergentism states that language acquisition occurs when there is a continuous interaction with the child and the environment. Language acquisition is dependent on social, environmental, acoustic, and linguistic cues. Continuous cues in the environment strengthen specific neural connections that result in

language acquisition. Essentially, it is the interaction between a child's biological system and external, contextual factors that facilitate the learning process.

However, when a child is learning a new set of skills such as walking or speaking, there are periods of instability as the neuronal system processes the new incoming information and allows that information to be reorganized in a way to make it more accessible. For example, as a toddler begins to demonstrate the emergent skill of producing two-word utterances, the toddler relies more heavily on the stable skill, which is using a single-word utterance rather than the emergent, unstable skill of producing two-word utterances. In this case, the child would be in a period of instability where the toddler is shifting between the two skills. For these reasons, it may be that the children in our study, who are being continuously exposed to two languages, are demonstrating learning processes that are not linear, and may be in fact very dynamic in nature making it difficult to establish language exposure and dominance.

Additionally, there are many known factors to consider for this specific group of participants who are learning English as a second language and attending a Head Start program that may be contributing to the children's performance on academically based language tasks such as story retelling. First, it may simply be that the children in this study have not had the exposure to story telling or retelling due to their culture and when asked to do such a task they may not truly understand what is expected from them. Furthermore, socialization has been found to be another contributing factor to affect language acquisition (Crago, Annahatak, & Ningiuruvik, 1993). With differences in patterns of language socialization and school performance, children who are dual language learners have difficulty maintaining the minority language, in this case being

Spanish (Crago, Annahatak, & Ningiuruvik, 1993). Lower socioeconomic status (SES) has also been found to be a predictor for lower levels of school achievement (Alexander, Entwisle, & Dauber, 1993; Bloom 1964; Duncan, Brooks-Gunn, & Klebanov, 1994). Because the children in this study were 100% from head start programs, meaning that the children were from a low-income family, they may have predisposed risks that inhibit their performance on academic language tasks such as narrative retelling.

In sum, our results suggest that there is no clear and consistent patterns when analyzing narrative retell performance among different age groups in SEB preschool children. These results may be due to the heterogeneous nature of second language learners and the many factors that may impact performance of their first language.

### **Gender**

*Is there a significant difference in mean scores between males and females at each time point in Spanish narratives as measured by: PSGE Index, EC Index, Character High Score?*

The third research question focused on investigating differences between males and females. Our data consistently demonstrated no statistically significant difference between males and females across all story models, outcome measures, and time points. In addition, when comparing mean scores, no trends were evident to demonstrate one gender group outperforming the other. These results confirm our hypothesis that no statistically significant differences would exist between males and females. However, our findings do not support our hypothesis that trends would exist to favor one gender group.

Research on monolingual language development has consistently demonstrated females outperforming males from a young age to around 3 years of age (Fenson et al.,

1994; Bauer, Goldfield, & Reznick, 2002; Bornstein, Hahn, & Haynes, 2004). Similarly, Nicolopoulou and Richner (2007) found that females were more likely to include higher character levels in their spontaneous narratives in monolingual English speaking children ages 3 to 5. Although there a trend for females to perform better than males, Nicolopoulou and Richner (2007) concluded that there was no statistically significant difference between males and females.

Research on bilingual language development has demonstrated mixed results when comparing language performance in males and females. Some studies demonstrated that either males or females performed better. For example, Uchikoshi (2006) investigated the expressive and receptive vocabulary growth in English for kindergarten SEB children and found that males had higher initial levels of vocabulary and more vocabulary growth than females. Rojas and Iglesias (2013) found conflicting results in that females outperformed males in a number of expressive language skills (i.e., mean length of utterance (MLUw), number of different words (NDW), and words per minute (WWPM) in Spanish. Unlike research for monolingual children, the females in this study continued to outperform males until the end of the second grade.

Other research on bilingual language development has also shown no significant differences between males and females. For example, Hammer, Davison, Lawrence and Miccio (2009) conducted a longitudinal investigation in SEB children from the first year of a Head Start program through kindergarten. The researchers assessed performance in vocabulary and early literacy skills in both Spanish in English and found no significant difference between males and females. In addition, Olszewski (2013) found similar results in that SEB males and females performed similarly on measures of PSGE Index

and EC Index in kindergarten for English narrative retells. However, after three years, as children reached the end of the second grade, females performed better on measures of PSGE and EC Indices.

Our findings support the SEB research that examined narratives. Olszewski (2013) examined SEB children in kindergarten through second grade and found no significant differences between males and females for narrative retell tasks. This study and ours examined PSGE Index and EC Index. Further, Nicolopoulou and Richner (2007) examined monolingual English speaking 3- to 5-year-old children and also found no significant differences between males and females for spontaneous narratives. This study and ours examined Character High Score.

It should be noted that the SEB literature on gender differences are inconsistent on measures other than narratives. Uchikoshi (2006) examined expressive and receptive vocabulary skills in SEB children in English and found that males outperformed females. On the contrary, Rojas and Iglesias (2013) examined a number of expressive language skills in SEB children in Spanish and found that males outperformed males.

These inconsistencies attributed to methodological differences such as outcome measures in language development research. For example, SEB females outperformed SEB males in Spanish expressive language task. SEB males, on the other hand, performed better during expressive and receptive vocabulary tasks in English than SEB females. In terms of macrostructure (PSGE and EC Indices), results across studies suggest no gender differences before the second grade. It could be that narrative retells are not sensitive enough to reveal gender differences in narrative skills but rather be an indicator of memory skills. In sum, because there are many contributing factors to

bilingual language development, it is uncertain if these discrepancies are due to children being bilingual or because of their young age.

### **Relationship with Character**

*Is there a significant correlation between Character High Score and PSGE and EC Indices?*

The fourth question focused on determining whether there was a relationship between Character High Score, which examined micro-linguistic elements and PSGE and EC Indices, which assessed macrostructure elements. The results of this study found a significant correlation between Character High Score and PSGE Index for the 4-picture and 6-picture story model in the fall, winter, and spring. As children produce more story grammar elements they were more likely to provide the micro-linguistic details embedded within those story grammar elements. Children were able to retell story grammar elements and represented characters as agents and persons when provided with a model. Character High Score was significantly correlated with EC Index for the 6-picture story model in the winter and spring. As children's skills emerged in producing a complete episode, the relationship between Character High Score and EC Index became more apparent. These results confirm our hypothesis that there was a significant correlation between Character High Score and the PSGE and EC Indices.

A possible explanation for the relationship between Character High Score and PSGE Index may be related to the linguistic models of the story models. The 4-picture story model had more of a variety and more complex character development. It had 5 instances of actors, 5 instances of agents, and 1 instance of person. The 6-picture story model had 7 instances of actors and 2 instances of agents. Regardless of the linguistic

complexity of the story model, SEB preschoolers were able to provide story grammar elements.

However, the linguistic complexity appeared to have influenced the relationship between the ability to use character development and the ability to create a complete episode. As children's linguistic skills developed and became more complex, their ability to create a complete episode also emerged as demonstrated in their mean scores. It was not until the winter that character and complete episodes were significantly correlated. The task of creating an episode requires higher-level linguistic cohesion skills to put the elements together to form an episode. Since complete episode creation is a difficult task, it requires more linguistic skills. When SEB children were younger, they had more difficulty putting together a complete episode and exhibited improvement in these skills as they became older. It is likely that we saw Character High Score and EC Index correlated from the 6-picture story model because the model provided easier language to match their ability, meaning it was closer to their ZPD. It is plausible that episodic complexity may appear first when provided with models that have more simple language than models that have more complex language.

To date, no study has compared Character High Score and PSGE and EC Indices; therefore, we cannot make the statement of whether this supports or refutes current literature. More research is needed to investigate this relationship and how it may play a role in detecting either language difference or disorder.

## CHAPTER VI

### CONCLUSION

#### Summary of Results

This investigation was one of the few studies to investigate macrostructure and microstructure elements in Spanish-speaking SEB preschool children. The narrative retells of 113 SEB preschooler children were assessed for Proportion of Story Grammar Elements (PSGE) Index, Episodic Complexity (EC) Index, and Character High Score for two story models (4-picture story model and 6-picture story model) over three points in time (fall, winter, and spring).

We found that overall SEB children retold stories with greater number of story grammar elements (PSGE Index) and greater episodic quality (EC Index). PSGE Index and EC Index were developmental in nature from fall to spring regardless of the linguistic complexity of the narrative model. SEB children told more story grammar elements in their Spanish narratives from the beginning to the end of the school year. SEB children formed better episodes consisting of initiating event, action, and consequence in the spring. Character High Score demonstrated significant growth over time for all participants from fall to spring depending on the linguistic complexity of the narrative model.

However, we found Character High Score to be a poor method to assess differences in different age groups. When comparing performance on PSGE Index, EC Index, and Character High Score across age groups, clinically significant differences with medium to large effect sizes were evident between the oldest group, Group 3 (72 to 77 months) and the youngest group, Group 1 (60 to 65 months). Older children told more story grammar

elements, created more episodes, and further developed character compared to the youngest children. In addition, growth patterns and growth rates varied across and within age groups depending on the outcome measure and story model. For example, children did not always consistently tell more story grammar elements. Children tended to show more growth during the second half of the year for the 4-picture story model and more growth in the first half of the year for the 6-picture story model.

When comparing performance on PSGE Index, EC Index, and Character High Score between different gender groups, our results consistently demonstrated no statistically significant difference between males and females across all story models, outcome measures, and time points. Performance on PSGE Index, EC Index, and Character High score was very similar when comparing males and females. In addition, no one gender group demonstrated a trend where they consistently performed better as we had hypothesized.

When comparing the relationship between Character High Score and the narrative macrostructure outcome measures (PSGE Index and EC Index), there were significant relationships. The results of this study found a significant correlation between Character High Score and PSGE Index for the 4-picture and 6-picture story model in the fall, winter, and spring. A significant correlation between Character High Score and EC Index was found in the 6-picture story task in the winter and spring only. As the PSGE Index went up, so did Character High Score across time points and story models. As EC Index went, so did Character High Score in the winter and spring for the 6-picture story model.

The results of the study revealed that different story models and outcome measures had the biggest impact on the children's performance. We found that children in our

study performed better on PSGE Index measures across both the 4-picture story model and 6-picture story model. Therefore, performance on the quantity of story grammar elements was not dependent on the linguistic complexity of the narrative model. On the other hand, linguistic complexity of the narrative model played a role on the performance of episodic complexity and character development. Children in this study performed better, in terms of forming a complete episode, when given a story model that contained less linguistically complex language. However, the children performed better, in terms of character development, when given a model that contained higher character levels. With the variety in growth patterns and growth rates within and across age groups that was evident in our results, it is important to consider the many confounding factors (i.e., normal bilingual processes, low SES, different socialization patterns) that may be contributing to the fluctuation of their native language acquisition. In this case, additional instruction and exposure to narratives from a young age may remediate poor performance on narrative retelling measures.

### **Limitations**

The data collected for this study was retrospective in nature. Therefore, the researchers did not design the procedures. There was no control over the quality of the narrative models. Each of the story models lacked a clear consequence. This may have impacted the performance on the narrative measures. The SEB children's stories were not audio recorded, rather they were transcribed live and the level of prompting for each story is unknown. In addition, age groups were not distributed evenly so statistical analyses between age groups could not be conducted.

### **Clinical Implications**

Our findings have clinical implications for clinicians who are assessing Spanish narrative performance in SEB preschool children. Performance on narrative retells should be interpreted with caution. We found that the story model had the most effect on the children's performance across outcome measures. Because we found that young SEB preschool children were able to demonstrate high character development in their narrative retells but unable to demonstrate the skill of putting together a complete episode for the 4-picture story model, educators should consider the linguistic complexity of the story model depending on the outcome measure that is being assessed. When assessing the ability to portray high character development, the story model should contain higher character levels. When assessing the ability to create a complete episode, the story model should contain shorter sentence structure and less linguistically complex language, especially for preschool SEB children who are developing these skills. Therefore, if the educator is assessing character development, the children may need less support than when assess episodic complexity, which requires higher levels of support.

Additionally, the children in our study demonstrated the most difficulty putting together a complete episode, especially for the younger groups. This indicates that the skill of forming a complete episode is either absent or still emerging in SEB preschool children. Educators should be aware that SEB preschool children are able to tell back story grammar elements but not necessary in a coherent manner. Therefore, direct instruction in telling stories that contain an initiating event, actions, and a consequence may be warranted for this group of children. Additionally, because children were more able to demonstrate the emerging skill of producing a complete episode in the less linguistically complex story model, educators should focus on instruction in story telling

that includes language that more closely matches a child's language ability and good models of episodic structure (i.e., clear story grammar elements) to facilitate learning.

In addition, it may be that the children in our study, who are learning English as a second language, are learning the concepts of story grammar elements at different rates because of the many confounding variables that may be interfering with their narrative retell performance in Spanish such as being a dual language learner, socialization factors, and low SES. The results suggest the importance of introducing the concept of story telling from a young age. In the educational setting, learning can be facilitated by increasing exposure to story telling and retelling from a young age. Educators and parents can begin by reading and telling simple stories that contain simple language, in both languages, to the children from a young age. This in return, would provide the appropriate narrative structure and modeling required to succeed academically.

### **Future Research**

Future research should continue to focus on understanding the developmental nature of Spanish narratives for SEB children. This study may be replicated and extended with changes to the procedures. For example, to extend the research examining micro-linguistic features of Spanish narrative developments of preschoolers, procedures can include audio recording. The benefit of audio recording the narrative retells is that it would allow researchers to examine morphological inflections that may not have been accounted for before. Although we gained a lot of information from this study, it is unclear if performance on narrative macrostructure elements would be different if the narrative models contained a very clear initiating event, action, and consequence.

Examining the microstructure features of narrative development could provide more insight to language acquisition.

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Appendix A  
Scripted Narratives

**Four-picture sequence narrative**

*Foto 1: Es el cumpleaños de Carina. Carina se puso triste porque ella quería una piñata para su fiesta de cumpleaños.*

*Foto 2: Carina le preguntó a su mamá, “¿Podemos ir a una tienda para ver si encontramos piñatas?”.*

*Foto 3: Su mamá le dijo que sí y manejaron a la tienda.*

*Foto 4: Ahí encontraron muchas piñatas para escoger y Carina se puso contenta.*

*Instrucciones: Ahora tú cuéntame el cuento.*



**Six-picture sequence narrative**

*Foto 1 Shari está comprando huevos para hacer un pastel (bizcocho, torta).*

*Foto 2 Un niño está empujando su carrito de compras.*

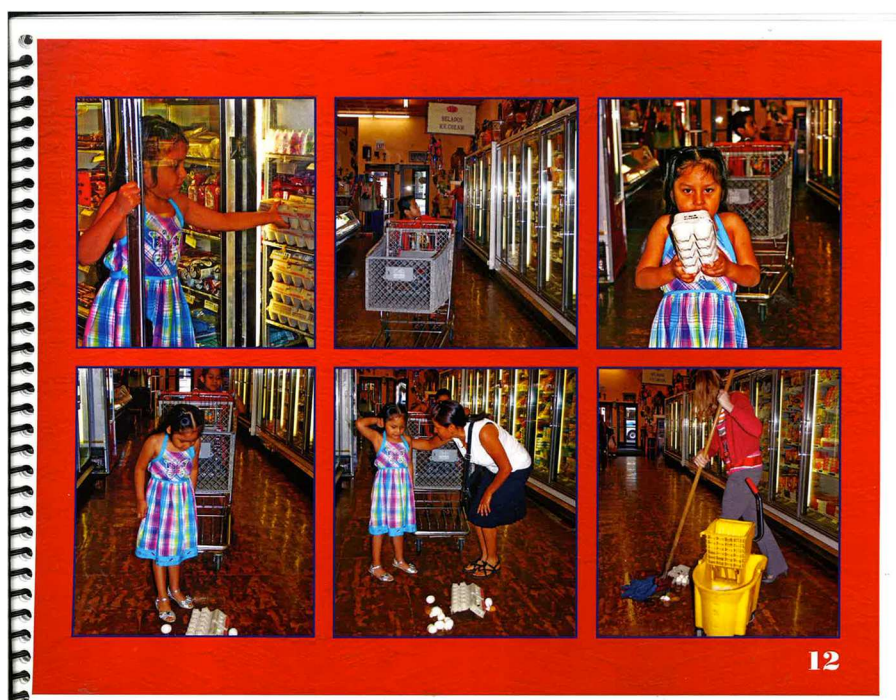
*Foto 3 El niño no pone atención hacia donde se va.*

*Foto 4 Se choca con Shari. A ella se le caen los huevos y se rompen todos en el piso.*

*Foto 5 La Mamá abraza a Shari y le dice que todo está bien*

*Foto 6 El empleado de la tienda viene con un trapeador y limpia el piso.*

*Instrucciones: Ahora tú cuéntame el cuento.*



Appendix B  
PSGE Index Scoring Rubric

**PSGE SCORING RUBRIC**

Participant ID: \_\_\_\_\_

<p><b>Season 1</b>  <b>INITIATING EVENT:</b>          ____ Es el <u>cumpleaños</u> de Carina.</p> <p><b>ACTION:</b>          ____ A1: Carina se <u>puso triste</u>  <b>OR</b>          porque ella <u>quería una piñata</u> para su fiesta de cumpleaños.  <b>AND</b>          ____ A2: Carina le <u>preguntó</u> a su mamá  <b>OR</b>          “¿<u>Podemos</u> ir a una tienda para ver si <u>encontramos</u> piñatas?”  <b>AND</b>          ____ A3: Su mamá le <u>dijo que sí.</u>  <b>AND</b>          ____ A4: <u>Manejaron</u> a la tienda.</p> <p><b>CONSEQUENCE:</b>          ____ Ahí <u>encontraron</u> muchas piñatas para <u>escoger</u>.  <b>OR</b>          Carina se <u>puso contenta</u>.</p>	<p><b>Season 2</b>  <b>INITIATING EVENT:</b>          ____ Es el <u>cumpleaños</u> de Carina.</p> <p><b>ACTION:</b>          ____ A1: Carina se <u>puso triste</u>  <b>OR</b>          porque ella <u>quería una piñata</u> para su fiesta de cumpleaños.  <b>AND</b>          ____ A2: Carina le <u>preguntó</u> a su mamá  <b>OR</b>          “¿<u>Podemos</u> ir a una tienda para ver si <u>encontramos</u> piñatas?”  <b>AND</b>          ____ A3: Su mamá le <u>dijo que sí.</u>  <b>AND</b>          ____ A4: <u>Manejaron</u> a la tienda.</p> <p><b>CONSEQUENCE:</b>          ____ Ahí <u>encontraron</u> muchas piñatas para <u>escoger</u>.  <b>OR</b>          Carina se <u>puso contenta</u>.</p>	<p><b>Season 3</b>  <b>INITIATING EVENT:</b>          ____ Es el <u>cumpleaños</u> de Carina.</p> <p><b>ACTION:</b>          ____ A1: Carina se <u>puso triste</u>  <b>OR</b>          porque ella <u>quería una piñata</u> para su fiesta de cumpleaños.  <b>AND</b>          ____ A2: Carina le <u>preguntó</u> a su mamá  <b>OR</b>          “¿<u>Podemos</u> ir a una tienda para ver si <u>encontramos</u> piñatas?”  <b>AND</b>          ____ A3: Su mamá le <u>dijo que sí.</u>  <b>AND</b>          ____ A4: <u>Manejaron</u> a la tienda.</p> <p><b>CONSEQUENCE:</b>          ____ Ahí <u>encontraron</u> muchas piñatas para <u>escoger</u>.  <b>OR</b>          Carina se <u>puso contenta</u>.</p>	<p><b>Season 1</b>  <b>INITIATING EVENT:</b>          ____ Shari está comprando huevos para hacer un pastel (bizcocho, torta).</p> <p><b>ACTION:</b>          ____ A1: Un niño está empujando su carrito de compras.  <b>AND</b>          ____ A2: El niño no pone atención hacia donde se va.  <b>AND</b>          ____ A3: Se choca con Shari.  <b>AND</b>          ____ A4: A ella se le caen los huevos  <b>AND</b>          ____ A5: Se rompen todos (los huevos) en el piso.  <b>AND</b>          ____ A6: La Mamá abraza a Shari.  <b>AND</b>          ____ A7: La mama le dice que todo está bien.</p> <p><b>CONSEQUENCE:</b>          ____ El empleado de la tienda viene con un trapeador.  <b>OR</b>          El empleado de la tienda viene a limpiar el piso.</p>	<p><b>Season 2</b>  <b>INITIATING EVENT:</b>          ____ Shari está comprando huevos para hacer un pastel (bizcocho, torta).</p> <p><b>ACTION:</b>          ____ A1: Un niño está empujando su carrito de compras.  <b>AND</b>          ____ A2: El niño no pone atención hacia donde se va.  <b>AND</b>          ____ A3: Se choca con Shari.  <b>AND</b>          ____ A4: A ella se le caen los huevos  <b>AND</b>          ____ A5: Se rompen todos (los huevos) en el piso.  <b>AND</b>          ____ A6: La Mamá abraza a Shari.  <b>AND</b>          ____ A7: La mama le dice que todo está bien.</p> <p><b>CONSEQUENCE:</b>          ____ C: El empleado de la tienda viene con un trapeador.  <b>OR</b>          El empleado de la tienda viene a limpiar el piso.</p>	<p><b>Season 3</b>  <b>INITIATING EVENT:</b>          ____ Shari está comprando huevos para hacer un pastel (bizcocho, torta).</p> <p><b>ACTION:</b>          ____ A1: Un niño está empujando su carrito de compras.  <b>AND</b>          ____ A2: El niño no pone atención hacia donde se va.  <b>AND</b>          ____ A3: Se choca con Shari.  <b>AND</b>          ____ A4: A ella se le caen los huevos  <b>AND</b>          ____ A5: Se rompen todos (los huevos) en el piso.  <b>AND</b>          ____ A6: La Mamá abraza a Shari.  <b>AND</b>          ____ A7: La mama le dice que todo está bien.</p> <p><b>CONSEQUENCE:</b>          ____ El empleado de la tienda viene con un trapeador.  <b>OR</b>          El empleado de la tienda viene a limpiar el piso.</p>																																																																								
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## PSGE Index Scoring Rubric for Piñata Story

\* These are just EXAMPLES of what to look for. When in doubt, look at the highlighted words on the scoring rubrics.

**INITIATING EVENT (IE)**

<p>“Es el cumpleaños de Carina.”</p> <p>***Describes that it is her birthday/party***</p>	
<p><b>Accept:</b></p> <ul style="list-style-type: none"> <li>-Era <u>el cumpleaños de Carina</u>.</li> <li>-Tiene/Era <u>su cumpleaños</u>.</li> <li>-Va ser su cumpleaños.</li> <li>-<u>Celebran su cumpleaños</u>.</li> <li>-Era la fiesta de Carina.</li> <li>-En su fiesta de cumpleaños.</li> <li>-Carina es tu cumpleaños.</li> </ul>	<p><b>Do NOT accept:</b></p> <ul style="list-style-type: none"> <li>-Cumpleaños.</li> <li>-Quiere piñatas para su cumpleaños.</li> <li>-Quería su cumpleaños.</li> </ul>

**ACTION 1 (A1)**

<p>“Carina se <u>puso triste</u> porque ella <u>quería</u> una piñata para su cumpleaños.”</p> <p>***She <b>got sad</b> OR she <b>wanted</b> a piñata****</p>	
<p><b>Accept:</b></p> <ul style="list-style-type: none"> <li>-Esta triste/se <u>puso triste/enojada</u>.</li> <li>-Ella estaba <u>llorando</u>.</li> <li>-<u>Quiere</u> una piñata (para su cumpleaños).</li> <li>-Ella quería ir a las piñatas.</li> <li>-La nina estaba triste. Ella quería una piñata.</li> </ul>	<p><b>Do NOT accept:</b></p> <ul style="list-style-type: none"> <li>-Triste.</li> <li>-Quiere.</li> <li>-Su cumpleaños.</li> <li>-Quería un cumpleaños/fiesta.</li> <li>-No tiene piñata.</li> <li>-Para su fiesta de cumpleaños.</li> <li>-La mama no le compro piñata.</li> </ul>

**ACTION 2 (A2)**

<p>“Carina le <u>pregunta</u> a su mama, “<u>podemos ir</u> a una tienda para ver si <u>encontramos</u> piñatas?”</p> <p>***Carina asked/talked to her mom about going to the store to find piñatas***</p>	
<p><b>Accept:</b></p> <ul style="list-style-type: none"> <li>-Le <u>dijo/contó a su mama</u> (que fueran/vamos a la tienda).</li> <li>-<u>Dijo</u> a su mama que quería piñatas/cumpleaños.</li> <li>-Carina/le <u>pregunto</u> a su mama.</li> <li>-<u>Podemos ir</u> a la tienda/comprar piñatas?</li> <li>-<u>Platico/hablo</u> con su mama.</li> </ul>	<p><b>Do NOT accept:</b></p> <ul style="list-style-type: none"> <li>-Pregunto.</li> <li>-Dijo.</li> <li>-Para ver si encontramos pinatas.</li> <li>-Carina dijo.</li> <li>-Dijo a su mama que compre una torta.</li> </ul>

## PSGE Index Scoring Rubric for Piñata Story

**ACTION 3 (A3)**

“Su mama le dijo que si.”

\*\*\*Her mom said yes to going to the store/finding piñatas\*\*\*

**Accept:**

- Le dijo vamos/que se van/vayan.
- Dijo que si.
- Que si le compraba una piñata.
- La mama le dijo vamos a la tienda.
- La mama dijo esta bien.

**Do NOT accept:**

- Dijo.
- La mama dice que quiere piñata.

**ACTION 4 (A4)**

“Manejaron a la tienda.”

\*\*\*Any action that describes **going** to the store to find piñatas\*\*\*

**Accept:**

- Fueron (a comprar/encontrar/ver una piñata.)
- Se montaron/bajaron el coche para comprar piñatas.
- Ir a una tienda.
- Su mama la llevo a la tienda.
- Vamos a la tienda.
- Van/se va a la tienda.
- Subieron el coche para ir a la tienda/comprar piñatas.
- Caminaron a la tienda.
- Van en el carro.
- Va a comprar su piñata.
- Llegaron a la tienda.
- La mama la llevo.

**Do NOT accept:**

- Se subieron/metieron/montaron en el coche.
- Se bajo del coche.
- Carina se fue al carro.
- Van a la calle.
- Una tienda.
- A la tienda.
- La mama esta con ella en el coche.
- Están en el coche.
- La mama en la tienda.

## PSGE Index Scoring Rubric for Piñata Story

**CONSEQUENCE (C)**

**Consequence:** “Ahí encontraron muchas piñatas para escoger.” OR “Carina se puso contenta.”

\*\*\*Any action of having/seeing/buying/choosing the piñata OR any positive emotional reaction\*\*\*

**Accept:**

**Ahí encontraron muchas piñatas para escoger.**

- Vieron/miran/buscaron (muchas/las piñatas).
- Había muchas piñatas.
- La mama le compro una piñata.
- Ella cogió/tiene esta.
- Agarraron/compraron piñatas.
- No sabe cual piñata escoger.
- Hay piñatas para escoger.
- Ahí/aquí están/estaban las piñatas.
- Piñatas para escoger.
- La mama dijo “mira todas las piñatas”
- La niña con su piñata.
- La piñata estaba arriba.

OR

- Carina se **puso contenta**.
- Esta contenta/feliz.
- Carina no estaba triste.

**Do NOT accept:**

**Ahí encontraron muchas piñatas para escoger.**

- Esta(n) en la tienda/factoria.
- No sabe cual color.
- Fueron/manejaron a comprar/encontrar una piñata.
- Piñatas.
- Muchas/unas piñata(s).
- Saben las piñatas.
- La mama no le compro piñata.

OR

- Contenta.
- La mama se puso contenta.
- Celebraron su cumpleaños.

## Scoring Procedures for Piñata Story

QUESTION	ANSWER
<b>Q1:</b> Does a story grammar element (IE, A, C) have to be exactly what is says or can it be a general idea?	<b>A1:</b> The child does NOT need to say exactly what it says. As long as the <b>general idea</b> is expressed by what the child says to describe the story, award the point.
<b>Q2:</b> Does the child need to say exactly what is stated in bold?	<b>A1:</b> No, as long as the child tells the <b>gist of the story elements in bold</b> .
<b>Q3:</b> Are points awarded even if the story is told out of order?	<b>A3:</b> Yes, award points for each element that is produced, even if it is out of order.
<b>Q4:</b> What if two story elements are combined into one utterance?	<b>A4:</b> If two story elements are produced in one utterance count each story element as a point. For example, “Carina se puso triste porque es su cumpleaños.” In this circumstance, the child would receive a point for “se puso triste” and one point for “es su cumpleaños.”
<b>Q5:</b> What if there is an unintelligible word but everything else is pointing to awarding the story element?	<b>A5:</b> If everything is pointing towards awarding a point for that story elements but there are a few unintelligible words, using your best educated guess, award the point.
<b>Q6:</b> What if the child produces two consequences? Should I mark 2 points or 1 point?	<b>A6:</b> If the child produces two consequences, for example, “Ahí encontraron muchas piñatas y Carina se puso feliz,” <b>mark only 1 point</b> for the consequence.
<b>Q7:</b> Are story elements (IE, A, C) and character levels mutually exclusive?	<b>A7:</b> Yes. You should score story elements by the gist and score character levels by specific words mentioned in the story. For example, “Ella no <b>tiene</b> piñata,” would not be awarded a point as a story element (IE, A, C) BUT would be scored as a character level 2 (2 points).
<b>Q8:</b> What if the same action is mentioned multiple times in a story? Do you only count it once?	<b>A8:</b> Yes, if the child rephrases the same action, count the action only once. For example, “Carina quería ir a las piñatas. Carina quería una piñata amarilla.” This example would only be awarded one point for that action.
<b>Q9:</b> What if something is misspelled but you can understand what is meant?	<b>A9:</b> If something is spelled incorrectly but you can understand what the child is trying to say, award the point(s) as needed. For examples, “Su mama le dijo no clores (llores),” go ahead and score 4.5 points for the character level.

Appendix C  
EC Index Scoring Rubric

## EPISODIC QUALITY (complete and complex episodes)

Participant ID .....

Episode	Episode Target 1 point each	Complete Episode 0 pt or 3 pt	Complex Episode 1 additional point for each additional A	Ratio Score
4-picture (Season1)	IE, A, A, A, A, C			
<b>Total</b>		/6		
4-picture (Season 2)	IE, A, A, A, A, C			
<b>Total</b>		/6		
4-picture (Season 3)	IE, A, A, A, A, C			
<b>Total</b>		/6		
6-picture (Season 1)	IE, A, A, A, A, A, A, A, C			
<b>Total</b>		/9		
6-picture (Season 2)	IE, A, A, A, A, A, A, A, C			
<b>Total</b>		/9		
6-picture (Season 3)	IE, A, A, A, A, A, A, A, C			
<b>Total</b>		/9		

Appendix D  
Character Level Scoring Rubric

## CHACTER LEVEL SCORING RUBRIC

I. <b>ACTORS</b> are defined simply by actions; they act or are acted upon	Points Possible	Points Earned
<p><b>Level 1.</b> Action Only: Actors are represented purely by actions and are not further described. Any action that a character does, not objects</p> <p>EXAMPLES of CORRECT responses:</p> <ul style="list-style-type: none"> <li>• Action verbs that a character does: <b>fueron</b> (they went), <b>subieron</b> (they got on), <b>comprar</b> (to buy), <b>empujar</b> (to push), <b>agarraron</b> (to grab), <b>manejaron</b> (they drove), etc.</li> <li>• Un niño esta <b>empujando</b> su carrito. (The boy is <b>pushing</b> the cart.)</li> <li>• Shari estaba <b>comprando</b> huevos. (Shari was <b>buying</b> eggs.)</li> <li>• <b>Se le cayeron</b> los huevos. (She <b>dropped</b> the eggs.)</li> <li>• <b>Tirar</b> los huevos. (<b>Throw</b> the eggs.)</li> </ul> <p>EXAMPLES of INCORRECT responses:</p> <ul style="list-style-type: none"> <li>• Actions in which a character is not involved.</li> <li>• Los huevos se cayeron. (The eggs fell.)</li> <li>• Carro nuevo. (New car).</li> </ul>	<b>1 pt.</b>	
<p><b>Level 2.</b> Action + External Descriptions: Actors are fleshed out by externally identifiable characteristics such as physical traits, non-generic names, and possessions. (Underlining indicates key aspects of the story for coding it into that specific level.)</p> <p>EXAMPLES of CORRECT responses:</p> <ul style="list-style-type: none"> <li>• El empleado <b>tiene</b> un trapeador. (Carina <b>has</b> a piñata.)</li> <li>• Shari tiene huevos. (Shari has eggs.)</li> <li>• Carina <b>es bonita</b>. (Carina is pretty.)</li> <li>• <b>Es el cumpleaños</b> de Carina. (<b>It is Carina's</b> birthday.)</li> </ul> <p>EXAMPLES of INCORRECT responses:</p> <ul style="list-style-type: none"> <li>• Carro es nuevo. (The car is new.)</li> <li>• Una piñata amarillo. (A yellow piñata.)</li> </ul>	<b>2 pt.</b>	

## CHACTER LEVEL SCORING RUBRIC

II. **AGENTS** manifest basic psychological capacities that can take two different forms, either as landscape of action (intention-in-action) or as landscape of consciousness

	Points Possible	Points Earned
<p><b>Level 3A. Implicit Intention:</b> Characters' actions are marked as agentive. NOT EVIDENT IN THESE STORIES</p>	<b>3 pt.</b>	
<p><b>Level 3B.</b> Simple Perceptual/Attentive Capacities: Agents see, hear, feel, and/or have simple expressive abilities.</p> <p>EXAMPLES of CORRECT responses:</p> <ul style="list-style-type: none"> <li>• No <b>puso atención</b>. (The boy is not <b>paying attention</b>.)</li> <li>• Ahí <b>encontraron</b> piñatas. (There they <b>found</b> piñatas.)</li> <li>• El niño no <b>vio</b> hacia donde iba. (The boy did not <b>see</b> where he was going.)</li> <li>• El niño no se <b>fija</b> por donde va. (He was not <b>watching</b> where he was going)</li> <li>• No <b>sabia</b> por donde <b>iba</b>. (He didn't know <b>where he was going</b>.)</li> <li>• No se <b>dio cuenta</b>. (He was not aware.)</li> <li>• No estaba <b>atendiendo</b>. (He was not <b>paying attention</b>.)</li> <li>• La niña esta <b>buscando</b> huevos. (The girl is <b>looking</b> for eggs.)</li> </ul> <p>EXAMPLES of INCORRECT responses:</p> <ul style="list-style-type: none"> <li>• El niño pega la niña en la espalda. (The boy hit the girl in the back.)</li> <li>• No hacia donde va.</li> </ul>	<b>3.5 pt.</b>	
<p><b>Level 4A.</b> Action Response: Agents respond with actions to situations or events, often marked by "because" or "so."</p> <p>EXAMPLES of CORRECT responses:</p> <ul style="list-style-type: none"> <li>• Carina se puso triste <b>porque</b> quería una piñata para su fiesta de cumpleaños.</li> <li>• A Shari se le cayeron los huevos <b>porque</b> el niño choco con ella.</li> </ul>	<b>4 pt.</b>	
<p><b>Level 4B.</b> Emotional Response: Agents have emotional reactions to or make evaluations of situations or events.</p> <p>EXAMPLES of CORRECT responses:</p> <ul style="list-style-type: none"> <li>• Shari se puso <b>triste</b> porque se cayeron los huevos.</li> <li>• La mama le dijo que no se pusiera <b>triste</b>.</li> <li>• La mama dijo, "no te <b>preocupes</b>."</li> <li>• Carina se puso <b>contenta</b>.</li> <li>• Shari empezó a <b>llorar</b>.</li> <li>• La niña se sintió mal.</li> <li>• La mama le <b>abraza</b>.</li> <li>• La mama <b>abrazo</b> a Shari.</li> </ul> <p>EXAMPLES of INCORRECT responses:</p> <ul style="list-style-type: none"> <li>• El niño <b>lastimo</b> a la niña.</li> </ul>	<b>4.5 pt.</b>	

### CHACTER LEVEL SCORING RUBRIC

<p><b>Level 5A.</b> Explicit Intention-in-Action: Agents’ actions are explicitly marked as intentional or goal- directed. <b>EVIDENT IN PINATA STORY ONLY.</b></p> <p>EXAMPLES of CORRECT responses:</p> <ul style="list-style-type: none"> <li>• <b>Carina le pregunto a su mama, “Podemos ir a la tienda para ver si encontramos mas piñatas?”</b></li> </ul> <p>EXAMPLES of INCORRECT responses:</p> <ul style="list-style-type: none"> <li>• Podemos ir a la tienda.</li> <li>• Carina le pregunto a su mama.</li> </ul>	<b>5 pt.</b>	
<p><b>Level 5B. Explicit</b> Emotion-in-Action: Agents actively produce emotional and/or evaluative reactions in themselves or other characters. NOT EVIDENT IN THESE STORIES</p>	<b>5.5 pt.</b>	

III. **PERSONS** have higher psychological capacities that include representational desires, intentions, or beliefs that become coordinated -- implicitly or explicitly – with action, with reality, and/or with other characters that have representational capacities.

	Points Possible	Points Earned
<p><b>Level 6.</b> Explicit Desire and/or Belief Representations: Characters have representational desires, beliefs, or intentions, implicitly but not explicitly coordinated with actions.</p> <p>EXAMPLES of CORRECT responses:</p> <ul style="list-style-type: none"> <li>• Carina <b>quería</b> un piñata. (Carina wanted a piñata.)</li> <li>• Shari <b>quiere</b> huevos. (Shari wants eggs).</li> </ul>	<b>6 pt.</b>	

Table 1

*Participant Demographics*

<b>Participants</b>	<b>N</b>	<b>%</b>	<b>Mean Age in Months (SD)</b>	<b>Range Age in Month</b>
Total	113	100	70.98 (3.8)	62-77
Male	46	41	70.59 (3.7)	63-77
Female	67	59	71.25 (3.9)	62-77
Age Group 1	10	9	64.30 (1.1)	62-65
Age Group 2	45	40	68.44 (1.6)	66-71
Age Group 3	58	51	74.10 (1.9)	72-77

*Note.* Group 1 =60-65 months, Group 2=66-71 months, and Group 3 = 72-77 months.

Table 2

*Inter-rater Reliability Results*

	PSGE Index	EC Index	CH Score
4-picture story: PBP*	90%	96%	87%
<i>Kappa</i>	.864	.697	.818
6-picture story: PBP*	86%	88%	92%
<i>Kappa</i>	.577	.842	.878

*Note.* \*PBP = Point-by-point inter-rater reliability was calculated by comparing the results as the same or different. Matching scores received a score of “1” and a mismatch received “0” points. The total of the matched scores was divided by the total number of items and multiplied by 100 to obtain a percentage. Point-by-point benchmark: 85% or above was deemed acceptable. Kappa benchmarks: .5 moderate agreement, .7 good agreement, and .8 very good agreement (Rovai, Baker, Ponton, 2013). PSGE = Proportion of Story Grammar Elements Index, EC = Episodic Complexity Index, CH = Character High Score.

Table 3

*Means and Standard Deviations for All Participants (N), Males (M), and Females (F)*

	Fall			Winter			Spring		
	N	M	F	N	M	F	N	M	F
PSGE-4	.42 (.2)	.45 (.23)	.41 (.18)	.41 (.22)	.46 (.20)	.39 (.23)	.52 (.23)	.5 (.25)	.53 (.23)
PSGE-6	.38 (.18)	.41 (.18)	.36 (.18)	.42 (.19)	.39 (.18)	.43 (.19)	.48 (.19)	.45 (.23)	.48 (.17)
EC-4	.05 (.17)	.08 (.21)	.03 (.13)	.01 (.11)	.00 (.00)	.02 (.15)	.12 (.3)	.12 (.3)	.12 (.3)
EC-6	.19 (.26)	.22 (.28)	.18 (.26)	.31 (.27)	.26 (.28)	.34 (.27)	.32 (.3)	.29 (.32)	.34 (.28)
CH-4	4.9 (1.7)	5.2 (1.4)	4.7 (1.9)	4.7 (1.6)	5.0 (2.0)	4.5 (1.4)	5.3 (1.4)	5.4 (1.4)	5.3 (1.4)
CH-6	2.2 (1.6)	2.0 (1.6)	2.4 (1.7)	2.6 (1.8)	2.6 (1.8)	2.5 (1.7)	2.7 (1.7)	2.8 (1.8)	2.6 (1.6)

*Note.* PSGE = Proportion of Story Grammar Elements Index, EC = Episodic Complexity Index, CH = Character High Score.

Table 4

*Results from the One-Way Repeated Measures ANOVA (Within Subjects)*

	F	<i>p</i>	Wilk's Lambda	Partial Eta Squared
PSGE 4	F (2, 111) = 8.5	.000	.868	.132
PSGE 6	F (1.993, 223.245) = 8.733	.000	*GG	.072
EC 4	F (2, 111) = 6.994	.001	.888	.112
EC 6	F (1.956, 219.093) = 9.118	.000	*GG	.075
CH 4	F (1.998, 223.721) = 4.588	.011	*GG	.039
CH 6	F (1.954, 218.831) = 2.820	.063	*GG	.025

*Note.* \*GG = Greenhouse-Geisser correction. PSGE = Proportion of Story Grammar Elements Index, EC = Episodic Complexity Index, CH = Character High Score.

Table 5

*p-values for PSGE Index, EC Index, and Character High Score for all Participants (Within Subjects)*

	Fall to Winter	Winter to Spring	Fall to Spring
PSGE 4	.625	.000	.000
PSGE 6	.102	.012	.000
EC 4	.074	.000	.018
EC 6	.000	.663	.000
CH 4	.388	.004	.039
CH 6	.134	.458	.02

*Note.* PSGE = Proportion of Story Grammar Elements Index, EC = Episodic Complexity Index, CH = Character High Score.

Table 6

*Means, Standard Deviations, and Effect Size between time points for Proportion of Story Grammar Elements Index for different age groups (Within Subjects)*

	Mean (SD) Fall	Mean (SD) Winter	Effect Size (Cohen's d) T1-T2	Mean (SD) Spring	Effect Size (Cohen's d) T2-T3	Effect Size (Cohen's d) T1-T3
<b>PSGE-4</b>						
Group 1	.38 (.26)	.33 (.26)	.19	.43 (.18)	.44	.22
Group 2	.44 (.20)	.38 (.19)	.31	.51 (.21)	.65	.34
Group 3	.43 (.18)	.45 (.22)	.10	.54 (.24)	.39	.52
<b>PSGE-6</b>						
Group 1	.23 (.11)	.33 (.18)	.67	.38 (.22)	.25	.86
Group 2	.36 (.18)	.38 (.18)	.11	.48 (.16)	.59	.70
Group 3	.43 (.18)	.46 (.18)	.17	.47 (.21)	.05	.20

*Note.* PSGE = Proportion of Story Grammar Elements Index, T1 = Fall, T2 = Winter, T3 = Spring, Group 1 =60-65 months, Group 2=66-71 months, and Group 3 = 72-77 months.

Table 7

*Means, Standard Deviations, and Effect Size between time points for EC Index for different age groups (Within Subjects)*

	Mean (SD) Fall	Mean (SD) Winter	Effect Size (Cohen's d) T1-T2	Mean (SD) Spring	Effect Size (Cohen's d) T2-T3	Effect Size (Cohen's d) T1-T3
<b>EC-4</b>						
Group 1	.00 (.00)	.00 (.00)	0	.00 (.00)	0	0
Group 2	.00 (.00)	.00 (.00)	0	.06 (.24)	.35	.35
Group 3	.09 (.23)	.03 (.16)	.30	.19 (.35)	.59	.34
<b>EC-6</b>						
Group 1	.03 (.11)	.18 (.26)	.75	.26 (.28)	.30	1.08
Group 2	.22 (.26)	.27 (.26)	.19	.26 (.29)	.04	.15
Group 3	.20 (.28)	.36 (.28)	.57	.38 (.30)	.07	.62

*Note.* EC = Episodic Complexity Index, Group 1 =60-65 months, Group 2=66-71 months, and Group 3 = 72-77 months.

Table 8

*Means, Standard Deviations, and Effect Size between time points for Character High Score for different age group (Within Subjects)*

	Mean (SD) Fall	Mean (SD) Winter	Effect Size (Cohen's d) T1-T2	Mean (SD) Spring	Effect Size (Cohen's d) T2-T3	Effect Size (Cohen's d) T1-T3
<b>CH-4</b>						
Group 1	4.6 (2.3)	4.5 (2.3)	.04	5.7 (.63)	.71	.65
Group 2	5.0 (1.5)	4.7 (1.9)	.18	5.4 (1.2)	.44	.29
Group 3	4.8 (1.8)	4.8 (1.8)	0	5.2 (1.6)	.23	.23
<b>CH-6</b>						
Group 1	1.4 (1.2)	2.7 (2.2)	.73	2.5 (1.6)	.10	.78
Group 2	2.2 (1.6)	2.4 (1.8)	.11	3.0 (1.6)	.35	.5
Group 3	2.4 (1.7)	2.7 (1.7)	.18	2.5 (1.7)	.11	.06

*Note.* CH = Character High Score, Group 1 =60-65 months, Group 2=66-71 months, and Group 3 = 72-77 months.

Table 9

*Effect Size (Cohen's d) Across Age Groups for Proportion of Story Grammar Elements Index*

	Group 1 to Group 2	Group 2 to Group 3	Group 1 to Group 3
Fall 4	.26	.05	.22
Fall 6	.87	.38	1.34
Winter 4	.22	.34	.50
Winter 6	.28	.44	.72
Spring 4	.41	.13	.52
Spring 6	.52	.05	.42
<i>Note.</i> Group 1 =60-65 months, Group 2=66-71 months, and Group 3 = 72-77 months.			

Table 10

*Effect Size (Cohen's d) Across Age Groups for Episodic Complexity Index*

	Group 1 to Group 2	Group 2 to Group 3	Group 1 to Group 3
Fall 4	0	.55	.55
Fall 6	.95	.07	.80
Winter 4	0	.27	.27
Winter 6	.35	.33	.67
Spring 4	.35	.43	.77
Spring 6	0	.41	.41
<i>Note.</i> Group 1 =60-65 months, Group 2=66-71 months, and Group 3 = 72-77 months.			

Table 11

*Effect Size (Cohen's d) Across Age Groups for Character High Score*

	Group 1 to Group 2	Group 2 to Group 3	Group 1 to Group 3
Fall 4	.21	.12	.10
Fall 6	.57	.12	.68
Winter 4	.09	.05	.14
Winter 6	.15	.17	0
Spring 4	.31	.14	.41
Spring 6	.31	.30	0
<i>Note.</i> Group 1 =60-65 months, Group 2=66-71 months, and Group 3 = 72-77 months.			

Table 12

*p-values between Males and Females for all Outcome Measures*

	Fall	Winter	Spring
PSGE-4	.206	.088	.530
PSGE-6	.153	.296	.421
EC-4	.132	.25	.982
EC-6	.450	.155	.430
CH-4	.144	.200	.694
CH-6	.330	.692	.500

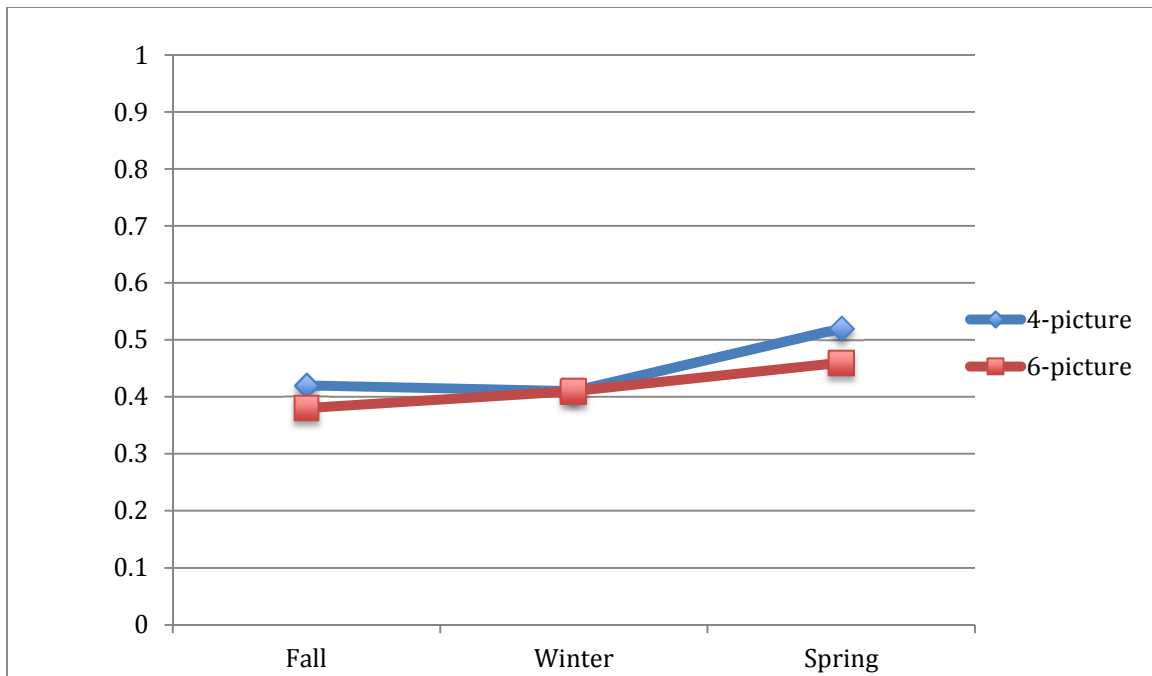
*Note.* \* =  $p$ -value < .05, PSGE = Proportion of Story Grammar Elements Index, EC = Episodic Complexity Index, CH = Character High Score.

Table 13

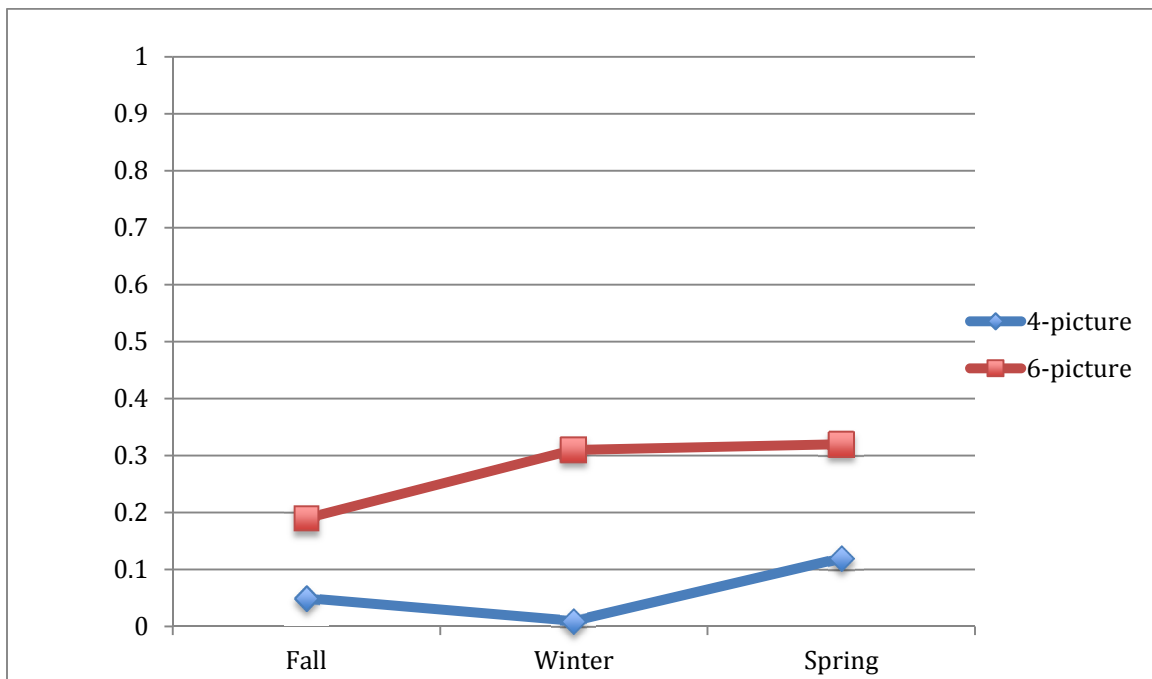
*Correlation Results between Character High Score and Proportion of Story Grammar Elements Index and Episodic Complexity Indices for N = 113*

	<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
<b>PSGE Index and CH score</b>			
4-picture	.499**	.519**	.435**
6-picture	.259**	.536**	.374**
<b>EC Index and CH score</b>			
4-picture	-.061	.092	.160
6-picture	.073	.536**	.268**

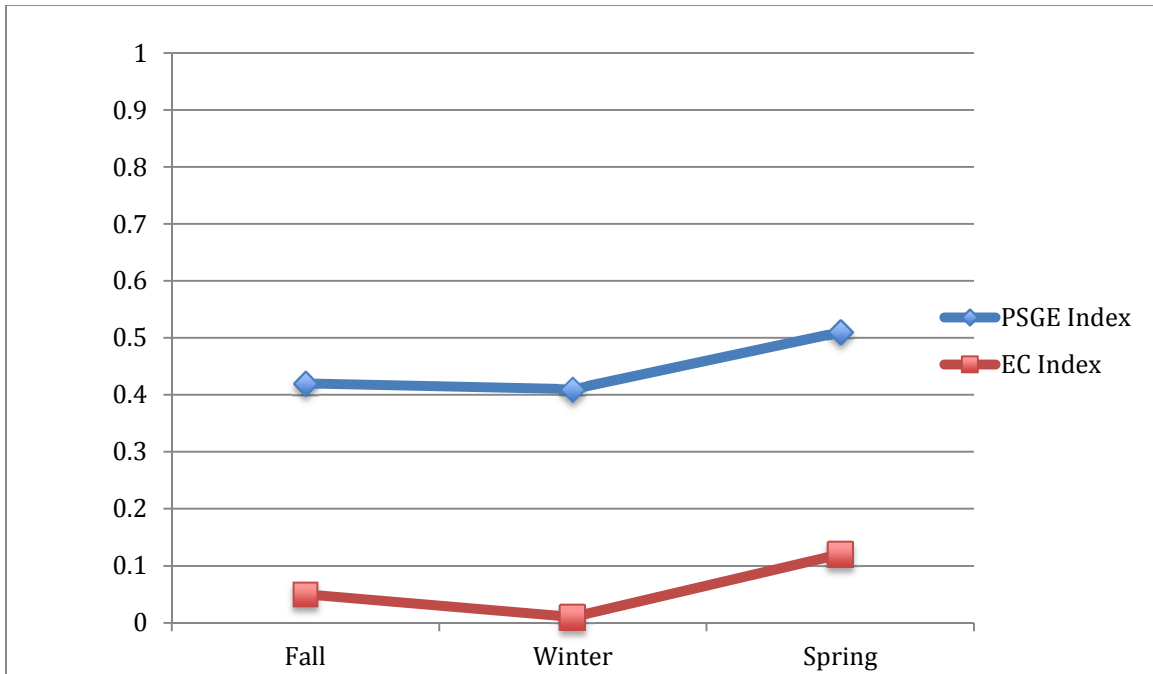
*Note.* \*\*Correlation is significant at the 0.01 level (2-tailed). PSGE = Proportion of Story Grammar Elements Index, EC = Episodic Complexity Index, CH = Character High Score.



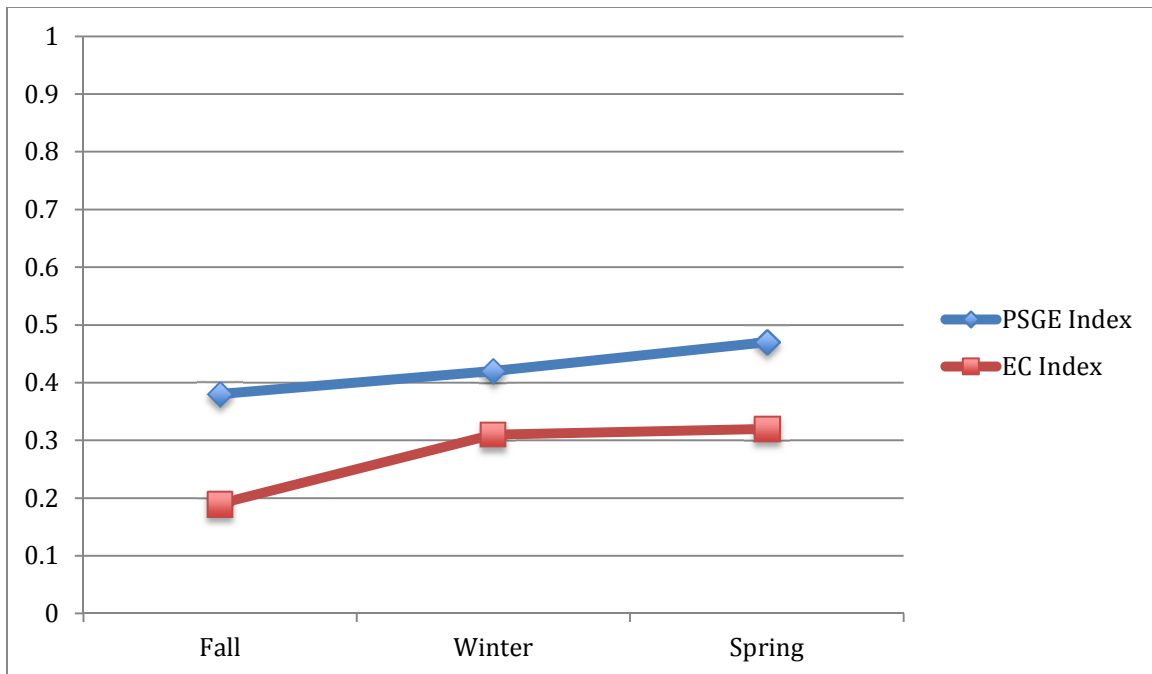
*Figure 1.* Average Proportion of Story Grammar Elements Index for the 4-picture and 6-picture story models for all participants (N = 113).



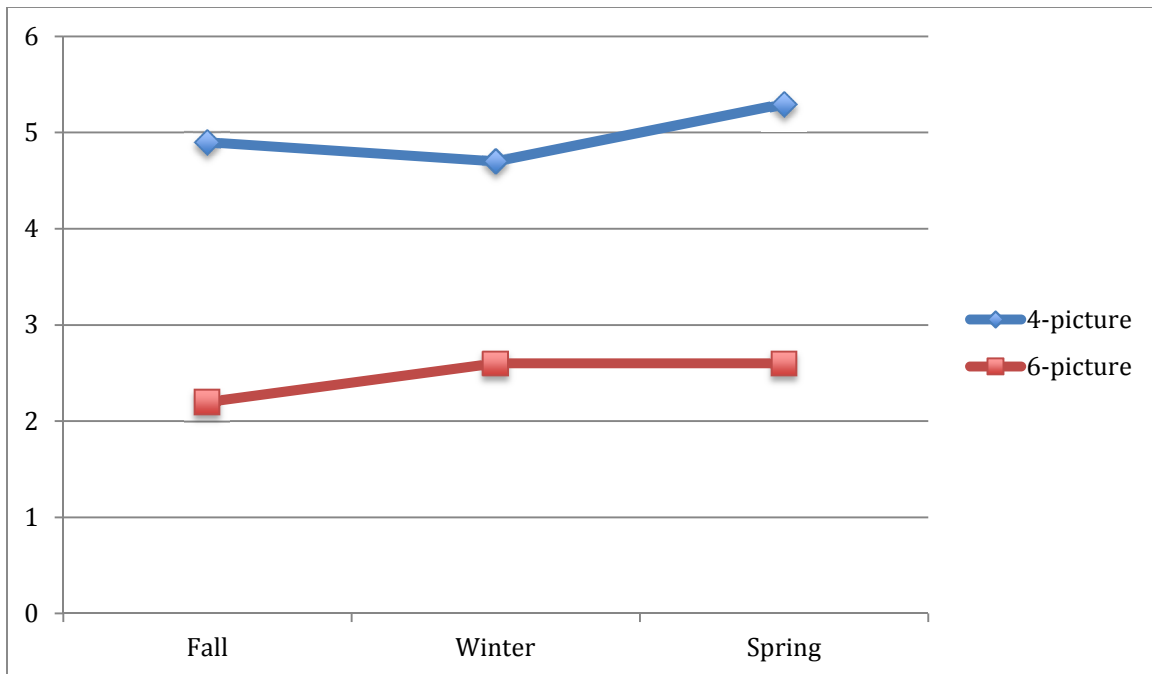
*Figure 2.* Average Episodic Complexity Index for the 4-picture and 6-picture story models for all participants (N = 113).



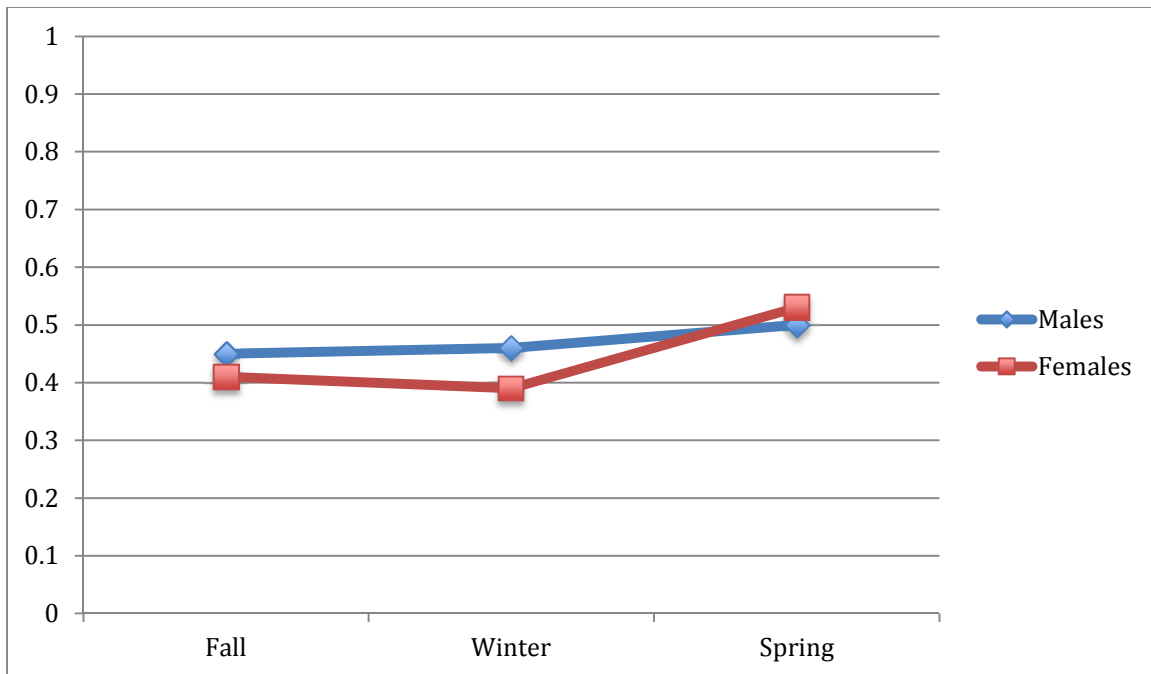
*Figure 3.* Mean scores for Proportion of Story Grammar Elements and Episodic Complexity Indices for 4-picture story model for all participants (N = 113).



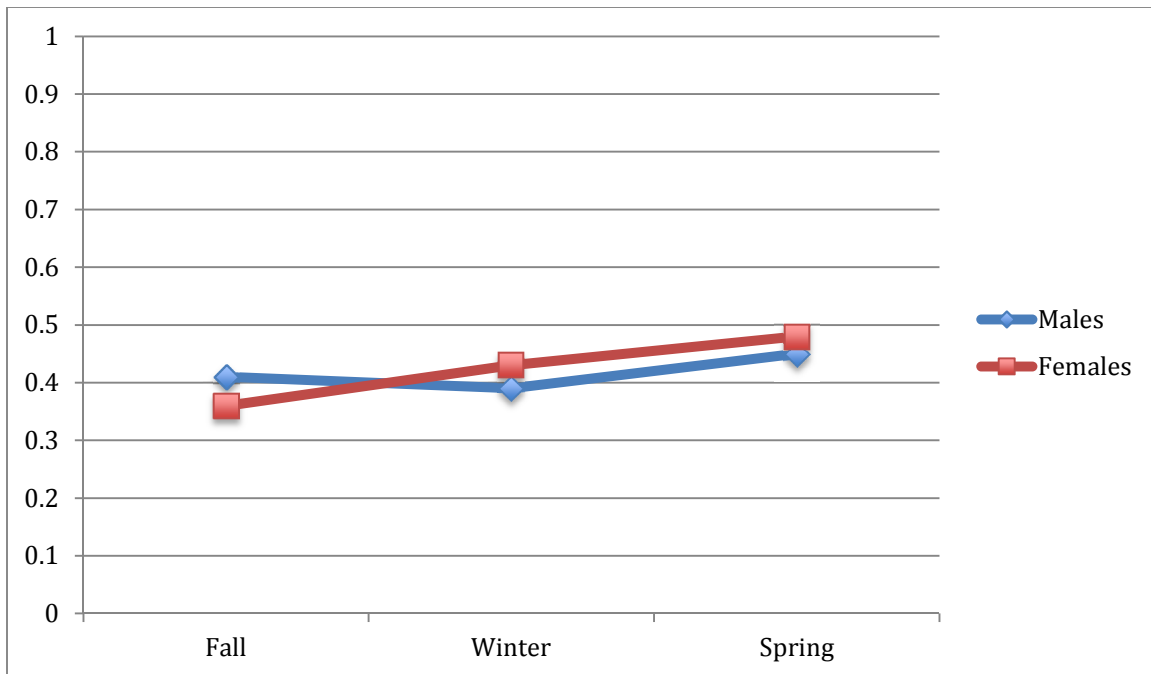
*Figure 4.* Mean scores for Proportion of Story Grammar Elements and Episodic Complexity Indices for 6-picture story model for all participants (N = 113).



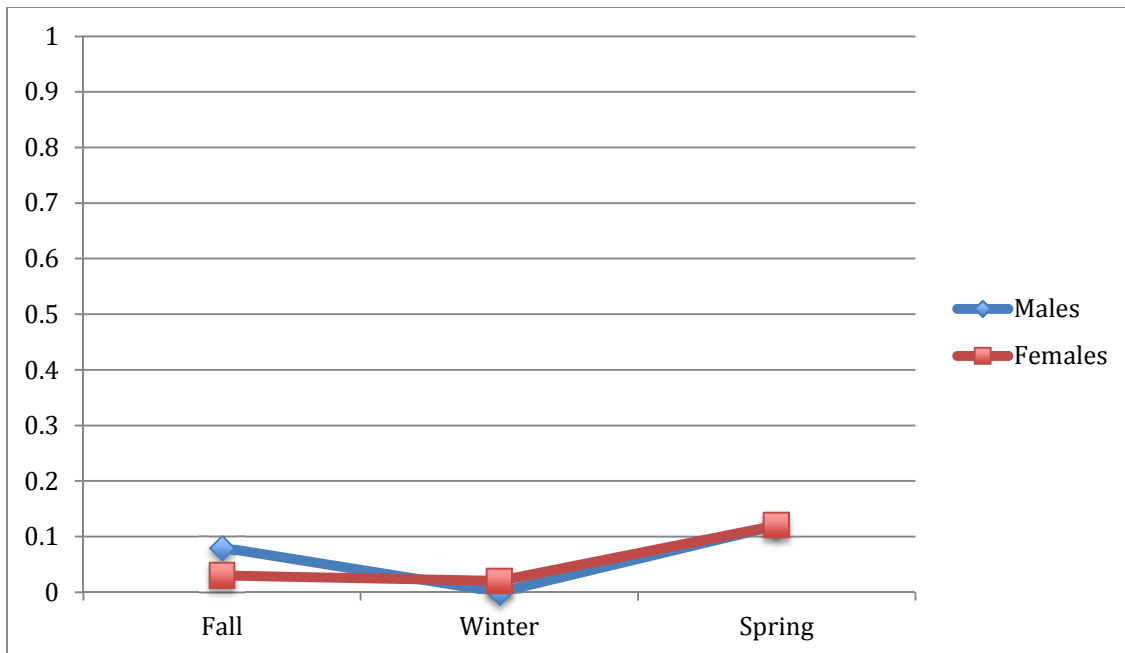
*Figure 5.* Character High Score for 4-picture and 6-picture story models for all participants (N=113).



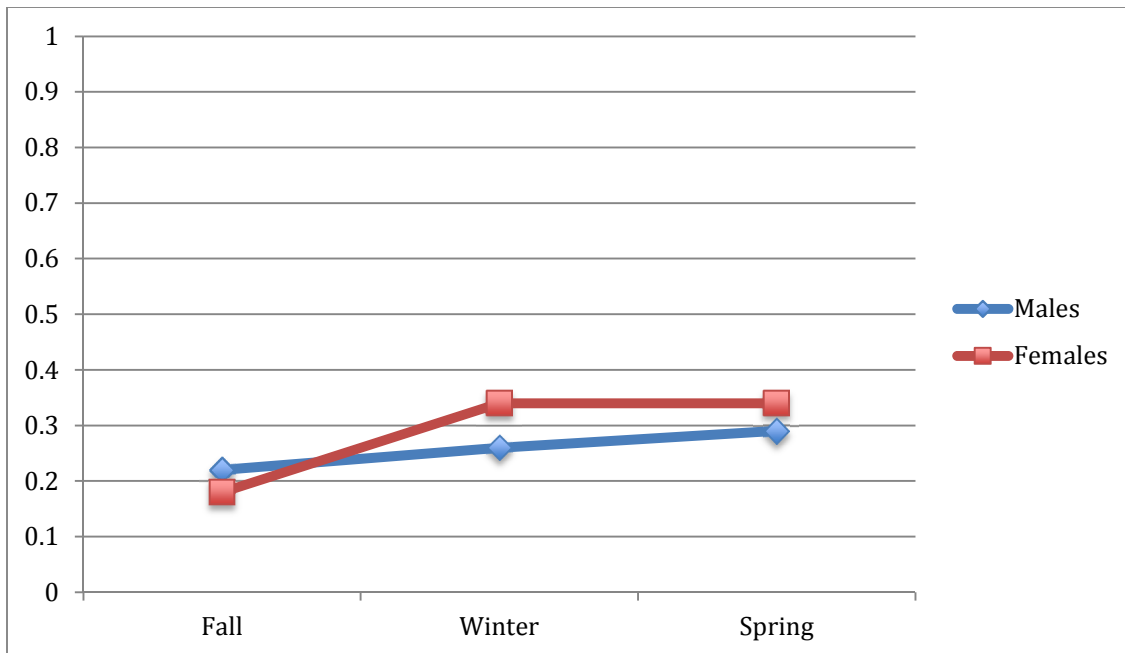
*Figure 6.* Mean scores for Proportion of Story Grammar Elements Index for males and females for the 4-picture story model.



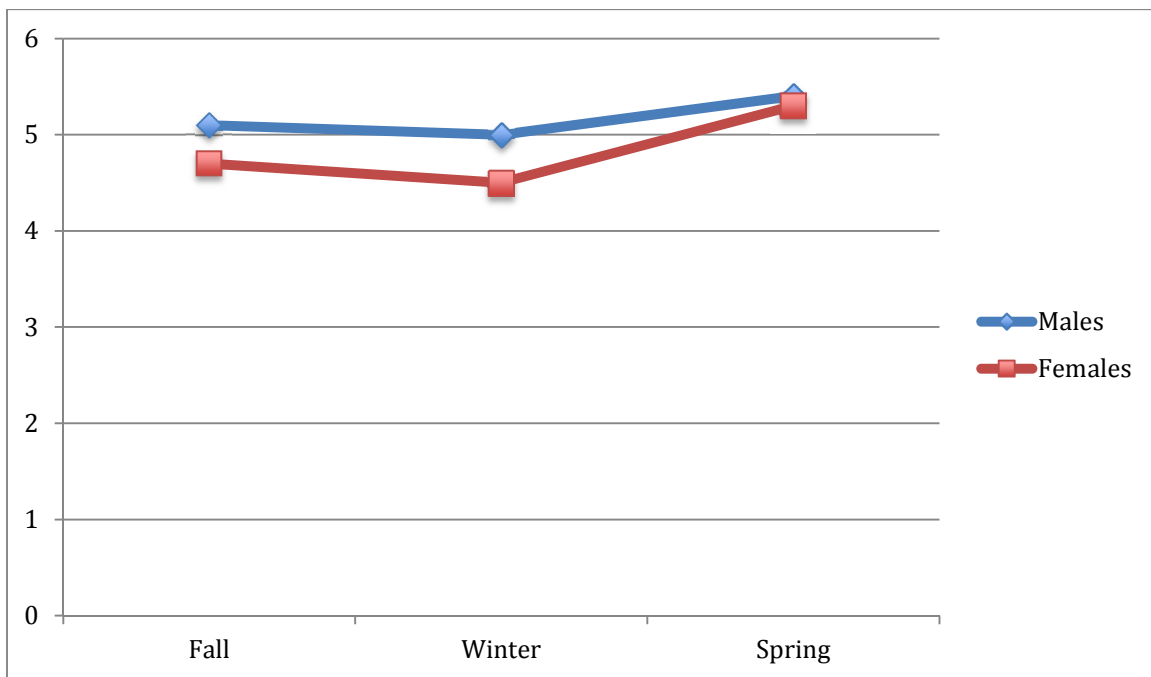
*Figure 7.* Mean scores for Proportion of Story Grammar Elements Index for males and females for the 6-picture story model.



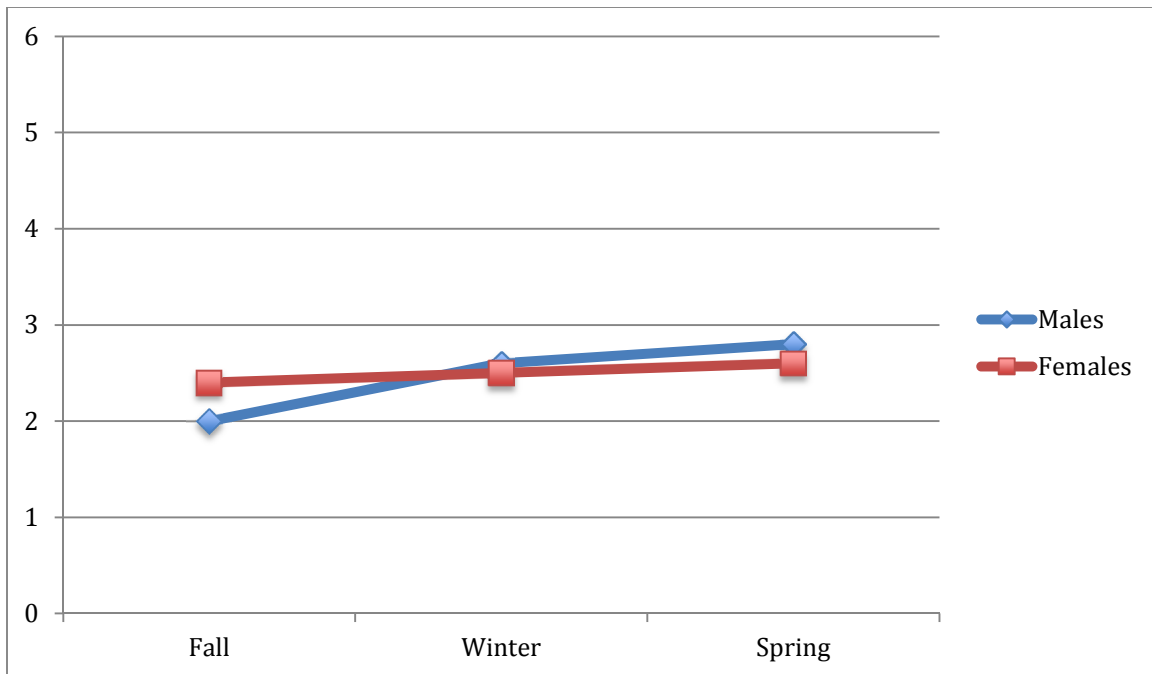
*Figure 8.* Mean scores for Episodic Complexity Index for males and females for the 4-picture story model.



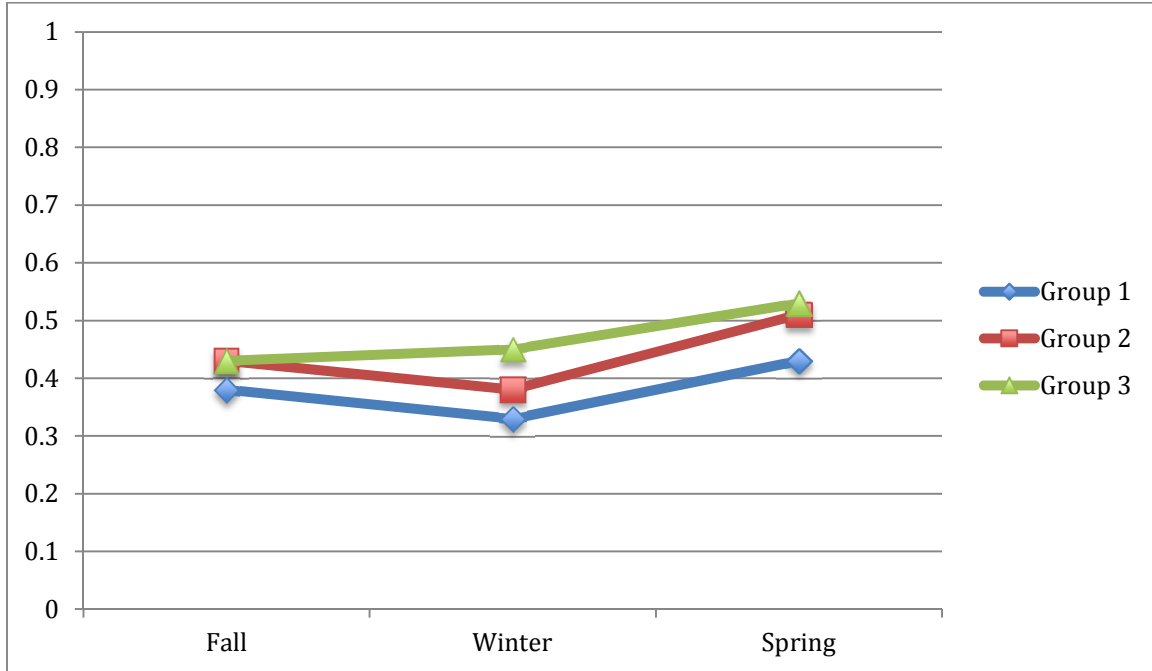
*Figure 9.* Mean scores for Episodic Complexity Index for males and females for the 6-picture story model.



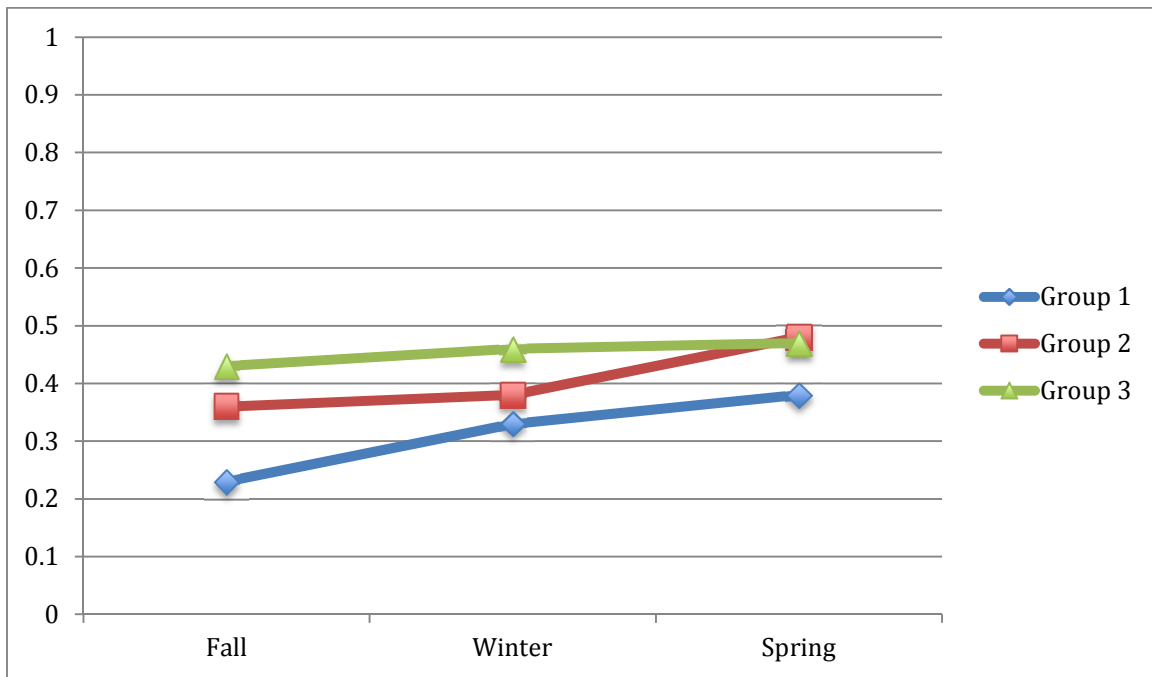
*Figure 10.* Mean scores for Character High Score for males and females for the 4-picture story model.



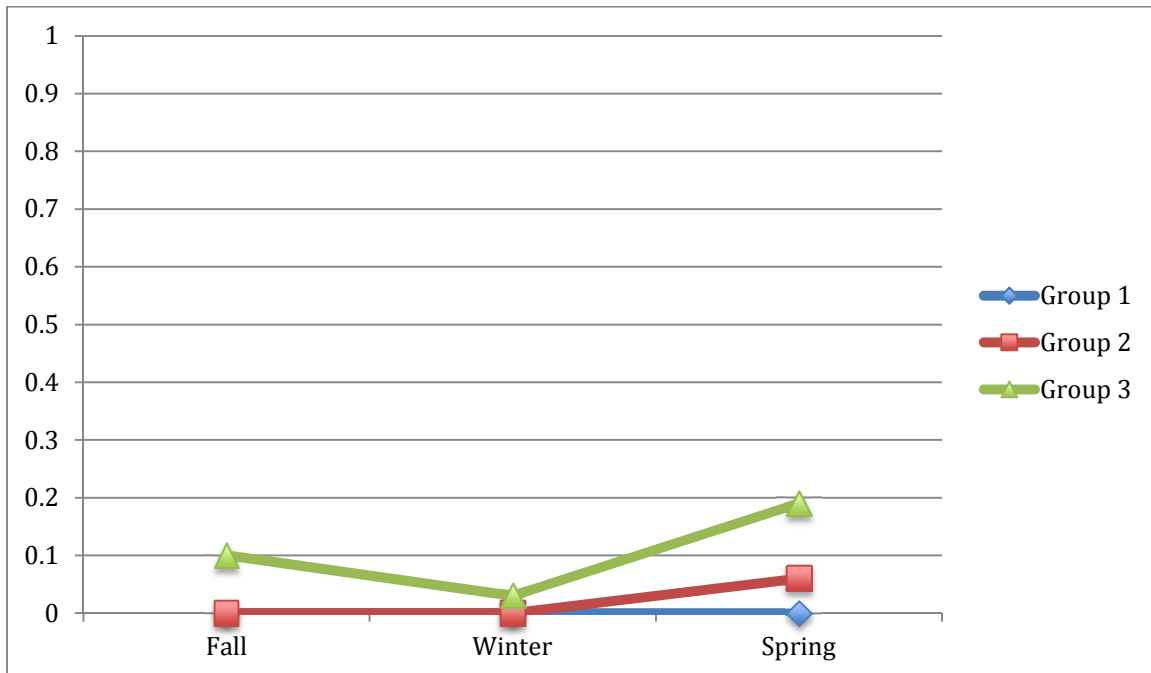
*Figure 11.* Mean scores for Character High Score for males and females for the 6-picture story model.



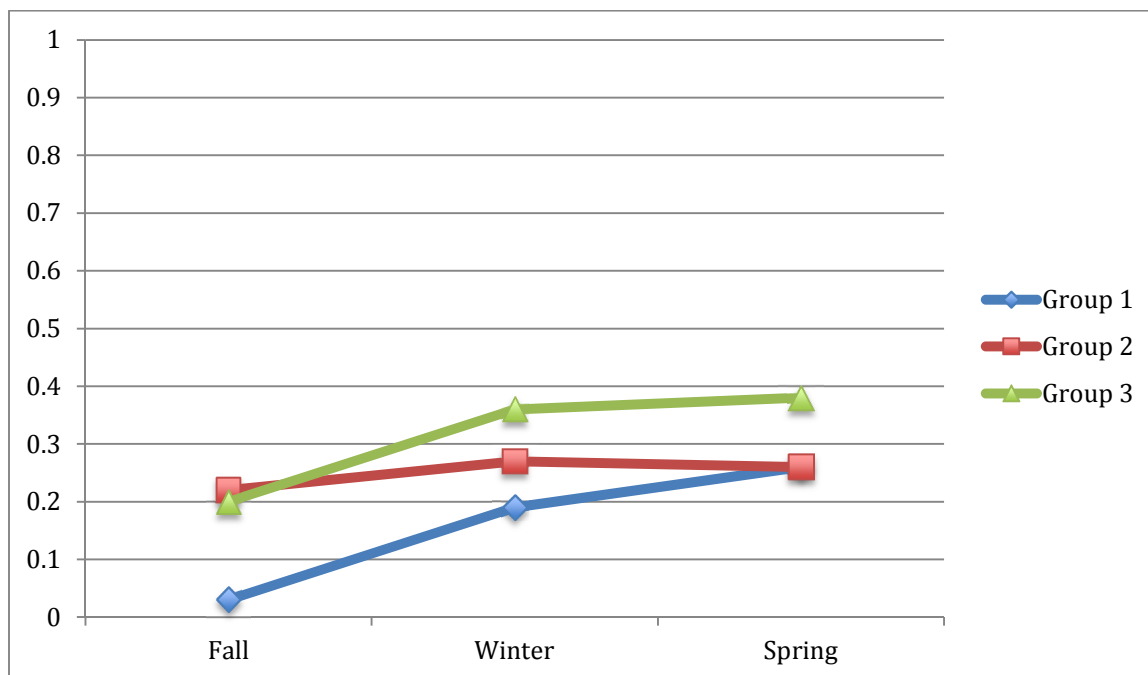
*Figure 12:* Mean Proportion of Story Grammar Elements Index for the 4-picture story model for different age groups. Group 1 = 60-65 months, Group 2 = 66-71 months, and Group 3 = 72-77.



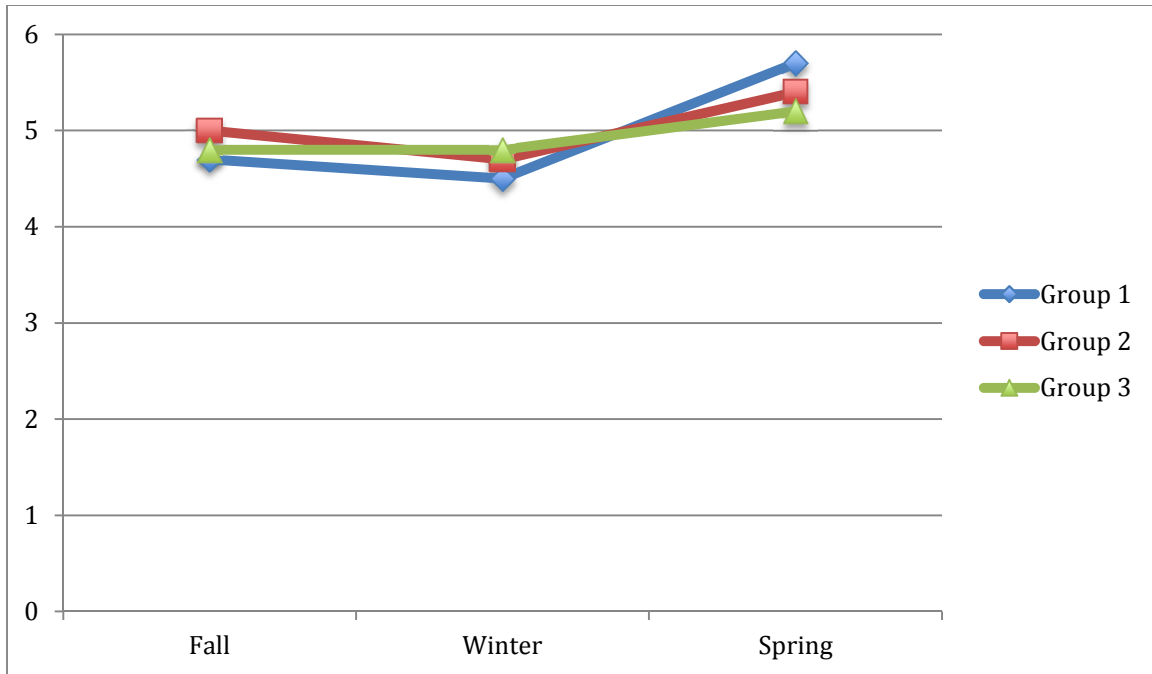
*Figure 13.* Mean Proportion of Story Grammar Elements Index for the 6-picture story model for different age groups. Group 1 = 60-65 months, Group 2 = 66-71 months, and Group 3 = 72-77.



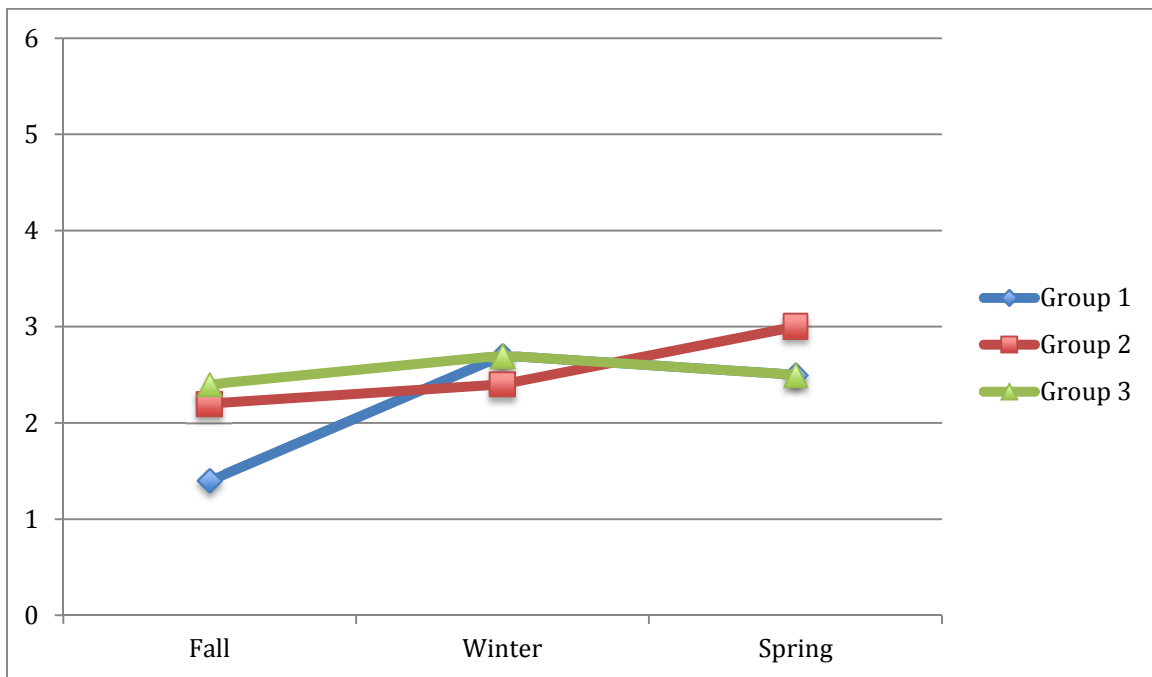
*Figure 14.* Mean Episodic Complexity Index for the 4-picture story model for different age groups. Group 1 = 60-65 months, Group 2 = 66-71 months, and Group 3 = 72-77.



*Figure 15.* Mean Episodic Complexity Index for the 6-picture story model for different age groups. Group 1 = 60-65 months, Group 2 = 66-71 months, and Group 3 = 72-77.



*Figure 16:* Mean Character High Score for the 4-picture story model for different age groups. Group 1 = 60-65 months, Group 2 = 66-71 months, and Group 3 = 72-77.



*Figure 17.* Mean Character High Score for the 6-picture story model for different age groups. Group 1 = 60-65 months, Group 2 = 66-71 months, and Group 3 = 72-77.