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ABSTRACT

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The challenge facing children learning language bilingually has led to efforts to improve the assessment and treatment of language learning difficulties. One of these efforts is the development and validation of the Spanish-English Language Proficiency Scale (SELPS). Previous research has been performed to validate the scale for English language proficiency but not for Spanish language proficiency. Twenty-four sequential bilingual children produced spontaneous narrative language samples that were rated using the SELPS and coded for language sample variables using the Systemic Analysis of Language Transcripts software. Several language sample variables, most notably the Subordination Index, the number of omitted bound morphemes, and the number of code-switched words, were correlated with the SELPS subscale scores and total score. Findings have implications for screening the Spanish language proficiency of Spanish-English bilingual children who are between four and eight years of age.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

DESCRIPTION OF THESIS CONTENT

The body of this thesis is written as a manuscript suitable for submission to a peer-reviewed journal in speech-language pathology. An annotated bibliography is presented in Appendix A. The Spanish-English Language Proficiency Scale for Spanish Language Proficiency is presented in Appendix B. Demographic information extracted from a parent questionnaire is presented in Appendix C. Judgments made regarding the participants' language status are presented in Appendix D. This thesis is based on data obtained from a larger research project being conducted at Arizona State University. Portions of this thesis may be published as part of articles listing the thesis author as a co-author.

Introduction

The language development of bilingual children, particularly those exposed to English and Spanish from an early age, has been a critical area of focus for researchers and clinicians in the field of speech-language pathology. Children emerging from a Spanish-speaking background while learning English have been found to be at a higher risk for struggling academically than other groups (Gutiérrez-Clellen, Restrepo, Bedore, Peña, & Anderson, 2000). About 23 percent of 5 to 17 year-old children who speak Spanish at home have difficulties speaking English (U.S. Department of Education, 2003). This risk might be attributed to the notion that these English learners might not have a complete grasp of the language in which they are being instructed. The language learning environment of Spanish-speaking children in the United States is highly variable. The U.S Department of Education and the National Center for Education Statistics (2003) reported that "in 1999, over one-half (57 percent) of Hispanic students in kindergarten through 12th grade spoke mostly English at home, one-fourth (25 percent) spoke mostly Spanish, and 17 percent spoke English and Spanish equally" (p. 30). Bialystok (2001) found that bilingual children's skill level in their two languages differed from their same-aged peers upon entering school; when bilingual children begin their journey into the world of academics, they enter with a language background that is completely unique to them. Bohman, Bedore, Peña, Mendez-Perez, and Gillam (2010) described it this way:

> Children who have been exposed to two languages from birth may have acquired both languages, may understand but not use both languages, or may have only acquired the majority language. Early sequential bilinguals start to acquire their second language at different ages, learn their second language at different ages, learn their second language

at different rates, and may or may not continue to acquire their first language at the same rate once they start to learn their second language (p. 325).

A characteristic commonly observed among bilingual children with typical language development and language impairment (LI) is the use of code-switching. Code-switching is regarded as a rule-governed system with social and grammatical limitations (Gutiérrez-Clellen, Simon-Cereijido, & Leone, 2009). Furthermore, it refers to using two languages interchangeably during a particular conversation and is subject to variation based on sociolinguistic features such as the distinct nature of language contact within communities and how members of the speech community feel about the language (Restrepo & Gutiérrez-Clellen, 2004). Gutiérrez-Clellen et al. (2000) reported that research conducted on code-switching among speakers with typical language development based on spontaneous language data shows that code-switching is an indicator of grammatical proficiency in two languages.

Language proficiency as defined by Smyk, Restrepo, Gorin, and Gray (2013) is "the ability to speak and comprehend a language on a continuum from non-proficient to native-like proficiency" (p. 252). Thus, a native Spanish-speaker might be classified as being proficient in Spanish because it is his or her first language. Proficiency can also refer to how well a second language is developed. A variety of tests have been created in the effort to categorize English language learners' (ELLs) proficiency in both their native language and English. Nevertheless, the validity of these measures has been called into question. MacSwan, Rolstad, and Glass (2002) assessed the construct validity of the Pre-Language Assessment Scales Español (Pre-LAS Español) and concluded that the test was not written with an underlying theoretical basis of child language acquisition in mind. In another study, MacSwan and Rolstad (2006) evaluated the Language Assessment Scales-Oral (LAS-O) Español and the Idea Proficiency Test (IPT) Spanish

as measures to assess ELL's oral ability in their first language. The researchers found that natural language samples were more indicative of children's language abilities when compared to the LAS-O Español or the IPT Spanish, as these two assessments were based on the belief that language proficiency is higher among children with superior academic achievement and lower among children with inferior academic achievement. These language proficiency assessments do not account for the fact that a child could have low language ability as measured by a test but still be proficient in the language.

Perhaps due to the high level of heterogeneity in Spanish-speaking children's language environments, samples of a child's spontaneous language have become an important clinical tool for language assessment in this population. When evaluating oral language abilities in speech-language pathology (Heilmann, et al., 2008; Heilmann, Miller, Nockerts, & Dunaway, 2010; Miller et al.,2006) and in language proficiency assessments (Macswan & Rolstad, 2006), language sample analysis is considered the gold standard. Many standardized tests, even those which are normed for Spanish-speaking populations, do not provide sufficient information for this diverse group of children because of the way they are normed and the language forms which they assess (Gutiérrez-Clellen & Simon-Cereijido, 2009). Gutiérrez-Clellen et al. (2000) claimed that the lack of valid standardized language assessment tools for Spanish-speaking children had highlighted the need to use language samples. Restrepo (1998) showed that parental interview combined with spontaneous language sample analysis accurately discriminated between normal Spanish-speaking children and those with LI. Standardized assessment carries with it the potential of many linguistic and cultural biases, whereas the analysis of spontaneous language samples overcomes these biases for multicultural and bilingual (including Spanish-English bilingual) populations due to their naturalistic nature (Heilman et al., 2008). Gutiérrez-Clellen

and Simon-Cereijido (2009) found language samples to serve as diagnostic indicators of English growth in bilingual children when measuring verb morphology and mean length of utterance (MLU). Similarly, Bedore, Peña, Gillam, and Ho (2010) concluded that English MLU as well as English grammaticality played a key role in determining a bilingual child's language ability.

Several studies have identified clinical markers for LI in spontaneous language samples of Spanish-speaking children. Bedore and Leonard (2001) found that Spanish-speaking children with LI incorrectly used plural inflection items (substituting the singular form of a noun for what should have been the plural form), direct object clitics, and articles. Children often either omitted or substituted direct object clitics and articles. Clitics are pronouns that are contracted with another grammatical form; thus, these two forms become part of the same word. For example the verb *mostrar* ('to show') may be contracted with the pronoun *lo* to form the word *mostrarlo* ('to show it'; Harmon, 2012). Gutiérrez-Clellen and Simon-Cereijido (2009) suggested that if clitics, articles, and verbs were less than 90% correct, LI was likely present.

Other studies have examined how to effectively assess grammatical morphemes in the language samples of Spanish-speaking children. Gutiérrez-Clellen et al. (2000) stressed the importance of having a detailed analysis of the number and type of grammatical errors in the language sample of a Spanish-speaking child. Much of the grammar which can be used to distinguish typical Spanish-speaking children from children with LI may be found in the structure of the noun phrase (e.g., *un árbol grande* ('a big tree') or *los dos hombres* ('the two men'; Bedore, 2001; Bedore & Leonard, 2001; Gutiérrez-Clellen & Simon-Cereijido, 2009; Gutiérrez-Clellen, Restrepo, & Simon-Cereijido, 2006; Harmon, 2012; Simon-Cereijido & Gutiérrez-Clellen, 2007). Thus, the use of clinical language sampling coupled with knowledge of

such clinical markers for language impairment might provide information in the language assessment of Spanish-speaking children.

A survey conducted by Caesar and Kohler (2007) revealed that only 33% of school-based speech language pathologists reported using language samples to assess bilingual children. Language sample analysis requires a considerable amount of time and training on the part of the clinician. Long (2001) concluded that few language sample grammatical analysis procedures were time-efficient for clinicians. Paul (2007) claimed that although analyzing language samples was more time-consuming than scoring standardized tests, the information that an analyzed sample provided was "richer and more valid" (p. 347). Thus faster and more efficient ways of deriving assessment data from a language sample are needed and are being developed. These measures include home language use surveys, teacher ratings, and language proficiency rating scales (Smyk et al. 2013).

Based on the *Standards for Educational Psychological Testing* (AERA, APA, NCME, 1999) and second-language acquisition theory, Smyk et al. (2013) developed a criterion-referenced Spanish-English Language Proficiency Scale (SELPS) for assessment of language proficiency in sequential bilingual children. A theoretical framework of language proficiency was created based on the domains of Syntactic Complexity, Grammatical Accuracy, Verbal Fluency, and Lexical Diversity to describe the continuum of language proficiency. Tabors' (2008) four stages of language acquisition in sequential bilingual children were also used and then adapted for this purpose. Tabors original stages included (a) home language use, (b) nonverbal period, (c) telegraphic and formulaic use, and (d) productive language use. The stages that Smyk et al. adapted differentiated the productive stage and included (a) silent period, (b) few words and formulaic stage, (c) short sentences and phrases with multiple errors, (d) full

sentences with few errors, and (e) native like production. Smyk et al. described the development and preliminary validation of the SELPS for the evaluation of the English language proficiency portion of the scale. The present study will examine many of the same aspects of the SELPS as the Smyk et al. study but in terms of Spanish proficiency scaling and measures, which they did not explore.

The SELPS scale is a composite of four subscales that measure Syntactic Complexity, Grammatical Accuracy, Verbal Fluency, and Lexical Diversity. Based on Smyk's (2012) descriptions, Syntactic Complexity is measured by how long, detailed, and varied a language learner's verbal utterance is. Grammatical Accuracy is how well a speaker uses grammatical structures that are commonly used and accepted in their language. Verbal Fluency is how well a speaker can monitor his or her prosodic features of speech such as tempo and rate, as well as other factors including mazes, such as pauses, false starts, reformulations, and repetitions. Lexical Diversity is reflected by the number of different words a speaker knows and uses.

As part of the Smyk et al. (2013) study, language samples and SELPS scores on Spanish-speaking, sequential bilingual children were collected but not analyzed. When assigning a score for each of the four SELPS subscales, the first step in judging the sample was to determine whether the child spoke Spanish as a native language or a second language. Smyk et al. felt it was imperative that the native language was not treated as a second language, as this could cause the rater reliability to be lower. In other words, a child with LI could be rated lower in native language proficiency based solely on their language ability (i.e., scores on formal test items) and not their language proficiency. After determining whether or not the child's native language was indeed Spanish, the rater listened to and read the language sample transcript and then rated the child's level of performance on each of the four subscales (Syntactic Complexity, Grammatical

Accuracy, Verbal Fluency, and Lexical Diversity) using a range of 1 (lowest) to 4 (highest) for Syntactic Complexity and Lexical Diversity, and 1 (lowest) to 5 (highest) for Grammatical Accuracy and Verbal Fluency. The SELPS Scaled Score was based on the average of the subscales and indicated the child's level of language proficiency.

Although the SELPS allows clinicians a fast and effective method to scale a child's level of language proficiency, it is important to explore which variables within the language samples might influence a rater to assign a higher or lower score on each of the subscales. It is possible that MLU or use of certain vocabulary words could be weighed more heavily than other factors when a rater is assigning a score. Looking at the English data, Smyk et al. (2013) found significant correlations between MLUw and Syntactic Complexity, between Ungrammaticality Index and Grammatical Accuracy, and between the number of different words and Lexical Diversity. However, the strength of similar correlations in Spanish is as yet unknown and will be the focus of the current study.

The aim of the present study was to better understand the SELPS subscales in evaluating the Spanish language proficiency of sequential bilingual children. The present study analyzed the language samples of sequential bilingual children using a variety of syntactic and morphological measures to determine the extent of correlation between those measures and the assigned SELPS subscale scores for Spanish language samples. Specifically, it answered the following question: (a) How do variables from a narrative language sample correlate with the SELPS subscales and scaled scores? Similar to the theories proposed by Smyk et al. (2013), we hypothesized that Syntactic Complexity would correlate with Subordination Index, Grammatical Accuracy would correlate with Ungrammaticality Index and gender errors, Verbal Fluency would correlate with percentage of maze words, number of filled pauses, number of repetitions, and number of

revisions, Lexical Diversity would correlate with type-token ratio and number of different words, and the SELPS Scaled Total Scores would correlate with Subordination Index, Ungrammatical Index, percentage of maze words, filled pauses, repetitions, revisions, type-token ratio, and number of different words.

Method

Participants

The present study focused on 24 sequential bilingual participants from a sample of 1000 children that took part in the Spanish Screener for Language Impairment in Children (SSLIC) project (Restrepo, Gorin, Gray, Morgan, & Barona, 2010). The children ranged in age between 5;5 and 7;10 (years;months). A questionnaire was filled out by each child's parents indicating that their child spoke Spanish in the home and with family members more than 50% of the time. Other demographic information from the parent questionnaire is presented in Appendix C. The children that qualified for this study were labeled as having typical language development (TLD) based on the *Clinical Evaluation of Language Fundamentals—Fourth Edition, Spanish* (*CELF-4*; Semel, Wiiig, & Secord, 2006), defined as no more than one standard deviation below the mean of local norms which reflected the population of interest. The language status of the participants as judges by two bilingual raters is presented in Appendix D. A comparison of these judgments yielded an overall agreement level of .88.

Measures

The children in this study participated in a story retelling task based on the Mercer Meyer wordless picture books. Language samples in Spanish and English were collected using the stories *Frog on His Own* (1973) and *A Boy, A Dog, A Frog, and a Friend* (1971). The Spanish language samples where then transcribed using the *Systemic Analysis of Language Transcripts*

(SALT) software format (Miller, Andriacchi, & Nockerts, 2011). The language samples were then coded for syntactic complexity and grammatical errors. Children were also given the *CELF-4 Spanish*, a standardized measure of language ability and elements of more advanced academic language including their knowledge of basic concepts, following directions, word structure, and their ability to recall and formulate sentences (*CELF-4 Spanish*; Semel et al., 2006). The children also participated in the *Structured Photographic Expressive Language Test—Third Edition (SPELT-3)*, an English standardized measure that assesses a child's use of morphology and syntax (*SPELT-3*; Dawson, Stout, & Eyer, 2003) that was used to rule out children with high levels of English.

The raters listened to and read language sample transcripts for each participant and used the SELPS for Spanish Language Proficiency to assign a score for each of the subscales (Syntactic Complexity, Grammatical Accuracy, Verbal Fluency, and Lexical Diversity) on a scale of 1 (lowest) to 5 (highest). The scores for the subscales were combined and averaged to generate the SELPS Scaled Total Score. The Spanish-English Language Proficiency Scale for Spanish Language Proficiency is presented in Appendix B.

Procedure

The data in this study were previously collected by Restrepo et al. (2010) for the SSLIC project. Collection of the data took place over a period of two to three days, depending on the availability of the participants, space, and the duration of the participants' responses. The participants were first required to pass a hearing screening before further testing. During the first day of testing, the participants participated in the English measures that were used for the project and included the *SPELT-3* and an English language sample was collected. During the next 2 to 3

days, the participants received the *CELF-4 Spanish* and the Spanish language sample task and participated in other experimental measures.

Reliability

Of the 1000 children that participated in the SSLIC project, 10 were randomly selected to calibrate interrater reliability. Using the SELPS, judges determined how proficient a child's Spanish language proficiency was based on the areas of Syntactic Complexity, Grammatical Accuracy, Verbal Fluency, and Lexical Diversity through the use of audio recordings and language transcriptions. The agreement between the two SELPS Total Scaled Scores within a .5 score unit difference was .90. Interrater reliability was also examined for the 24 children that participated in the present study; the level of agreement for SELPS scaling was .81.

Data Analysis

The following variables were calculated for each participant's language sample using the SALT-coded transcriptions: mean length of utterance in words (MLUw), mean length of utterance in morphemes (MLUm; calculated by the SALT software), number of different words (NDW), Ungrammaticality Index (the total number of ungrammatical sentences divided by the total number of T-units, where a T-unit is a main clause and any attached subordinate clauses), Subordination Index (the total number of subordinate clauses divided by the total number of T-units), and percentage of maze words including false starts, repetitions, and reformulations. In addition, number of total words, type-token ratio, number of utterances with mazes, number of mazes, number of maze words, number of omitted words, omitted bound morphemes, word-level errors codes, revisions, repetitions, filled pauses, number of code-switched words, gender errors, and other word-level errors were analyzed. Pearson correlations were used to analyze the relationship among these variables with the participant's SELPS scaled scores.

Results

This study was primarily interested in finding whether correlations existed among the four SELPS subscales (Syntactic Complexity, Grammatical Accuracy, Verbal Fluency, and Lexical Diversity), the scaled total scores assigned to each participant, and a set of measures extracted from a narrative language sample. Pearson's correlations were calculated to determine if relationships existed among these variables. Typically, the length of a language sample is spoken of in terms of number of utterances. Some of the measures being analyzed and tabulated with the SALT software were considered count data and could be skewed depending on how much or how little the children spoke during the sample. As a result, partial correlations were run to remove the effect of number of utterances, to more clearly observe the relationship between language sample measures that did not control for number of utterances by using percentages and the SELPS subscale and scaled total scores.

Syntactic Complexity

Results most closely related to the construct of the SELPS indicated a significant correlation between Syntactic Complexity and Subordination Index, $r = .737$, $p < .001$, MLUw, $r = .538$, $p = .007$, and MLUm, $r = .459$, $p = .024$. The use of MLUw may be more valid for assessing the language abilities of Spanish speaking children (Gutiérrez-Clellen et al., 2000) and its correlation with Syntactic Complexity was slightly higher than that of MLUm. Other variables that were found to correlate include number of omitted bound morphemes, $r = -.663$, $p < .001$ and number of code-switched words, $r = -.717$, $p < .001$. When the number of utterances was held constant using partial correlations, Syntactic Complexity not only correlated with each of the variables listed above but also with number of total words and number of gender errors. A summary of these partial correlations is presented as Table 1.

Table 1

Significant Partial Correlations Between Syntactic Complexity and Language Sample Variables

Variables	Correlation	Significance
Subordination Index[a]	.801	<.001
MLUw[a]	.622	.002
MLUm[a]	.549	.007
Number of Total Words	.606	.002
Omitted Bound Morphemes[a]	-.702	<.001
Code-Switched Words	-.723	<.001
Gender Errors	.416	.048

Note. [a] Variables that most closely measure the construct of the SELPS.

Grammatical Accuracy

Significant correlations were found between Grammatical Accuracy and a number of language sample variables. Those most relevant to the construct of the SELPS include Ungrammaticality Index, $r = -.436$, $p = .033$, omitted bound morphemes, $r = -.725$, $p = <.001$, and word-level error codes, $r = -.422$, $p = .040$. A summary of other variables that correlated with this subscale is included as Table 2.

Table 2

Additional Correlations Between Grammatical Accuracy and Language Sample Variables

Variables	Correlation	Significance
Subordination Index	.714	<.001
Number of Total Words	-.441	.031
Utterances with Mazes	-.477	.018
Number of Mazes	-.467	.021
Number of Maze Words	-.484	.017
Number of Repetitions	-.595	.002
Code-Switched Words	-.713	<.001
Other Word-Level Errors	-.460	.024

After removing the effect of number of utterances using partial correlations, Grammatical Accuracy continued to correlate with number of omitted bound morphemes, $r = -.599$, $p = .003$

and number of code-switched words, $r = -.578$, $p = .004$. However, number of total words, number of utterances with mazes, number of mazes, number of maze words, number of word-level error codes, and number of other word-level errors were no longer significantly related.

Verbal Fluency

No significant Pearson's correlations were observed between Verbal Fluency and the variables related to the constructs of the SELPS. When partial correlations were run controlling the number of utterances, the number of filled pauses was found to correlate with Verbal Fluency, $r = -.419$, $p = .047$. Other measures that significantly correlated with Verbal Fluency were the number of omitted bound morphemes, $r = -.418$, $p = .042$ and the number of code-switched words, $r = -.611$, $p = .002$. When partial correlations were analyzed, Verbal Fluency continued to correlate with number of omitted bound morphemes, $r = -.438$, $p = .037$ and number of code-switched words, $r = -.664$, $p = .001$.

Lexical Diversity

Pearson's correlations between the language sample variables and Lexical Diversity did not yield significant results when compared to the underlying construct of the SELPS. Conversely, partial correlations demonstrated a significant relationship between type-token ratio, $r = -.480$, $p = .021$ and Lexical Diversity. Other correlations existed between Lexical Diversity and Subordination Index, $r = .565$, $p = .004$, number of omitted bound morphemes, $r = -.570$, $p = .004$, and number of code-switched words, $r = -.757$, $p < .001$. Partial correlations found that Lexical Diversity continued to correlate with the Subordination Index, $r = .703$, $p < .001$, the number of omitted bound morphemes, $r = -.736$, $p < .001$, and the number of code-switched words, $r = -.902$, $p < .001$.

SELPS Scaled Total Scores

Significant correlations pertaining to the construct of the SELPS existed between the SELPS Scaled Total Scores and Subordination Index, $r = .695$, $p < .001$ as well as number of omitted bound morphemes, $r = -.705$, $p < .001$. Partial correlations also found a considerable relationship between the SELPS Scaled Total Scores and type-token ratio, $r = -.504$, $p = .014$. Another variable that correlated with the SELPS Scaled Total Scores is number of code-switched words, $r = -.846$, $p < .001$. Other partial correlations among the SELPS subscales and scaled scores corresponded with number of omitted bound morphemes, $r = -.759$, $p < .001$ and number of code-switched words, $r = -.897$, $p < .001$.

Discussion

This study examined the relationship between the SELPS subscale and total scores and selected language sample measures extracted from a narrative story retelling. The Syntactic Complexity and Grammatical Accuracy subscales correlated with the largest number of language sample variables, while Verbal Fluency, Lexical Diversity, and SELPS scaled total scores correlated with the fewest number. When partial correlations were analyzed, the Syntactic Complexity subscale scores continued to correlate with the most variables, but Grammatical Accuracy, Verbal Fluency, Lexical Diversity, and SELPS Scaled Total Scores were found to correlate with only a few measures.

Despite generating a number of SALT variables that correlated with the SELPS subscales and scaled total scores, several language sample measures showed no linear relationship with the SELPS scores. Gender errors were noted among all of the participant's language samples. Valenzuela et al., (2012) stated that "Spanish nouns have inherent gender, masculine or feminine, which is an inherent lexical feature. Therefore, a Spanish noun enters the syntax with

an intrinsic gender feature." (p. 482). A nondevelopmental error that bilingual children often make is assigning the wrong gender to a word (e.g., *el rana* instead of *la rana*). Researchers have found that learners of a second language, particularly when the language contains a gender system, tend to simplify their productions (McCowen & Alvord, 2006). One of the simplification methods utilized is to overgeneralize the use of the unmarked masculine form (Tarone, Frauenfelder, & Selinker, 1976). This was true of the participants in this study. When gender was incorrectly assigned to a noun, it was typically using the masculine form of *el*. Noting this trend, finding that the number of gender errors did not correlate with the Grammatical Accuracy subscale score, even when the effect of number of utterances was removed, was unexpected. On the other hand, this may be an indication that some of the children in this study are going through a language loss, perhaps switching from proficiency in their native language to English dominance, dropping the use of gender markers in the process since English does not account for gender in nouns. Gutiérrez-Clellen et al. (2000) support this claim by stating that "language loss/attrition is characterized by changes in the grammatical and lexical aspects of the child's expressive language" (p. 89).

Smyk et al. (2013) published a similar study with sequential bilingual children learning English as a second language. The Smyk et al. study examined the development and validation of the SELPS for the English proficiency portion of the scale. Analogous to the current study, Smyk et al. found that Syntactic Complexity correlated with MLUw, which is the average number of words in an utterance. However, the Syntactic Complexity scores observed by Smyk et al. did not correlate with Subordination Index as it did in the present study. In addition, Smyk et al. found Grammatical Accuracy to correlate with Ungrammaticality Index as it did in the present study. Smyk et al. predicted that Verbal Fluency would correlate with percentage of

maze words but it did not, which paralleled the results found in the present study. Smyk et al. (2013) found that Lexical Diversity correlated with number of different words, which was not the case in the present study. A possible explanation for this discrepancy is that a few of the children sampled in this study code-switched from Spanish to English during more than 40% of the language sample, which could have skewed the results and might account for the number of different words not correlating with Lexical Diversity in this study.

A finding worth further consideration was that in the present study, the Subordination Index correlated with Syntactic Complexity, Grammatical Accuracy, Lexical Diversity, and SELPS Total Scaled Scores, yet it did not correlate with any of the SELPS subscales or scaled scores in the Smyk et al. (2013) study. A possible explanation for this result could be that the language used by the children in the present study might have been greater in length and more complex than was seen in Smyk et al., which could account for the absence of Subordination Index in their correlations. Additionally, due to the greater complexity of utterances among the participants in this study, the raters' scores for Grammatical Accuracy, Lexical Diversity, and SELPS Total Scaled Scores may well have been influenced by this factor, as language samples that were greater in length and more complex could have been thought of as being closer to native like productions, consequently receiving a higher score. Smyk et al. found that MLUw, the Ungrammaticality Index, and the number of different words correlated with the SELPS Total Scaled Scores in their study, but no relationship was found with Subordination Index or percentage of maze words. Of the measures analyzed by Smyk et al., the only variable that correlated in the present study for the SELPS Total Scaled Scores was the Subordination Index. A summary comparing the correlations observed in Smyk et al. and the present study is found in Table 3.

Table 3

Significant Correlations Observed in Smyk et al. (2013) and in the Present Study

Variables	Smyk et al.	Present Study
Syntactic Complexity		
MLUw	+	+
MLUm	...	+
Subordination Index	0	+
Grammatical Accuracy		
Ungrammaticality Index	+	+
Omitted Bound Morphemes	…	+
Gender Errors	…	0
Word-Level Error Codes	…	+
Verbal Fluency		
Percentage of Maze Words	0	0
Number of Filled Pauses	…	+*
Number of Repetitions	…	0
Number of Revisions	…	0
Lexical Diversity		
Number of Different Words	+	0
Type-Token Ratio	…	+*
SELPS Total Score		
MLUw	+	0
MLUm	...	0
Subordination Index	0	+
Ungrammaticality Index	+	0
Percentage of Maze Words	0	0
Number of Different Words	+	0
Omitted Bound Morphemes	…	+
Type-Token Ratio	…	+

Note. + = significant correlations, 0 = no correlation, ... = variable was not analyzed
* = only with partial correlations

Though the study by Smyk et al. (2013) and the present study both focused on the

relationships between SELPS subscale and total scores and measures derived from narrative

language samples, key differences exist between these two studies which might help to explain

the differences in the findings obtained. Perhaps the most obvious explanation for the variation

in results could be attributed to the participants sampled. The present study evaluated the

language samples of 24 sequential bilingual children, while Smyk et al. had 76 sequential bilingual children participate in their study.

Gutíerrez-Clellen et al. (2009) reported that bilingual children are more likely to use code-switching when they are speaking in their non-dominant language. The children in the present study were asked to provide a narrative language sample in English and Spanish, but only the Spanish samples were analyzed. Although both sets of participants in the studies were sequential bilingual children, perhaps the children in the present study had a tendency to favor English over Spanish, which could explain why some children relied heavily on code-switching, and may indicate that they were undergoing a language loss. The participants were first exposed to Spanish and were enrolled in English-only schools, qualifying them as sequential bilingual learners. Yet, parents reported on a questionnaire that the participants would either respond to parents in Spanish only or both English and Spanish, with the exception of one child that would respond to the father in English only. Hammer et al, (2012) explained that because English is the primary language of instruction in the United States, "this gives children the message that English is necessary in order to successfully communicate and that English is the preferred language" (p. 1252). As a result, when the children that code-switched were asked to re-tell the story in Spanish, they might have been confused by the task since they were accustomed to only speaking English at school, not Spanish. Further, all of these children were receiving English-only education.

Another factor that could account for the differences in the data is the pretest interaction between the examiner and the participant. For this study, the examiner would interact with the participant in the language being analyzed (i.e., Spanish) from the initial meeting until testing was completed. However, the examiner would record any identifying information (e.g.,

participant ID number, name of story task, date, tester number) in English. This would not have been significant in the Smyk et al. (2013) study since the children's English language proficiency was being measured. However, exposure to English immediately preceding Spanish language sample acquisition could have impacted the complexity and integrity of the Spanish data, particularly for those children who declined to switch from English to Spanish after numerous reminders from the examiner that the language sample was to be performed in Spanish.

The participants in the Smyk et al. (2013) study were asked to provide two language samples only in English. There was also great variability in the language used by the children in Smyk et al. and in the present study. Code-switching was a recurring factor in the present study, a concern which was not raised by Smyk et al. Furthermore, Smyk et al. did not run partial correlations as part of their study. Yet, when partial correlations were analyzed to hold the number of utterances from the language samples constant, the present study found that certain variables such as Subordination Index continued to correlate, but other measures such as type-token ratio and number of filled pauses emerged as significant.

One other issue observed in the present study requires discussion: the interrater reliability of the SELPS scale for Spanish language proficiency needs further investigation. For the SELPS Total Scaled Scores, interrater reliability was .81. However, when each of the subscales was looked at individually, several inconsistencies emerged. Interrater reliability was highest for Lexical Diversity at $r = .74$ and Verbal Fluency at $r = .68$. Interrater reliability was lowest for Syntactic Complexity at $r = .41$ and Grammatical Accuracy at $r = .23$. Interestingly enough, Syntactic Complexity and Grammatical Accuracy scores most highly correlated with the various language sample measures. However, when partial correlations were run, Grammatical Accuracy correlated with only a small number of language sample variables. Correlations among the

language sample measures, Lexical Diversity, and Verbal Fluency were fairly consistent, even when partial correlations were analyzed. A possible explanation for this finding might be that the SELPS Scale for Spanish Language Proficiency does not have a numerical rating for Syntactic Complexity or Grammatical Accuracy that can be used to identify the language proficiency of children that code-switch words. The Verbal Fluency and Lexical Diversity subscales take code-switching into account. Thus, further development of the scale should consider the implications of using the scale for children that rely heavily on code-switching. The raters also felt that the criterion for the ratings of 3, 4, and 5 on the Grammatical Accuracy subscale was somewhat ambiguous. The criterion for boxes 3 and 4 both had "difficulty with preposition use, inconsistent tense errors, and dropped articles" (see form in Appendix B) as conditions for selection of either of those ratings, which made it difficult for the raters to assign a specific numerical value for that subscale. Further development of the SELPS scale should investigate how to differentiate between these two ratings with greater specificity.

Several limitations in this study were noted and necessitate discussion. First, the sample size could be expanded to increase reliability. Even though interrater reliability for the purposes of calibration between the raters was .90, the level of agreement on SELPS scaling was .81. Expanding the sample population to include children from various geographical and dialectal settings could reinforce the validity of the SELPS subscale for screening the Spanish language proficiency of children from a range of Hispanic backgrounds. Both the Smyk el al. (2013) study and the present study hypothesized that Verbal Fluency would correlate with percentage of maze words, yet no correlation was observed between these two measures even when partial correlations were analyzed. Notably, when partial correlations were run, number of filled pauses was found to correlate with Verbal Fluency. Therefore, other objective measures of verbal

fluency such as number of filled pauses should be examined in future studies. The analyses made in the present study found correlations among the language sample variables, SELPS subscales, and SELPS total scaled scores, but intercorrelations among the language sample measures that correlated with the SELPS scores merit further examination. Further studies in this area could observe the relationships between the measures that did and did not correlate and examine under which circumstances a correlation did or did not exist. The goal of the present study was to correlate a set of language sample measures with SELPS subscale and scaled scores. While some of the language sample measures were expected to correlate more favorably with certain subscales, it was important to observe whether variables that have not been previously analyzed by other studies would significantly correlate with the SELPS subscale and scaled scores in this study. Future studies should focus directly on correlating language sample variables with SELPS subscales and scaled scores for which there is arguable construct validity.

In conclusion, this study has made a contribution to the initial validation of the SELPS for screening the Spanish language proficiency of simultaneous bilingual children. Many of the objective measures taken from the narrative language samples correlated with the subjective SELPS ratings of Spanish language proficiency, offering support for the use of the SELPS as a screening tool. Research with bilingual children and their language proficiency in English and Spanish continues to provide insight into the underlying framework of language acquisition and retention for bilingual children. This study will supplement further research in this area of inquiry, leading perhaps to increases in the efficiency and the efficacy of clinical work.

References

American Educational Research Association, American Psychological Association, National Council on Measurement in Education [AERA/APA/NCME]. (1999). *Standards for educational and psychological testing*. Washington, DC: American Psychological Association.

Bedore, L. M. (2001). Assessing morphosyntax in Spanish-speaking children. *Seminars in Speech and Language, 22*, 65.

Bedore, L. M., & Leonard, L. B. (2001). Grammatical morphology deficits in Spanish-speaking children with specific language impairment. *Journal of Speech, Language, and Hearing Research, 44,* 905-924. doi:10.1044/1092-4388(2001/072

Bedore, L. M., Peña, E. D., Gillam, R. B., & Ho, T. (2010), Language sample measures and language ability in Spanish-English bilingual kindergarteners. *Journal of Communication Disorders, 43,* 498-510.

Bialystok, E. (2001). *Bilingualism in development: Language, literacy, and cognition*. Cambridge, UK: Cambridge University Press.

Bohman, T., Bedore, L. M., Peña, E. D., Mendez-Perez, A., & Gillam, R. B. (2010). What you hear and what you say: Language performance in young Spanish-English bilinguals. *International Journal of Bilingualism and Bilingual Education, 13*, 325-344.

Caesar, L. G., & Kohler, P. D. (2007). The state of school-based bilingual assessment: Actual practice versus recommended guidelines. *Language, Speech, and Hearing Services in Schools, 38*, 190-200.

Dawson, J. I., Stout, C. E., & Eyer, J. A. (2003). *Structured Photographic Expressive Language Test: Third Edition.* DeKalb, IL: Janelle Publications.

Gutiérrez-Clellen, V. F., Restrepo, M. A., Bedore, L., Peña, E., & Anderson, R. (2000). Language sample analysis in Spanish-speaking children: Methodological considerations. *Language, Speech, and Hearing Services in Schools, 31*, 88-89.

Gutíerrez-Clellen, V. F., Restrepo, M. A., & Simon-Cereijido, G. (2006). Evaluating the discriminant accuracy of a grammatical measure with Spanish-speaking children. *Journal of Speech, Language, and Hearing Research, 49*, 1209-1223.

Gutiérrez-Clellen, V. F., & Simon-Cereijido, G. (2009). Using language sampling in clinical assessments with bilingual children: Challenges and future directions. *Seminars in Speech and Language, 30,* 234-245. doi:10.1055/s-0029-1241722

Gutiérrez-Clellen, V. F., & Simon-Cereijido, G., & Leone, A. E. (2009). Code-switching in bilingual children with language impairment. *International Journal of Bilingualism, 13*, 91-109.

Hammer, C. S., Komaroff, E., Rodriguez, B. L., Lopez, L. M., Scarpino, S. E., & Goldstein, B. (2012). Predicting Spanish-English bilingual children's language abilities. *Journal of Speech, Language, and Hearing Research, 55*, 1251-1264.

Harmon, T. G. (2012). *Accuracy of automated grammatical tagging of narrative language samples from Spanish-speaking children.* (Unpublished master's thesis). Brigham Young University, Provo, UT.

Heilmann, J., Miller, J. F., Iglesias, A., Fabiano-Smith, L., Nockerts, A., & Andriacchi, K. D. (2008). Narrative transcription accuracy and reliability in two languages. *Topics in Language Disorders, 28*, 178-188.

Heilmann, J., Miller, J. F., Nockerts, A., & Dunaway, C. (2010). Properties of the narrative

    scoring scheme using narrative retells in young school-age children. *American Journal of*

    Speech-Language Pathology, 19, 154-166. doi:10.1044/1058-0360(2009/08-0024)

Long, S. H. (2001). About time: A comparison of computerized and manual procedures for

    grammatical and phonological analysis. *Clinical Linguistics & Phonetics, 15,* 399-426.

    doi:10.1080/02699200010027778

MacSwan, F., & Rolstad K. (2006). How language proficiency tests mislead us about ability:

    Implications for English language learner placement in special education. *Teachers College*

    Record, 108, 2304-2328.

MacSwan, J., Rolstad, K., & Glass, G. V. (2002). Do some school-age children have no

    language? Some problems of construct validity in the Pre-LAS Español. *Bilingual Research*

    Journal, 26, 213-238.

Mayer, M. (1973). *Frog on his own*. New York, NY: Dial Books for Young Readers.

Mayer M., & Mayer. M. (1971). *A boy, a dog, a frog, and a friend*. New York, NY: Dial Books

    for Young Readers.

McCowen, L. G., & Alvord, S. M. (2006). Mi mamá es bonito: Acquisition of Spanish gender by

    native English speakers. In C. A. Klee & T. L. Face (Eds.) *Selected Proceedings of the 7ᵗʰ*

    Conference on the Acquisition of Spanish and Portuguese as First and Second Languages.

    Somerville, MA: Cascadilla Proceedings Project.

Miller, J. F., Andriacchi, K., & Nockerts, A. (2011). *Assessing language production using SALT*

    software: A clinician's guide to language sample analysis. SALT Software LLC, Middleton,

    WI.

Miller, J. F., Heilmann, J., Nockerts, A., Iglesias, A., Fabiano, L., & Francis, D. J. (2006). Oral language and reading in bilingual children. *Learning Disabilities Research and Practice, 21,* 30-43.

Paul, R. (2007). *Language disorders from infancy through adolescence: Assessment & intervention* (3rd ed.). St. Louis, MO: Mosby Elsevier.

Restrepo, M. A. (1998). Identifiers of predominantly Spanish-speaking children with language impairment. *Journal of Speech, Language, and Hearing Research, 41*, 1398-1411.

Restrepo, M. A., Gorin, J., Gray, S., Morgan, G. P., & Barona, N. (2010, June). Development of a language impairment screener for Spanish speaking children (SSLIC): Phase 2 – task development. Paper presented at the Annual Institute of Education Sciences Meeting, National Harbor, MD.

Restrepo, M. A., & Gutiérrez-Clellen, V. F (2004). Grammatical impairments in Spanish-English bilingual children. In B. A. Goldstein (Ed.), *Bilingual Language Development and Disorders in Spanish-English Speakers* (pp. 213-234). Baltimore, MD: Brookes.

Semel E., Wiiig, E. H., & Secord, W. H. (2006). *Clinical evaluation of language fundamentals Spanish edition (CELF-4)*. San Antonio, TX: Psychological Corporation.

Simon-Cereijido, G., & Gutiérrez-Clellen, V. F. (2007). Spontaneous language markers of Spanish language impairment. *Applied Psycholinguistics*, *28*, 317-339. doi:10.1017/S0142716407070166

Simon-Cereijido, G., & Gutiérrez-Clellen, V. F. (2009). A cross-linguistic and bilingual evaluation of the interdependence between lexical and grammatical domains. *Applied Psycholinguistics*, *30*, 315-337. doi: 10.1017/S0142716409090134

Smyk, E. (2012). *Second language proficiency in sequential bilingual children with and without primary language impairment* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses, 144. (Order No. 3522455, Arizona State University)

Smyk, E., Restrepo, M. A., Gorin, J. S., & Gray, S. (2013). Development and validation of the Spanish-English language proficiency scale (SELPS). *Language, Speech, and Hearing Services in Schools, 44,* 252-265.

Tabors, P. O. (2008). *One child, two languages. A guide for early childhood educators of children learning English as a second language.* Baltimore, MD: Brookes.

Tarone, E., Frauenfelder, U., & Selinker, L. (1976). Systematicity variability and stability/instability in interlanguage systems. In H. D. Brown (Ed.), *Papers in second language acquisition* (pp. 93-134). Ann Arbor, MI: University of Michigan Press.

U.S. Department of Education, National Center for Education Statistics. (2003). *Status and trends in the education of Hispanics.* Washington, DC: Thomas D. Snyder.

Valenzuela, E., Faure, A., Ramírez-Trujillo, A. P., Barski, E., Pangtay, Y., & Diez, A. (2012). Gender and heritage Spanish bilingual grammars: A study of code-mixed determiner phrases and copula constructions. *Hispana, 95*, 481-494.

Appendix A: Annotated Bibliography

Bedore, L. M. (2001). Assessing morphosyntax in Spanish-speaking children. *Seminars in Speech and Language, 22*, 65.

      Purpose: The use of morphological and syntactic structures in speech and their influence on a child's ability to communicate is of great interest to clinicians and educators. This article provided a summary of the structure and acquisition of morphosyntax in Spanish-speaking children with an emphasis on clinical application.

      Results: In order to gain greater insight into a child's familiarity of morphological structures, assessment methods should be selected in such a way that task naturalness and linguistic demand will intersect at a point that will equal the child's experiences and world knowledge. Two methods equipped to evaluate a child's morphosyntax were found to be language sampling and structured assessment tasks.

      Conclusion: Language sample analysis should center on the aspects of morphosyntax that describe the intricacy of a child's speech such as mean length of utterance (MLU) as well as noun and verb morphology. It was recommended that how often children use article and clitic type should also be recorded in the analysis.

Bedore, L. M., Peña, E. D., Gillam, R. B., & Ho, T. (2010), Language sample measures and language ability in Spanish-English bilingual kindergarteners. *Journal of Communication Disorders, 43,* 498-510.

      Purpose: Measures of productivity and sentence organization have been known to facilitate the quantification of language development and language impairment in monolingual and bilingual children. This study focused on determining if measures of productivity and sentence organization in English and Spanish correlated with language ability ratings based on the Bilingual English Spanish Assessment (BESA), a standardized measure of language ability.

      Method: One hundred and seventy kindergarten children from schools in Texas and Utah participated in this study. Parents and teachers provided information about the children's exposure to English and Spanish and classroom language use respectively through interviews and questionnaires. The children were administered the experimental version of the BESA which includes semantics and morphosyntax subtests. The children also listened to and participated in story retell tasks using two wordless picture books. The stories were coded using *Systematic*

Analysis of Language Transcripts (SALT) for number of utterances, mean length of utterance (MLU), number of different words, and grammaticality in English and Spanish.

Results: The most statistically significant variables in predicting language ability based on the BESA scores were English MLU, English grammaticality, and Spanish grammaticality.

Conclusion: Although MLU in Spanish and English were found to significantly coincide with children's language ability, when placed on the same model, English MLU was the best predictor of language ability as measured by the BESA z-score. English grammaticality also played a key role in determining language ability. The only Spanish measure that accounted for language ability was grammaticality.

Bedore, L. M., Peña, E. D., Summers, C. L., Boerger, K. M., Resendiz, M. D., Greene, K., Bohman, T. M., & Gillam, R. B. (2012). The measure matters: Language dominance profiles across measures in Spanish-English bilingual children. Bilingualism: *Language and Cognition, 15*, 616-629.

Purpose: The need exists for a measure that will assist in determining bilingual development. This study looked at operationalizing language proficiency and dominance to see if results would yield the same classification in a group of pre-kindergarten and kindergarten age bilingual children.

Method: Ten thousand and twenty-nine Latino children representing the full range of bilingual language proficiency participated in this study. Parents completed an extensive interview on their child's home and school language indicating age of first exposure to English and Spanish. The interview also included questions on their child's input and output on an hour-by-hour basis. Children completed the Bilingual English Oral Language Screening (BESOS) in English and Spanish. The BESOS included subtests which showed growth in morphosyntax and semantics.

Results: The emphasis on semantics as opposed to morphosyntax when conducting dominance or proficiency measures will effect a child's classification. For example, independent of a child's age of first exposure, children scored higher on the semantics tests than on the morphosyntax test in English. Conversely, performance on the semantic and morphosyntax tests in Spanish was relatively close, implying that knowing current use of a child's language is more predictive of language dominance and proficiency than age of first exposure to English.

Conclusion: Variations in measures that are used to quantify a child's language proficiency and dominance will result in different classifications. This will impede the comparison of results from studies that use different measures of language proficiency and dominance.

Bohman, T., Bedore, L. M., Peña, E. D., Mendez-Perez, A., & Gillam, R. B. (2010). What you hear and what you say: Language performance in young Spanish-English bilinguals. *International Journal of Bilingualism and Bilingual Education, 13*, 325-344.

Purpose: The association between level of experience in a language and language outcomes was reviewed in this article. Factors that could influence language outcomes such as language traction and growth, long-term attainment, length of exposure, socioeconomic status (SES), and home language use were examined.

Method: A total of 757 Latino children from school districts in Central Texas and Northern Utah participated in this study. The children's parents participated in a phone interview to measure the level of language input and output the children were exposed to on a daily basis. The children were then categorized as functional monolingual or bilingual based on their current level of use in each language. The children were administered the Bilingual English Spanish Oral Language Screener (BESOS) with items taken from the Bilingual English Spanish Assessment (BESA) to measure morphosyntax and semantics in both English and Spanish.

Results: Language traction was found to be highly influenced by the child's amount of language experience. Specifically, output was significant for both English and Spanish in the areas of semantics and morphosyntax, but only input was significant for Spanish semantics and morphosyntax. Children with lower SES were found to have a better language outcome. The combination of increased age at the time of testing, SES, and father education were positively correlated with a higher performance on the English semantics domain. For this study, language output was the greatest indicator of proficiency and long-term attainment of language skills.

Conclusion: Initial performance on the semantics measure was more dependent on language input than output. However, performance on the morphosyntax measure was equally dependent on language input and output. The amount of language input and output children are exposed to prior to and during school entry have independent contributions to their acquisition of semantics and syntax and continued progress in each language.

Castilla, A. P., Restrepo, M. A., & Perez-Leroux, A. T. (2009). Individual differences and

language interdependence: A study of sequential bilingual development in Spanish-

English preschool children. *International Journal of Bilingual Education and

Bilingualism, 12*, 565-580.

Purpose: This article explored the idea that a child's first language could influence the acquisition of a second language. The authors suggested separating the idea of skills transfer from linguistic transfer in the developmental interdependence view and proposed that children's language acquisition could be examined based on individual differences.

Method: A total of 49 sequential bilingual preschool children participated in the study. The average age of the children was 4;7. The children were administered grammatical and semantic measures, as well as story retell tasks in English and Spanish.

Results: The English and Spanish grammatical and semantic measures had a significant association. The findings sustain the notion that second language grammatical development is correlated with semantic and grammatical abilities in the first language. However, the findings for second language semantic development were less telling, as fewer measures were found to correlate with English semantics.

Conclusion: The researchers concluded that a noteworthy relationship exists between Spanish as a first language and English as a second language in sequential bilingual preschoolers, proposing the concept that development in one language can be used to predict development of a second language. The researchers advocate for the view that linguistic interdependence is based on the fundamental skills that distinguish learning rates in a group.

Fiestas, C. E., & Peña, E. D. (2004) Narrative discourse in bilingual children: Language and task

effects. *Language, Speech, and Hearing Sciences in Schools, 35,* 155-168.

Purpose: Researchers are currently unsure of the effects that linguistic, structural, and/or cultural differences have on bilingual children's narrative production. This study evaluated the effect of language on bilingual children's narrative skills in both English and Spanish using two distinct elicitation methods: a book task and a picture task.

Method: The participants for this study included twelve typically developing bilingual children that were selected from a pool of seventy-two participants. In order to be selected for the study, the children had to meet a certain amount of criteria which classified them as "fluent"

in both English and Spanish. Four narratives (two for each language) were obtained using a book and a picture as stimuli. The narratives were then transcribed using Systemic Analysis of Language Transcripts (SALT) software and coded for story grammar and grammaticality.

Results: The data indicated that the children's narratives were equally grammatical in both languages for both tasks. Nevertheless, the children had a tendency of using more Spanish-influenced utterances during the book task. The children also produced more attempts and initiated events in Spanish, despite the fact that they used more consequences in English.

Conclusion: Clinicians should prudently select elicitation materials that will prove to be both challenging and informative to adequately assess children's narrative skills in English and Spanish.

Gutiérrez-Clellen, V. F. (2002). Narratives in two languages: Assessing performance of bilingual children. *Linguistics and Education*, *13*, 175-197.

Purpose: At the time this article was written, little to no research had been conducted to assess the narrative skills of Hispanic children who were in the process of developing their first and second language sequentially. Thus, the study focused on typical bilingual children's performance on story recall and story comprehension tasks administered in both Spanish and English to assess their narrative abilities.

Method: Thirty-three typically developing second-graders ranging in age from 7 to 8 years old participated in this study. Based on responses attained from teacher and parent questionnaires, as well as spontaneous narrative samples produced by the children, the bilingual status and language proficiency of the participants were determined. The children then participated in a story recall task and a story comprehension task for each language.

Results: Quantitative analyses revealed that compared to the children's recall and comprehension of the English story, their Spanish recall and comprehension was considerably more difficult. However, the children's English narrative skills were found to be significantly lower than their bilingual peers, while their Spanish story recalls and comprehension scores were within an average range. The majority of the children performed well on the narrative recall and story comprehension tasks in English, but a number of the children's performance on the English narrative recall was notably poorer than on a spontaneous English narrative production task.

Conclusion: A child's performance on a spontaneous narrative task should be assessed with caution, as their proficiency on that task might not coincide with their language proficiency based on narrative recall and story comprehension tasks.

Gutíerrez-Clellen, V. F., & Kreiter, J. (2003). Understanding child bilingual acquisition using parent and teacher reports. *Applied Psycholinguistics, 24*, 267-288.

Purpose: The main purpose of this study was to use information derived from parent and teacher questionnaires to evaluate how bilingual performance in elementary-aged children correlated with years of exposure to English, Spanish, or both languages, amount of language input at home and at school, and amount of exposure to reading and other literacy activities in a language(s). The secondary purpose of this study was to examine whether parent and teacher reports of a child's use and proficiency of English and Spanish could be used to predict a child's language status based on the child's performance on grammatical measures.

Method: Fifty-seven typically developing children, along with their families, participated in this study. All except for one Puerto Rican child were of Mexican American descent. The mean age of the children was 8.0 years. Parent and teacher questionnaires were used to obtain information about the children's language background and proficiency as well as levels of exposure to the languages. A narrative language sample was obtained for Spanish, English, or both languages depending on whether or not the child demonstrated minimal fluency for that language. The English-only group had 11 participants, the Spanish-only group had 12 participants, and the bilingual group had 34 participants. The narrative samples were coded using Systematic Analysis of Language Transcripts (SALT) for grammatical errors in each language.

Results: For the main purpose of the study, the Spanish analyses concluded that language exposure was responsible for 35% of the variance in grammatical utterances, and the exposure to Spanish at home was responsible for 26% of the variance in grammatical utterances. For the English analyses, none of the exposure variables documented in the parent or teacher questionnaires were noteworthy. For the second purpose, there was a high correlation between the parent's rating of the child's use of Spanish and the child's use of Spanish grammatical utterances and a moderate correlation between teacher's rating of the child's language proficiency in Spanish and the child's use of grammatical Spanish. For English, parent and

teacher ratings of use of English and teacher rating of language proficiency in English all had high correlations with the child's English performance.

Conclusion: A significant finding indicated that how much input a child was receiving either at home or at school did not correlate with English grammatical performance for this study. Only the parent report of amount of language input could be used to calculate a child's performance on Spanish grammatical measures. For both English and Spanish, teacher ratings of language proficiency were a great indicator of performance on grammatical measures for each language.

Gutiérrez-Clellen, V. F., Restrepo, M. A., Bedore, L., Peña, E., & Anderson, R. (2000).
Language sample analysis in Spanish-speaking children: Methodological considerations. *Language, Speech, and Hearing Services in Schools, 31*, 88-89.

Purpose: This article discussed the different morphological characteristics in the language of Spanish-speaking children learning English as a second language. The need exists for a language assessment that can serve as a standard to aid in the selection of language measures or language sampling procedures in language assessments.

Method: An overview of Spanish aspects of language and their methodological issues was presented. Factors such as overall grammar, mean length of response in words, mean length of utterance in morphemes, and code-switched elements were discussed.

Conclusion: Future studies should consider using syntactic and morphological complexity measures to analyze language samples as well as the quality of children's utterances in terms of how many and what kind of grammatical errors they produced. In addition, studies should trace patterns of development across languages during the first years of acquisition and create a hierarchy of grammatical categories that could be used with Spanish speakers.

Gutiérrez-Clellen, V. F., Restrepo, M. A., & Simon-Cereijido, G., (2006). Evaluating the discriminant accuracy of a grammatical measure with Spanish-speaking children. *Journal of Speech, Language, and Hearing Research, 49*, 1209-1223.

Purpose: The researchers were interested in assessing the discriminant accuracy of the Spanish Morphosyntax Test (S-MST), a measure derived from the Bilingual English Spanish Assessment (BESA), to assist in the identification of Spanish-speaking children with language

impairment. The central purpose of this study was to calculate the discriminant accuracy of the S-MST for Spanish-speaking children dived into three separate age groups: 4;0-5;1, 5;2-5;11, and 6;1-7;0. The secondary purpose was to observe the performance of bilingual children that are Spanish speakers. This study identified bilingual children as those who have been exposed to and use English frequently, but Spanish is their primarily language.

Method: A total of 160 children from California, Georgia, Texas, and Pennsylvania were administered the S-MST. The participants mainly used a Mexican American dialect with a few using a Puerto Rican or a Dominican dialect, with the exception of 19 children that were identified as being proficient only in Spanish. Children's bilingual status was identified based on parent and teacher questionnaires, as well as grammatical proficiency derived from spontaneous narrative samples. Eighty children identified as having typical language development and 80 identified as having language impairment were equally dispersed into 3 different age groups.

Results: For ages 4;0-5;1, the S-MST was able to classify 86.4% of children with language impairment and 86.4% of children with typically developing language. For ages 5;2-5;11, the measure was able to classify 94.4% of children with language impairment and 94.4% of children with typically developing language. For ages 6;1-7;0, the measure was the least accurate and classified 72.2% of children with language impairment and 83.3% of children with typically developing language. The secondary purpose of the study was to evaluate the performance of Spanish-speaking bilingual children on the S-MST. The Spanish-dominant bilingual children did not demonstrate less grammatical proficiency than the children with Spanish-only proficiency backgrounds on the grammatical properties of articles, clitics, or verbs.

Conclusion: The S-MST is best used to identify language impairment in Spanish-speaking children between the ages of 4-6. For children ages 6 and older, supplemental measures should be used for better accuracy.

Gutiérrez-Clellen, V. F. Simon-Cereijido, G. (2009). Using language sampling in clinical assessments with bilingual children: Challenges and future directions. *Seminars in Speech and Language, 30,* 234-245.

Purpose: To accurately determine in which language a child should receive treatment, assessment should evaluate narrative skills in both English and Spanish. A review of language sample analysis procedures was presented.

Method: Spontaneous language makers in both English and Spanish were analyzed by measuring children's mean length of utterance, overall grammaticality of the samples measured, and morphosyntactic accuracy.

Results: When both are taken into consideration, children's verb morphology and mean length of utterance (MLU) can serve as diagnostic indicators of English growth in bilingual children. Other factors that should be taken into clinical consideration include parent and teacher's speech or language concerns along with information about the child's language proficiency and use in the home and in the school environment.

Conclusion: While the above mentioned measures are great indicators of bilingual children's language abilities, lexical diversity and narrative cohesion could also be abstracted from spontaneous language samples to aid in the diagnostic process.

Hammer, C. S., Komaroff, E., Rodriguez, B. L., Lopez, L. M., Scarpino, S. E., & Goldstein, B.
(2012). Predicting Spanish-English bilingual children's language abilities. *Journal of Speech, Language, and Hearing Research, 55*, 1251-1264.

Purpose: This article investigated external factors that contribute to bilingual children's English and Spanish expressive vocabulary and narrative recall abilities. The factors were categorized into language exposure (a), language usage (b), and parental characteristics (c). The authors identified the following items for analysis under each category: (a) children's exposure to English and Spanish as measured by how long the children lived in the United States, the age at which the children began to be communicated in English on a regular basis, the language(s) currently used by mothers, fathers, and teachers when conversing with the children; (b) children's usage of their two languages with their mothers, fathers, and teachers; and (c) parental education, generational status, and maternal language proficiency.

Method: One hundred and ninety-one Latino children from two-parent homes and their families participated in this study. These children were considered typically developing and had to be spoken to in either a Mexican, Puerto Rican, or Cuban dialect of Spanish. Participating parents were asked to fill out a questionnaire pertaining to their language experience and other relevant background information. The children were then administered the Picture Vocabulary and Story Recall subtests from the *Woodcock-Muñoz Language Survey—Revised* in English and Spanish.

Results: The following factors played a role in higher scores on the English Picture Vocabulary subtest: the children were older, the mothers had a higher language proficiency, the children lived in the United States longer, the children used more English than Spanish with their teachers and fathers, and the mothers had higher levels of education. For Spanish vocabulary, children's scores were higher with increased aged, if they were older when they were first exposed to English, fathers and teachers used less English when talking with the children, children used less English when talking to their mothers, mothers were the first generation to live in the United States, and the mother's level of English proficiency was lower. The factors associated with higher scores on the English Story Recall Subtest were higher chronological age, English instead of Spanish was used more between mothers and children and between teachers and children, and the mothers had a higher level of education. For the Spanish recall subtest, being older, less usage of English between children and their fathers, and higher maternal education contributed to the children's score.

Conclusion: In terms of language exposure, it was found that living in the United States longer impacted the children's English vocabulary outcomes. On the other hand, language usage at home and school helped foster the children's Spanish vocabulary development, especially when they weren't exposed to English until later on in life. When examining their story recall abilities, children's scores were influenced by their exposure to English by their mothers and teachers. Language usage in both languages played the biggest role in the children's language development. Specifically, when children chose to their fathers and teachers in English, their English vocabulary abilities improved. In contrast, choosing to speak to their mothers in Spanish influenced the children's Spanish vocabulary scores. It is interesting to note that language usage did not support English story recall but did support Spanish story recall, predominantly with the children's fathers. Higher maternal education played a role in children having higher English vocabulary and story recall skills as well as Spanish story recall skills, but it did not play a role in higher Spanish vocabulary skills.

Heilmann, J., Miller, J. F., Iglesias, A., Fiabiano-Smith, L. K., Nockerts, A., & Andriacchi, K. D. (2008). Narrative transcription accuracy and reliability in two languages. *Topics in Language Disorders, 28*, 178-188.

Purpose: The goal of this study was two-fold. First, the researchers were concerned with verifying how accurately a narrative sample from an English language learner could be transcribed to demonstrate to clinicians that the process of transcription can be performed both competently and precisely, yielding significant clinical data. Second, the researchers were interesting in calculating how reliable narrative sample measures were after a period of time.

Method: A total of 40 English language learners participated in this study. Twenty children produced English samples and 20 produced samples in Spanish. The participants ranged from kindergarteners to third-graders. The mean age of the children was 7;6. The children produced a narrative language sample using the wordless picture book *Frog, Where are You?* For the first part of the study, English and Spanish language samples were transcribed by two English proficient graduate assistants and two Spanish-English proficient bilingual graduate students, respectively. The assistants received approximately 10 hours of training and practicing transcriptions using the Systemic Analysis of Language Transcripts (SALT). The mean time per transcription was 30 minutes. The accuracy of the transcriptions was evaluated based on three levels: transcription consensus (the agreement between a single transcriber and a second transcriber reviewing the same language sample), protocol coding accuracy (an expert in language sample analysis reviewing the samples to ensure that the coding followed the laboratory's procedures), and independent transcription (comparing one team's transcription to another team's transcription of the same sample). For the second part of the study, 241 English language learners from a longitudinal study participated in a test-retest reliability analysis with an average 2-month delay between time and initial testing and retesting.

Results: For Part 1 of the study, findings for the transcription consensus showed that the raters' accuracy ranged from 95% to 99%, indicating that a single transcriber could transcribe a language sample accurately. Findings for the protocol coding accuracy demonstrated that the raters' accuracy ranged from 94% to 99%, indicating that the raters were adhering to the protocol they had been taught. Findings for the independent transcription accuracy were the lowest. Raters' accuracy ranged from 90% to 99%, indicating greater interrater variability. For Part 2 of the study, narrative retell measures were found to be relatively steady over a period of time.

Conclusion: The researchers suggest that clinicians should not be hesitant to perform narrative language sample analysis, as a basic level of training is sufficient to provide a transcription in either English or Spanish that is both accurate and reliable, with the caveat that the clinician must have a proficient knowledge of the language that s/he is transcribing in.

Housen, A., & Kuiken, F. (2009). Complexity, accuracy, and fluency in second language acquisition. *Applied Linguistics, 30*, 461-473.

This article contained definitions for the terms cognitive, accuracy, and fluency in relation to second language acquisition. Accuracy refers to "the degree of deviancy from a particular norm". Fluency was defined as "referring to a person's general language proficiency, particularly as characterized by perceptions of ease, eloquence, and 'smoothness' of speech or writing." Complexity was the most difficult to define. The authors divided the term into two separate categories: "cognitive complexity which refers to the relative difficulty with which language features are processed in second language performance and acquisition" and linguistic complexity or "the size, elaborateness, richness, and diversity of the learner's linguistic second language system." Four separate articles and two commentaries on cognitive, accuracy, and fluency (CAF) were presented to provide information on the extensive research being performed with these measures and their implications for future studies on their role in second language use, second language acquisition, and second language research.

Kapantzoglou, M., Restrepo, M. A., & Thompson, M. S. (2012). Dynamic assessment of word learning skills: Identifying language impairment in bilingual children. *Language, Speech, and Hearing in Schools, 43*, 81-96.

Purpose: The focus of the research presented in this article was to determine whether a dynamic assessment (DA) of word learning skills could successfully classify children with and without primary language impairment (PLI). The study was furthermore interested in whether the combination of word production and word identification scores after three different exposures (9, 18, or 27) along with modifiability scores based on the Likert scales *Learning Strategies Checklist* (LSC) and *Modifiability Scale* (MS) could be used to identify bilingual preschool-aged children with PLI from their typical language development (TLD) peers.

Method: A total of 28 preschool-aged children between the ages of 4 and 5 whose primary language was Spanish participated in this study. Of the participants, 15 had TLD and 13 had PLI. The children were identified for participation in this study through the use of parent and teacher reports as well as vocabulary tests and language samples. The participants completed the Spanish DA task in one session of 30-40 minutes. The task adhered to a pretest—teach—posttest design where the participants were taught and asked to name three familiar items and three nonfamiliar (nonword) items.

Results: The word identification and LSC scores were determined as the best measures to estimate whether a child would be diagnosed as TLD or with PLI. The researchers also found that the children with PLI did not make connections between the phonological and the semantic representation of the new words as quickly as the TLD children. Thus, short word learning tasks demonstrate that children with PLI have slower learning processes, but lengthy adult-child interactions are necessary as they disclose more information about how children learn.

Conclusion: DA of word learning skills could potentially serve as a language screening tool to distinguish between bilingual children with and without PLI.

MacSwan, F., & Rolstad K. (2006). How language proficiency tests mislead us about ability: Implications for English language learner placement in special education. *Teachers College Record, 108*, 2304-2328.

Purpose: The purpose of this study was to determine the validity of the Language Assessment Scales-Oral (LAS-O) Español and the Idea Proficiency Test (IPT) Spanish as measures to assess English-language learners' (ELL) oral ability in their first language.

Method: In order to qualify for this study, participants had to meet the following criteria: Spanish was their first language, they were between the ages of 6 to 8, and they were determined as nonproficient or as having limited proficiency in English based on the English Language Assessment Scale (LAS), a test adopted by Arizona school districts participating in this study. The participants were generally of Mexican descent and lower socioeconomic status. The children were administered the LAS-O Español and the IPT Spanish. The LAS-O was administered to 161 children and the IPT Spanish to 174. A natural language sample was also collected using a Mercer Mayer wordless picture book. The language samples were coded using

CHAT (Codes for the Human Analysis of Transcripts). Language samples were collected from 145 children.

Results: The LAS-O identified 74% of the participants as having limited ability in their first language, and the IPT Spanish identified 90% of the participants, while the natural language samples that were collected and analyzed indicated only 2% of the participants as having low first language ability.

Conclusion: The researchers concluded that natural language samples more accurately portray children's true language ability when compared to the LAS-O Español or the IPT Spanish, as these two assessments are based on the notion that language proficiency is higher among children with superior academic achievement and lower among children with inferior academic achievement.

MacSwan, J., Rolstad, K., & Glass, G. V. (2002). Do some school-age children have no language? Some problems of construct validity in the Pre-LAS Español. *Bilingual Research Journal, 26,* 213-238.

Purpose: The purpose of this article was to determine the construct validity of the Pre-Language Assessment Scales Español (Pre-LAS Español), an assessment of 4 to 6 year old Spanish-speaking children's oral language ability. This study was necessitated due to the lack of evidence in support of the subtests administered in the Pre-LAS Español and their ability to adequately identify children's Spanish-speaking skills.

Method: Test scores obtained from a California school district in 1997 totaling 38,887 children enrolled in either pre-kindergarten or kindergarten who were administered the 6 parts of the Pre-LAS Español were analyzed. Of the participants, 64% were labeled as proficient Spanish speakers, 21% as limited Spanish speakers, and 15% as non-Spanish speakers. The 6 parts of the Pre-LAS Español were examined to view how they correlated with the overall test score.

Results: Parts 1-4 of the Pre-LAS Español were observed to account for a little less than half of the Total Score variance, although the researchers found that the design for these parts was well constructed. When combined, the scores assigned for parts 5-6 were found to indicate the Total Score for the Pre-LAS Español regardless of the scores from parts 1-4. However, the researchers argued that parts 5-6 were the most subjectively scored items of the test and had poor theoretical basis to justify their high contributions to the Total Score.

Conclusion: While the need exists to create a measure that will assist in the classification of Spanish-speaking children's native language ability, tests such as the Pre-LAS Español should use reliable research on language acquisition as the basis for the development of such measures.

McCabe, A., & Bliss, L. S. (2005). Narratives from Spanish-speaking children with impaired and typical language development. *Imagination, Cognition, and Personality, 24*, 331-346.

Purpose: This study compared the narrative abilities of Spanish-speaking children with typical language development against the narrative abilities of Spanish-speaking children with language impairment to assist in illustrating the effects that culture plays on each of the two group's narration skills.

Method: A total of 31 children (ages 8 to 11 years) from Mexican American backgrounds participated in this study. Twenty one children were considered to have typical language development and ten were identified as having a language impairment based on either (a) failing scores on two standardized tests of language development in both languages, (b) having an official diagnosis of language impairment based on a bilingual speech-language pathologist's judgment, (c) registered in remedial language intervention program, and (d) demonstrating language discrepancies in both English and Spanish, based on a bilingual speech language pathologist's judgment. The participants were asked to produce personal narratives in both English and Spanish. The Spanish narratives were then translated into English and coded for propositions. Under the category of propositions, the narratives were further coded for action, evaluation, orientation, coda, and past progressive.

Results: The results were analyzed based on two different categories. The first category involved group analyses, which compared the children with typical language development and those with language impairment within their English and Spanish language abilities. The second category involved language analyses, which compared the data between the languages and within each language. The findings for the group analyses revealed that the children with language impairment produced drastically fewer propositions in both English and Spanish. The children with language impairment also produced fewer actions in the Spanish narratives as opposed to the English narratives and generated more actions on the English narratives when compared to their typical language developed counterparts. The major finding for the language analyses demonstrated that despite the language being spoken, bilingual children are prone to

using the same essential narrative features. Thus, if a child was talkative in English, s/he was also talkative in Spanish. If a child used actions, orientations, and/or evaluations in English, s/he definitively used them in Spanish as well.

Conclusion: In order to become more familiar with a child's linguistic strengths, clinicians should determine a child's language proficiency in both English and Spanish to aid in selecting the most suitable intervention approach. However, the positive correlations found between the two languages assessed imply that working on either language could effectively support narrative discourse development.

Peña, E. D., Gillam, R. B., Bedore, L. M., & Bohman, T. M. (2011). Risk for poor performance on a language screening measure for bilingual preschoolers and kindergarteners. *American Journal of Speech-Language Pathology, 20*, 302-314.

Purpose: This article focused on the risk for language impairment in Latino children with different language experiences, ranging from functional monolingual English, bilingual English dominant, and balanced bilingual to bilingual Spanish dominant and functional monolingual Spanish.

Method: A total of 1, 029 children participated in this study. The children were recruited before they began kindergarten. Each participant's parent(s) filled out a questionnaire to learn about the participant's health and education history, as well as the participant's language experience in English and Spanish and first year of exposure to English. Based on their level of language experience, the participants were divided into five individual groups. The participants were then administered measures to assess the areas of semantics and morphosyntax in Spanish and English.

Results: The findings demonstrated that no significant relationship existed between the language groups and gender. In addition, all groups were statistically different from each other. The bilingual groups scored lower than the monolingual groups, yet this had no significant impact on risk for language impairment.

Conclusion: This study found that children who are learning two languages at the same time are not at greater risk for language impairment than monolingual children.

Restrepo, M. A., & Gutiérrez-Clellen, V. F (2004). Grammatical impairments in Spanish-English
 bilingual children. In B. A. Goldstein (Ed.), *Bilingual Language Development and
 Disorders in Spanish-English Speakers* (pp. 213-234). Baltimore, MD: Brookes.

The implications of misdiagnosing specific language impairment (SLI) in Spanish-speaking children are outlined. Typical grammatical impairments found in children with SLI are presented, such as article errors, verb errors, clitic pronouns, and other errors. The contexts of subtractive bilingualism versus additive bilingualism on grammatical impairments in children with SLI are discussed. The effects of subtractive versus additive bilingual settings on the development of bilingual children with SLI's code-switching abilities require further research. The use of parent interviews and language sample measures in tandem have shown to correctly identify children with SLI. In addition, parent/teacher interviews, spontaneous language sample analyses of grammatical errors per sentence, MLU, structured tasks, and dynamic assessment procedures can be used to determine if a bilingual child has a language problem in the absence of standardized tests that are lacking for this population. Bilingual children should receive intervention in both languages to aid in the acquisition and development of both languages.

Restrepo, M. A., & Kruth, K. (2000). Grammatical characteristics of a Spanish-English bilingual
 child with specific language impairment. *Communication Disorders Quarterly, 21*, 66-
 74.

Purpose: The central focus of this study was to compare and contrast the grammatical characteristics of two 7-year-old Spanish English bilingual children, one with specific language impairment (SLI) and the other with normal language development (NLD), to more fully observe the impacts of the disorder on the child's language performance. The secondary focus was to examine whether the child demonstrated grammatical difficulties that had not been recorded for monolingual children with SLI.

Method: Two Spanish-English bilingual girls from Spanish-speaking homes participated in the study. Both girls were 7-years-old. In addition, both girls had fathers that could speak both English and Spanish but their mothers only spoke Spanish. Spontaneous language samples were collected from the girls in both English in Spanish through games, narrative language samples, and informal conversation. The samples were transcribed on terminable units (T-units). The samples were coded and analyzed for mean length of utterance (MLU), sentence complexity and

type, Brown's morphemes, and error type. The child with SLI provided English language samples at ages 6;6 and 7;0 and provided Spanish language samples at ages 6;6 and 7;6. The child with NLD provided both English and Spanish language samples at age 7;0.

Results: For the English analyses, the child with SLI did not display good usage of verb forms and tenses, pronouns, and prepositions. Additionally, she was found to use idiosyncratic forms that were atypical of ESL and monolingual English speakers with SLI. The NLD child's English performance indicated that she was developing and mastering her English skills with an adequate rate and precision, even though she had the same time of exposure to English as the child with SLI. For the Spanish analyses, the child with SLI showed errors in using definite articles, pronouns, and prepositions, but had less difficulty using verbs. The more she was exposed to English, the more her MLU in Spanish seemed to be decreasing. The NLD child had minimal grammatical errors and was able to generate an array of grammatical forms and sentence types.

Conclusion: The findings indicated that although children with SLI demonstrate morphosyntactic language problems similar to those of monolingual children or ESL learners, there are still other characteristics that have not been noted in English or Spanish children with SLI. The results also sustain the view that there is not an underlying grammatical marker of SLI. Rather, it varies depending on the child's linguistic background. Although it was beyond the scope of this study, future research should be performed to explore the notion that SLI could accelerate language loss in the primary language.

Simon-Cereijido, G., & Gutierrez-Clellen, V. F. (2009). A cross-linguistic and bilingual evaluation of the interdependence between lexical and grammatical domains. *Applied Psycholinguistics*, *28*, 317-339. doi: 10.1017/S0142716409090134

Purpose: Researchers have hypothesized that a strong connection exists between lexical and grammatical skills during the beginning stages of language development. The present study was interested in finding correlations, if any, between lexical diversity and grammatical complexity in Spanish and English speaking children with varying language abilities.

Method: A total of 196 Latino children with both typical language development and language delays participated in this study. Parent and teacher reports based on a 5-point rating scale were used to determine the level of spoken English and Spanish proficiency for each

participant. The children provided a language sample in English, Spanish, or both languages depending on their willingness and ability to speak each language. Language samples were elicited using a wordless picture book and transcribed using SALT conventions. Lexical diversity was analyzed using number of different words (NDW) and number of different verbs (NDV). Grammatical complexity was analyzed using mean length of utterance in words (MLUW) and ditransitive verbs (DITR).

Results: Lexical diversity (NDW) and use of DITRs was found to be greater in Spanish. Strong and significant correlations occurred in both languages between NDW and MLUW, as well as NDV and MLUW. The means for NDW, NDV, MLUW, and use of DITRs in Spanish were lower for the participants with language delays than the children with typical language development. Cross-language correlations across the measures used for the children that provided language samples in both English and Spanish were not significant for any of the areas being measured.

Conclusion: The findings of this study uphold other research supporting the domain interdependence hypothesis. That is, an association between lexical diversity and grammatical complexity within the English and Spanish languages was found.

Smyk, E., Restrepo, M. A., Gorin, J. S. & Gray, S. (2013). Development and validation of the Spanish-English language proficiency scale (SELPS). *Language, Speech, and Hearing Services in Schools, 44,* 252-265.

Purpose: The purpose of this study was to develop a criterion-referenced Spanish-English Proficiency Scale (SELPS) that yields valid and reliable score interpretations based on the *Standards for Educational Psychological Testing* and on second-language acquisition theory. It reports the development and preliminary validation of the SELPS for assessment of the English language proficiency portion of the scale. A theoretical framework of language proficiency was based on the domains of syntactic complexity, grammatical accuracy, verbal fluency, and lexical diversity to describe the continuum of language proficiency. Tabors' (2008) four stages of English language acquisition in sequential bilingual children were also used, including (a) home language use, (b) nonverbal period, (c) telegraphic and formulaic use, and (d) productive language use.

Method: The aim of the research presented was to measure the oral language proficiency of 4- to 8-year old sequential bilingual children learning English as a second language to identify if a child has the adequate skills in the second language needed to be tested in English. This endeavor was accomplished through two studies. Study 1 examined the reliability of the proposed language proficiency scale based on the theoretical SELPS structure and subscale construct map. This was accomplished by establishing the reliability of two parallel SELPS story retell tasks. Forty sequential bilingual children learning English as a second language participated in this study. Study 2 compared the SELPS scores to external variables such as language sample measures and teacher ratings of English language proficiency to determine the relationship (if any), between the factors. Seventy-six sequential bilingual children learning English as a second language participated in this study, twenty-one of which also participated in the first study.

Results: Study 1 indicated a nonsignificant difference between the subscale scores for the two parallel SELPS retell tasks. It also found a nonsignificant difference between the overall scaled scores on the two story retell tasks. Study 2 indicated a significant moderate-to-large correlation between the SELPS subscale and scale scores and its language sample measure counterparts. When assessing the relationship between the SELPS score and teacher ratings, a moderate-to-significant correlation was found between the two variables.

Conclusion: The SELPS was constructed as a means to screen the English language proficiency of sequential bilingual children to establish their capability of further testing in their nonnative language. This study also provided evidence of the validity of the SELPS when used in conjunction with spontaneous language samples and parent ratings of English language proficiency.

Appendix B: Spanish-English Language Proficiency Scale for Spanish Language

Proficiency

Remember that here you are interested in how well the child can speak the target language. Take into account not only language production during the story retell, but OVERALL child's communication (including answering questions). Give credit for responses ONLY in the TARGET language.

	Silent/observer	A few words or formulaic phrases	Short sentences and phrases with multiple errors	Full sentences with a few grammatical errors	Complex Sentences typical of English Influenced Spanish
	1	**2**	**3**	**4**	**5**
Syntactic Complexity	▪ uses a few words <u>or</u> jargon ▪ mostly silent	▪ uses single words or short phrases ▪ uses memorized phrases	▪ uses short or incomplete sentences that are ungrammatical -most sentences short for age -age 4 < 4 words, ages 5, 6, 7 <5 words, age 8 < 6 words	▪ mix of short and age-appropriate sentences ▪ limited variety in sentence - mostly SVO	▪ all utterances are age-appropriate - average for age: 4 – 4w, 5 – 5w, 6 – 6w, 7 -7w ▪ uses complex sentences - able to connect 2 phrases
Grammatical Accuracy	▪ no grammatical structures	▪ telegraphic speech	▪ errors dominate the sample ▪ multiple NONdevelopmental errors - difficulty with preposition use - inconsistent tense errors - dropped articles	▪ a few NONdevelopmental errors - difficulty with preposition use - inconsistent tense errors - dropped articles ▪ one - two errors multiple times - the same error used consistently ▪ mostly grammatical	▪ age-appropriate errors ▪ very few different grammar errors
Verbal Fluency	▪ N/A	▪ code-switching dominates ▪ long pauses throughout story ▪ abundant filler - "er", "um", "like" - frequent, long pauses within sentences ▪ excessive phrase repetitions	▪ sample sounds laborious ▪ many fillers - "er", "um", "like" - frequent, long pauses within sentences ▪ repeats individual phrases multiple times ▪ excessive word repetitions	▪ speech sounds automatic ▪ some fillers - "er", "um", "like" - frequent pauses within sentences ▪ repeats 1-2 individual phrases multiple times	▪ natural prosody ▪ few fillers - "er", "um", "like" - limited pauses within sentences ▪ no phrase repetitions
Lexical Diversity	▪ < 10 different Spanish words ▪ story in English	▪ basic level of vocabulary (frequent or common words and phrases) ▪ code-switching dominates sample	▪ vocabulary is not varied ▪ multiple substitutions - uses English terms - uncommon and common - uses vague terms, approximations, or "I don't know"	▪ variety of different nouns ▪ some substitutions made - only uncommon words -uses general terms or descriptors	▪ uses a variety of nouns and verbs ▪ minimal substitutions made - only substitutes uncommon words (uses synonyms)

Appendix C: Participants' Demographic Information

Child ID	Months	Age in Grade	Free or Reduced Lunch	of Education	Mother's Level to Child In	Mother Speaks to Mother In	Child Responds
SA4286	73	K	Free	Elementary	S Only	E and S	
SA4291	73	K	Free	High School	E and S	E and S	
SA4296	81	1	Free	High School	E and S	E and S	
SAK3622	88	1	Free	High School	S Only	S Only	
SAK3631	67	K	Free	College/University		S Only	S Only
SAL4072	75	K	Free	High School	E and S	E and S	
SAL4154	85	1	Free	Elementary	S Only	S Only	
SB4526	86	1	Free	Elementary	S Only	S Only	
SB4531	73	K	Free	High School	S Only	S Only	
SBD3479	88	1	N/A	High School	E and S	S Only	
SBH3597	68	K	Free	N/A	S Only	E and S	
SBI3988	88	2	Free	Elementary	S Only	S Only	
SBL4186	90	2	Free	High School	S Only	S Only	
SBL4192	76	K	Free	Elementary	S Only	S Only	
SM3685	80	1	Free	Elementary	S Only	S Only	
SM3693	67	K	N/A	High School	S Only	E and S	
SM3716	66	K	N/A	N/A	S Only	S Only	
SM3725	74	K	Free	Elementary	S Only	S Only	
SM4114	75	K	N/A	Elementary	S Only	S Only	
SN3756	90	2	Free	High School	E and S	S Only	
SN3805	94	2	Free	Elementary	S Only	E and S	
SN3817	90	2	Free	Elementary	S Only	S Only	
SR4641	79	K	Free	College/University		E and S	E Only
SX4241	69	K	Reduced	High School	E and S	E and S	

Note: E = English, S = Spanish

Child ID	Father's Level of Education	Father Speaks to Child In	Child Responds to Father In	Sibling(s) Speak to Child In	Child Responds to Sibling(s) In
SA4286	Elementary	E and S	E and S	E and S	E and S
SA4291	Elementary	N/A	N/A	E Only	E Only
SA4296	High School	E and S	E and S	E and S	E and S
SAK3622	Elementary	S Only	S Only	S Only	S Only
SAK3631	N/A	N/A	N/A	E and S	E and S
SAL4072	Elementary	S Only	E and S	N/A	N/A
SAL4154	College/University	S Only	S Only	N/A	N/A
SB4526	Elementary	S Only	S Only	E Only	E Only
SB4531	N/A	N/A	S Only	N/A	N/A
SBD3479	High School	S Only	S Only	N/A	N/A
SBH3597	Elementary	S Only	E and S	E and S	E and S
SBI3988	High School	S Only	S Only	E Only	E Only
SBL4186	Elementary	S Only	S Only	S Only	E and S
SBL4192	Elementary	N/A	N/A	S Only	S Only
SM3685	Elementary	S Only	S Only	E Only	E Only
SM3693	N/A	N/A	N/A	E and S	E and S
SM3716	N/A	S Only	N/A	N/A	N/A
SM3725	N/A	N/A	N/A	E and S	E and S
SM4114	Elementary	S Only	S Only	N/A	N/A
SN3756	High School	S Only	S Only	E and S	E and S
SN3805	Elementary	S Only	S Only	E and S	E and S
SN3817	High School	S Only	S Only	E Only	E and S
SR4641	College/University	E Only	E Only	E Only	E Only
SX4241	High School	E and S	E and S	N/A	N/A

Note: E = English, S = Spanish

Appendix D: Participants' Language Status and SELPS Scores

Child ID	Rater A	Rater B	SC	GA	VF	LD	Sub Total	Scaled Score
SA4286	Non-native	Non-native	4	3	2	3	12	3.00
SA4291	Non-native	Non-native	4	3	2	2	11	2.75
SA4296	Couldn't Tell	Couldn't Tell	4	4	3	3	14	3.50
SAK3622	Native	Native	4	4	4	4	16	4.00
SAK3631	Native	Native	4	3	4	4	15	3.75
SAL4072	Couldn't Tell	Couldn't Tell	3	3	2	2	10	2.50
SAL4154	Native	Native	5	3	4	5	17	4.25
SB4526	Couldn't Tell	Couldn't Tell	4	3	4	4	15	3.75
SB4531	Native	Native	4	3	3	4	14	3.50
SBD3479	Native	Native	4	3	4	3	14	3.50
SBH3597	Couldn't Tell	Couldn't Tell	4	3	3	3	13	3.25
SBI3988	Native	Native	5	3	3	4	15	3.75
SBL4186	Native	Native	4	4	3	4	15	3.75
SBL4192	Couldn't Tell	Non-native	3	3	3	3	12	3.00
SM3685	Couldn't Tell	Couldn't Tell	3	4	2	3	12	3.00
SM3693	Couldn't Tell	Native	3	3	4	3	13	3.25
SM3716	Native	Native	5	4	4	5	18	4.50
SM3725	Non-native	Non-native	3	3	2	2	10	2.50
SM4114	Non-native	Non-native	1	1	2	1	5	1.25
SN3756	Non-native	Non-native	4	4	3	4	15	3.75
SN3805	Non-native	Non-native	4	3	3	4	14	3.50
SN3817	Non-native	Native	5	4	4	5	18	4.50
SR4641	Non-native	Non-native	3	3	5	3	14	3.50
SX4241	Non-native	Non-native	3	3	2	2	10	2.50

Note: SC = Syntactic Complexity, GA = Grammatical Accuracy, VF = Verbal Fluency, LD = Lexical Diversity