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Examining Language Patterns and Growth of "At Risk" Bilingual Children

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Examining Language Patterns and Growth of "At Risk" Bilingual Children

by

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Dedication

This report is dedicated to my parents for their unconditional love, support, and encouragement of me in this and all of my endeavors.

Acknowledgements

I would like to thank Dr. Lisa M. Bedore for sharing so much of her time and expertise with me throughout the entire process of creating this report. I would also like to thank Dr. Elizabeth D. Peña for her valuable insights on bilingual language development, which helped me greatly in the writing of this report.

Abstract

Examining Language Patterns and Growth of "At Risk" Bilingual Children

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The University of Texas at Austin, 2014

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The goal of this report was to explore ways to differentiate the performance of early school-aged Spanish-English bilingual children in U.S. public schools, who appear "at-risk" for language impairment versus those who have true risk. We compared the patterns of performance reported for children with typical development and language impairment reported in the literature to those for children with risk described by Bedore et al., (2013) and Perez et al., (in preparation). Children with risk seem quite different than their peers with true language problems on formal measures such as the Bilingual English Spanish Assessment (*BESA*). However these children presented fewer errors or weaknesses in spontaneous speech than did their peers with true language impairment. Language variability and errors are expected in the language of young bilingual children, so it is of utmost importance that language professionals closely assess each of the child's

languages with formal and functional measures prior to making a diagnosis of language impairment.

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RESEARCH

According to a 2011 report from the U.S. Census Bureau, 21% of the U.S. population five years and older speaks a language other than English at home (U.S. Census Bureau, 2011). This proportion is projected to double by 2030 (U.S Census Bureau, 2011). As a result of this exponential growth, the percentage of bilingual children within U.S. schools is also growing rapidly. Identifying language impairment in bilingual children, defined here as those who speak more than one languages, each at least 20% of their day, is challenging because the observed range of normal variability of language skills is greater than that of monolingual speakers. Because of this inherent difficulty with assessing and diagnosing language impairment, the risk and frequency of misdiagnosis is relatively high. Historically, Hispanic students and English Language Learners (ELLs), one of the most rapidly growing populations of students in schools, are underrepresented at the national level; however, data at the state and district levels has revealed that these groups are often both over- and underrepresented in special education services (Artiles, Rueda, Salazar, & Higareda, 2005; Bal et al., 2014; Sullivan, 2011). The purpose of this report is to evaluate how children with true language impairment differ from those who look to be at risk but eventually catch up with their peers in order to make practical suggestions for assessment.

In order to better understand the nature of language impairment in children who speak and use more than one language, researchers have investigated bilingual language development in children presenting with atypical patterns of language development, as

well as typically developing bilingual children. Typically developing bilingual children generally differ from their typically developing monolingual peers in their language development because of the many factors that contribute to greater variability in the timeframe of acquisition of language skills and patterns of language acquisition (Kohnert, 2013). These factors include "child internal" and "child external" factors, which interact to result in many different patterns of language development (Kohnert, 2013, p. 87). Some external factors include the age of acquisition of the child's second language, the environmental context in which each language is used, the broader context of the relative social status of each language, the inherent differences in the language types, and the purposes of each language. An additional crucial external factor that accounts for a great deal of the variability in bilinguals' language development is the relative amount of input in each language on a daily basis. Internal factors that result in the marked variability among bilingual children's language development include the child's individual learning style, underlying cognitive abilities for language, interaction preferences, and motivation (Kohnert, 2013).

Recently research has been conducted to investigate the patterns of language growth and development of early-school aged bilingual children. Specifically, Rojas & Iglesias (2013) investigated the patterns of 1,723 English language learners' language growth over the course of the first three years of formal schooling (kindergarten through second grade). The researchers examined the growth trajectories of Spanish and English, as well as possible contributing factors, including gender, summer vacation, and initial status of both languages. Language samples were collected and language sample

measures were obtained from each sample to measure the growth of several domains of each language of each of each participant. Mean length of utterance (MLU) was used to measure morphosyntax, and the number of different words (NDW) was used to measure semantic knowledge and productivity. The third measure was words per minute (WPM), which was used to measure overall fluency and integration of language domains. One of the most significant findings of this longitudinal study was that those children who demonstrated the weakest initial English language skills in kindergarten were more likely to demonstrate rapid English language growth over time, eventually "catching up" to the children with stronger initial English language skills.

Evidence of this pattern of overidentification and referral of bilingual children for language impairment and related special education services has been observed to occur in the United States, as well as other regions around the world, including the United Kingdom (Mennen & Stansfield, 2006; Stow & Dodd, 2003; Winter, 1999), Singapore (Gupta & Chandler, 1993), Australia (McLeod & McKinnon, 2007), Sweden (Berhanu, 2008; Salameh, Nettelbladt, Hakansson, & Gulberg, 2002), and Hong Kong (Cheuk, Wong, & Leung, 2005). Several factors, including socioeconomic status (SES), standardized test performance, and biased and inaccurate assessment protocols have been found to influence these patterns the most.

In terms of socioeconomic status, children in the United States whose native language is Spanish are more likely to be from lower-SES backgrounds (Krashen & Brown, 2005). These students also tend to be overrepresented in the population of students receiving special education services (Artiles et al., 2005).

In addition to socioeconomic status, testing procedures also play a significant role in the over-identification of bilingual students. In public schools, standardized language tests are used to qualify children for services. The problem with these tests is that they often only account for the child's second language, which is typically English in U.S. schools. Furthermore, most standardized language tests are normed on samples of monolingual children. As opposed to monolingual children, developing bilinguals' language knowledge and experience are distributed, often unevenly, across two languages (Bialystok et al., 2008b; Umbel, Pearson, Fernandez, & Oller, 1992). As a result, bilingual children tend to obtain scores below average on these types of tests that only assess one language, which can lead to their over-identification for language impairment.

Even when tests in the child's first language are used to identify language impairment, problems of overidentification still occur. One particularly troubling example of how standardized language testing in schools results in disproportionate numbers of bilingual children in special education was described in an article by MacSwan and Rolstad (2006). These researchers investigated the use of two common language tests, the *Language Assessment Scales-Oral (LAS-O) Español* (De Avila & Duncan, 1994) and the *Idea Proficiency Test I-Oral (IPT) Spanish* (Williams, Ballard, Tighe, Dalton, & Amori, 1998). The authors presented the findings of a validity study, in which researchers compared participants' results of these commonly used Spanish-language tests with coded speech samples. The participants were 6-8 year old children, whose first language was Spanish, and who demonstrated limited English proficiency. The results of this investigation revealed that the two language tests identified a vastly

greater proportion of students as having limited native language ability. The LAS-O identified 74% of the students as having limited Spanish language, while the IPT identified 90% of students as having limited Spanish language. By contrast, the coded language samples obtained from each child only identified 2% of the children as possibly presenting with language impairment. This discrepancy between the two measures and language sampling procedures led the authors to conclude that these standardized language tests may not be an accurate or unbiased way of assessing bilingual children's language. Furthermore, they argued that these testing practices should be abandoned in favor of more natural language sampling measures, which provide the examiner with a more authentic and unbiased representation of the child's language abilities (MacSwan & Rolstad, 2006).

Kohnert (2004) argued that because indicators of language impairment change as children grow and develop, processing-dependent measures, instead of standardized language tests, might yield more accurate and culturally unbiased results. Processing-dependent measures give information about working memory, or the child's ability to quickly and efficiently manipulate linguistic units, such as vocabulary words, verb morphology, and phonology. Kohnert described studies involving one type of processing-based assessment, a nonword repetition task, which successfully contributed to differentiation of language impairment in children from culturally and linguistic diverse backgrounds according to the presence or absence of possible language impairment (Campbell et al., 1997; Dollaghan & Campbell, 1998; Ellis Weismer et al., 2000).

It is also difficult to correctly identify language impairment if examiners assume that the errors made by the bilingual child originate from the process of learning a second language (Genesee et al., 2004; Paradis, 2005). Grimm and Schulz (2014) sought to investigate rates of misdiagnosis of specific language impairment (SLI) among monolingual and early sequential bilinguals in schools in Germany. They conducted a study, which compared a group of 92 monolingual children, including both typically developing and children with SLI, to a group of 74 early sequential bilingual children, also comprised of both typically developing and children with an SLI diagnosis. The children's ages ranged from five to eight years. The researchers found that the rate of overdiagnosis was significantly higher for the bilingual children. 27.3% of typically developing bilingual children were identified as having SLI, while 14.5% of typically developing monolingual children were identified as having SLI. No significant difference between the groups was found in terms of underdiagnosis. 43.5% of monolingual children with SLI were not identified as having SLI, while 31.6% of bilingual children with SLI were not identified as having SLI. Based on these results, the researchers concluded that it is more difficult to correctly diagnose bilingual children as typically developing than it is to correctly diagnose typically developing monolingual children (Grimm & Schulz, 2014).

Based on the increased rate of referral for bilingual children to special education and related services for language disorders, it would seem that bilingual children are at greater risk for language impairment; however several researchers have refuted this assumption. Peña et al. (2011) conducted a study to analyze the risk for language

impairment in Latino children with varying levels of experience with English and Spanish. They used the more accurate *Bilingual English Spanish Oral Screener* (BESOS; Peña et al., 2013) to test each child's semantics and morphosyntax skills in each language. They also accounted for the children's language exposure and background by using parent interviews to estimate the amount and type of input they received in Spanish and English. They found that bilingual children were no more likely to be at-risk for language impairment than their functionally monolingual peers.

This analysis is a follow-up to a 2013 study conducted by Gillam and colleagues in which they address the ways in which children who were identified as having language impairment by one SLP (1-language ability group) differed from their LI peers (2 or 3 identified) versus those who no one identified as having LI. In this report, an analysis of language assessment data of a subset of 70 bilingual Spanish-English children from kindergarten and first grade is presented from a subset of 186 children who participated in longitudinal testing. We investigated the patterns of performance in both languages and across language domains of the children who were classified as at-risk, or borderline, for language impairment, and determined whether these children demonstrated language patterns more closely resembling the typically developing group or the language-impaired group. The first research question asked was, "Do these children in the at-language ability group demonstrate a pattern of performance on language assessments?" The second research question asked was, "Do these bilingual children who were classified as at-risk for language impairment demonstrate language performance patterns that more closely resemble the language impaired or the typically developing group?"

Another research question asked was, "Which of the various assessment measures demonstrated the highest degree of differentiation among the groups?" The goal of this report is to enhance our understanding of which of the administered measures are most informative in making decisions about language impairment in early school-aged bilingual children.

To address the question of interest we compared the results of formal testing using the *BESA* and language samples from a study of identification of language impairment in bilingual Spanish English children (Gillam et al., 2013) to those of children who had risk but not true language impairment, discussed by Bedore et al. (2013) and Perez, et al. (in preparation). Children were eligible to participate in the parent study if they demonstrated low scores on the *Bilingual English Spanish Oral Screener* (BESOS; Peña, 2013) and were bilingual in Spanish and English as indicated by parent report when they were in prekindergarten. To determine what types of measures were most informative for identifying risk for language impairment in bilingual children, 186 children who spanned the full range of ability were selected for a two- year follow up study. The children's language skills were assessed with a variety of different measures in both English and Spanish. These tests included, among others, the *Bilingual English Spanish Assessment* (*BESA*: Peña, Gutierrez-Clellen, Iglesias, Goldstein, Bedore, 2013), language sample measures obtained from an informal speech sample, and nonword repetition tasks. This first round of testing was conducted when the children were in kindergarten. The children were tested again with the same measures in first grade.

Three experienced speech-language pathologists then rated the 186 children based on their performance on various measures, which will be discussed further, and determined whether or not each child presented with language impairment. For each child, all three of the raters' decisions were added together. If all three professionals determined that the child presented with language impairment, that child was given a rating of "3." If two of the three professionals concluded that the child presented with language impairment, that child was given a rating of "2." Children for whom only one of the three raters had a concern were given a rating of "1." Finally, children who were determined to be typically developing by all three raters were given a rating of "0." (Gillam et al., 2013).

The researchers classified those children who received ratings of 2 or 3 as language impaired. Children who received a rating of 1 were considered "borderline" or at risk for language impairment. Because of the disagreement between professional speech-language pathologists about how to classify them, the children with ratings of "1" are the focus of this report. Of the 186 participants, 14 received a rating of "1."

Participants in this analysis were those children who had been identified by at least one SLP as having LI and their typically developing peers who were identified as having typically developing language skills. The second criteria concerned the amount of language exposure in each language. The parents of the children who were included reported that their children were hearing and speaking both English and Spanish at least 20% of the time. This information was obtained from a parent interview. The participants also underwent IQ testing with the Universal Nonverbal Intelligence Test (Bracken &

McCallum 1998), and only those children whose IQs were within the normal range were included.

Based on the results of these studies, the children with risk (R1) were separated from those of children with language impairment (LI) and those with typical development.(NLI) Table 1 depicts this division by the performance of each language ability group

Table 1. Demographics of participants in the three matched language ability groups

Participant characteristic	NLI	R1	LI
Age at first test date (months)	68.00 (3.83)	66.93 (4.29)	68.38 (4.80)
Age at second test date (months)	80.89 (4.79)	80.64 (4.96)	81.00 (4.43)
Average combined English input/output (percentage)	55.88 (19.53)	53.29 (17.41)	58.37 (19.98)
Age of First English Exposure (years)	2.02 (1.27)	2.15 (1.21)	2.23 (1.32)

Note. NLI=non-language impaired (0's), R1=one risk group (1's), LI=language impaired (2's and 3's). Standard deviations in parentheses.

MEASURES

We evaluated performance on *The Bilingual English Spanish Assessment* (*BESA,* Peña et al., 2013) and language samples. The *BESA* is a standardized test designed for bilingual Spanish-English speakers. This assessment tool consists of subtests to evaluate a child's phonology, semantics, and morphosyntax in both Spanish and English. For the phonology subtest, the examiner shows the child pictures of common objects, and the child is required to name each one. The child's responses are recorded and analyzed for phonetic accuracy. For the semantics subtest, the child listens to a story with a culturally familiar theme and answers questions related to the story. The types of questions include category generation, similarities and differences, and functions. The child's responses to these items are conceptually scored, meaning that responses in both languages are given credit (Bedore et al., 2005). The third BESA subtest evaluates morphosyntax by tapping grammatical forms that are difficult for children with language impairment in English, as well as challenging Spanish grammatical structures (Bedore et al., 2010). A cloze task, in which the examiner reads a complete sentence that corresponds to a picture, and then begins to read another similar sentence with a similar corresponding picture. The child is prompted to orally complete the second sentence using the targeted grammatical form (e.g. possessives in English, clitics in Spanish) (Bedore et al., 2010, p. 503). The second task is a sentence repetition task, in which the child repeats sentences that the examiner reads aloud. The child is scored on his or her accuracy of production of the repeated sentences. The percentage scores are then recorded for each subtest.

Language samples focus on children's ability to tell stories and are ecologically valid measures reflecting communication in context. Language samples were collected in English and Spanish, using the Mercer Mayer story, *Frog, where are you?* Each child listened to the examiner tell the story before being asked to retell the story in their own words, using the pictures in the story as a guide. The children's language samples were recorded and analyzed. The mean length of utterance (MLU), number of different words (NDW), and the percentage of the child's grammatically correct utterances when compared to a grammatically correct model were each obtained from these transcribed language samples.

The groups' average performances on all measures during their kindergarten year are reported in Table 2. The groups' average performances on these same measures one year later, during first grade, are reported in Table 3. Finally, the amounts of change observed from each group on these same measures from kindergarten to first grade are reported in Table 4.

Table 2. Kindergarten averages (and standard deviations) of performance of each language ability group on language measures.

Language measures (kinder)	NLI	R1	LI
BESA English phonology	93.11 (4.29)	91.84 (8.07)	84.92 (10.22)
BESA English semantics	53.39 (13.77)	40.77 (10.83)	33.43 (14.68)
BESA English morphosyntax	47.94 (23.11)	32.31 (21.95)	18.44 (14.38)
Number of different words (NDW)-English	65.03 (28.56)	56.46 (19.89)	42.33 (22.83)
Grammaticality-English	48.88 (25.92)	42.61 (15.60)	26.83 (19.23)
Mean Length of Utterance (MLU)-English	5.36 (1.30)	4.60 (.94)	3.97 (1.32)

(Table 2 continued)

BESA Spanish phonology	93.81 (5.02)	93.78 (6.49)	87.43 (10.64)
BESA Spanish semantics	52.24 (19.22)	44.17 (14.80)	31.97 (15.37)
BESA Spanish morphosyntax	58.49 (27.49)	50.77 (18.04)	26.25 (17)
Number of different words (NDW)-Spanish	59.23 (20.67)	60.08 (20.18)	39.79 (18.46)
Grammaticality (%) Spanish	70.07 (20.52)	66.41 (19.11)	53.41 (25.97)
Mean Length of Utterance (MLU)-Spanish	4.99 (1.32)	4.66 (1.11)	3.74 (1.26)

Note. NLI=non-language impaired (0's), R1=one risk group (1's), LI=language impaired (2's and 3's).

Table 3. First grade averages (and standard deviations) of performance of each language ability group on language measures.

Language measures (First grade)	NLI	R1	LI
BESA English phonology	96.53 (3.33)	95.63 (4.82)	92.10 (7.02)
BESA English semantics	72.26 (9.61)	62.35 (11.83)	51.59 (13.74)
BESA English morphosyntax	73.33 (21.70)	53.63 (25.36)	38.93 (22.07)
Number of different words (NDW)-English	74.18 (21.19)	73.08 (15.26)	62.82 (17.04)
Grammaticality-English	64.83 (22.75)	60.13 (21.17)	50.45 (20.16)
Mean Length of Utterance (MLU)-English	6.60 (.92)	5.90 (1.39)	5.19 (.90)
BESA Spanish phonology	96.12 (4.73)	97.23 (3.17)	93.70 (5.20)
BESA Spanish semantics	66.36 (13.74)	59.77 (11.78)	43.34 (16.12)
BESA Spanish morphosyntax	68.46 (24.91)	53.42 (15.08)	35.85 (18.89)
Number of different words (NDW)-Spanish	70.50 (22.69)	68.79 (17.08)	48.85 (22.02)
Grammaticality (%) Spanish	76.23 (18.28)	67.51 (18.39)	53.67 (20.94)
Mean Length of Utterance (MLU)-Spanish	5.65 (.72)	5.24 (.78)	4.65 (1.07)

Note. NLI=non-language impaired (0's), R1=one risk group (1's), LI=language impaired (2's and 3's).

Table 4. Amount of Change Observed on all Language Measures from Kindergarten to First Grade (Positive Difference between First Grade Average Score and Kindergarten Average Score)

Language measures	NLI	R1	LI
BESA English phonology	3.42	3.79	7.18
BESA English semantics	18.87	21.58	18.16
BESA English morphosyntax	25.39	21.32	20.49
Number of different words (NDW)-English	9.15	16.62	20.49
Grammaticality-English	15.95	17.52	23.62
Mean Length of Utterance (MLU)-English	1.24	1.30	1.22
BESA Spanish phonology	2.31	3.45	6.27
BESA Spanish semantics	14.12	15.60	11.37
BESA Spanish morphosyntax	9.97	2.65	9.60
Number of different words (NDW)-Spanish	11.27	8.71	9.06
Grammaticality (%) Spanish	6.16	1.10	0.26
Mean Length of Utterance (MLU)-Spanish	0.66	0.58	0.91

Note. NLI=non-language impaired (0's), R1=one risk group (1's), LI=language impaired (2's and 3's).

To determine which measures were most useful in understanding the difference between these groups we graphed the results of the measures listed in Tables 2 and 3. This analysis was conducted with the purpose of determining which language assessment measures proved to be the most informative in differentiating bilingual children on the basis of their language learning ability. Direct comparisons between the groups and their performance on different language measures were drawn. The scores obtained from the English and Spanish *BESA* each of the children obtained in kindergarten were analyzed

first. We were interested in considering if there were differences by language, subtest, or group.

In kindergarten, The R1 group obtained an average of 11.87 points higher than the LI group. On average, this group performed 7.56 points lower than the NLI group. The patterns in each language were similar to one another.

Figure 1. Kindergarten *BESA* subtest by language ability group interaction.

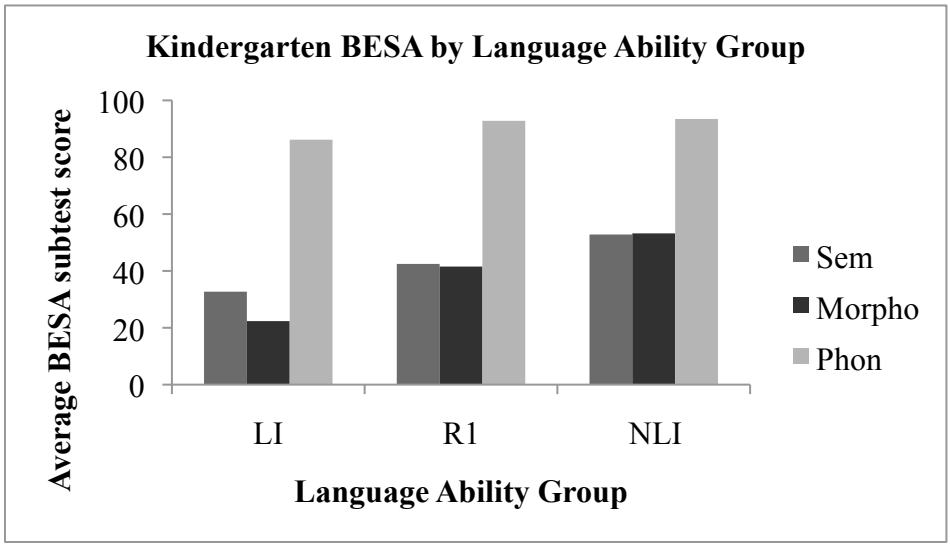
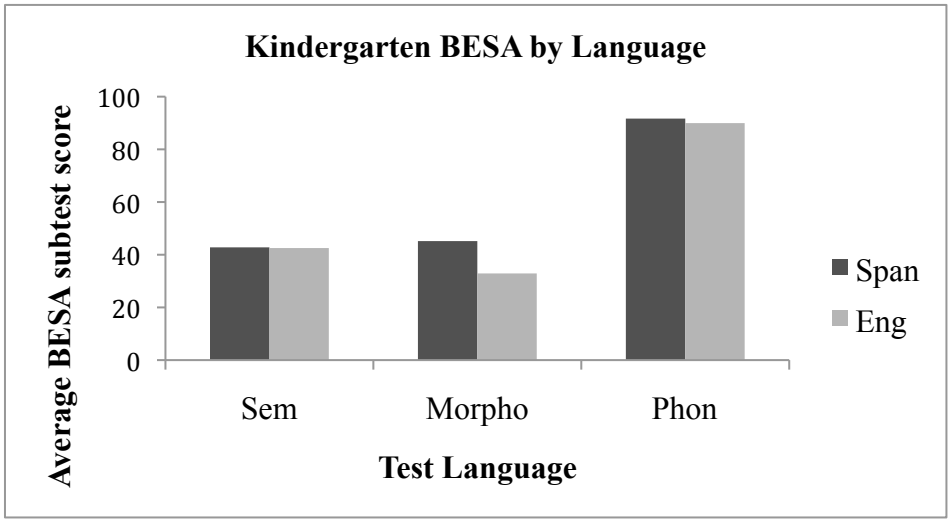


Figure 2. Kindergarten *BESA* subtest by language interaction.



The same analysis was conducted on the Spanish and English *BESA* scores obtained from the same children one year later, when they were in first grade. The R1 group scored an average of 11.92 points higher than the LI group on the *BESA*. The R1 group also differed significantly from the NLI group, scoring an average of 7.67 points lower on the *BESA* but there were no differences in pattern by language.

Figure 3. First grade *BESA* subtest by language ability group interaction.

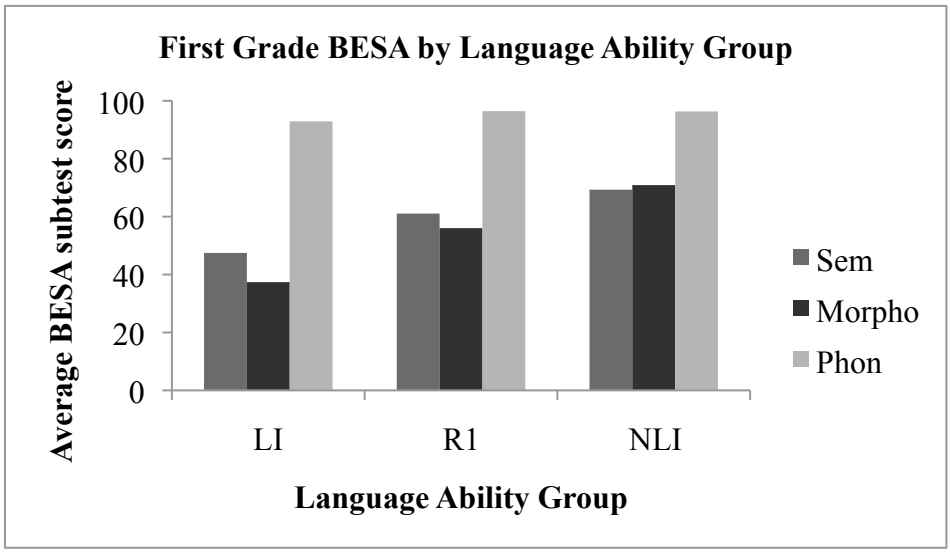
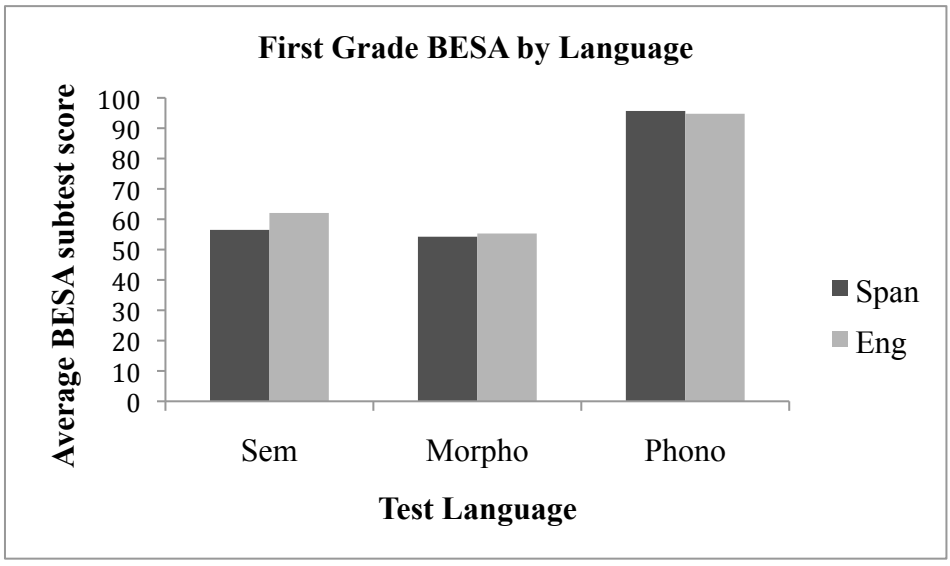


Figure 4. First grade *BESA* subtest by language interaction.



Next, the language sample measures collected from the children during their kindergarten year were analyzed. The language (Spanish, English) and language sample measures, number of different words (NDW), mean length of utterance (MLU), and grammaticality were all graphed. Here we observed that there were no differences by measure but that the performance of the children with risk (R1) overlapped with that of the typically developing children (NLI), while the language impaired children (LI) fell well below the performance range of the other groups. This is depicted in Figure 5. There were differences by language sample measure, shown in Figure 6. This lack of significant difference observed between the R1 and NLI groups on these criterion-referenced language sample measures may reflect that this task is not as discriminating as the *BESA*, or that children can perform within the expected range when they have more control over what they will say.

Figure 5. Kindergarten language sample measure by language ability group interaction.

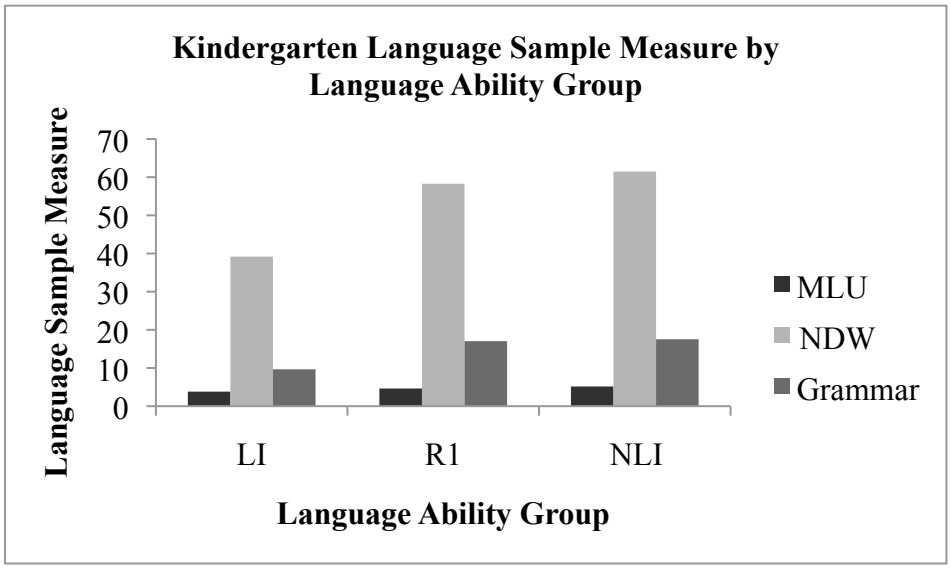
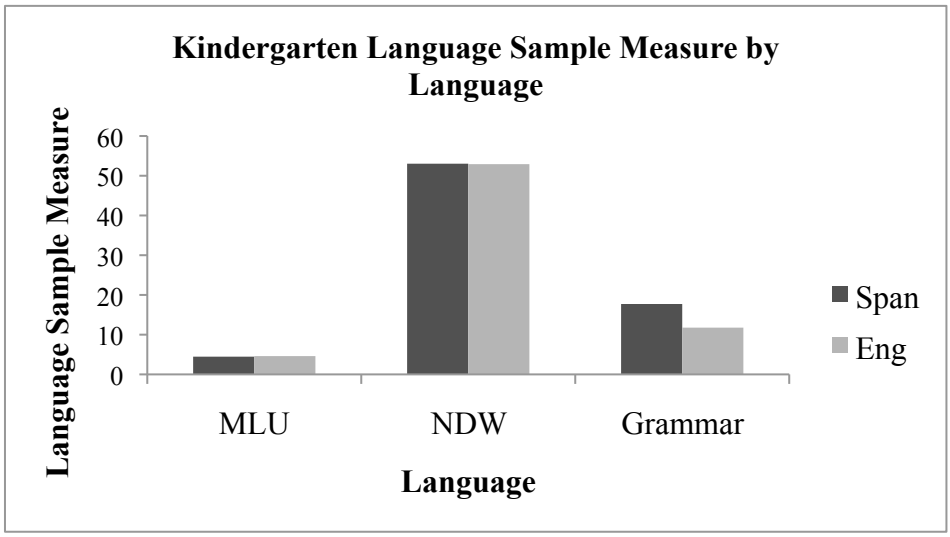


Figure 6. Kindergarten language sample measure by language interaction.



The same patterns were observed in analysis conducted using the language sample measures collected from the children one year later during their first grade year. As shown in Figure 8, the pattern of performance by language was the same. NLI and R1 groups did not significantly differ by their performance on these measures (Figure 7). This pattern confirmed the pattern observed in kindergarten.

Figure 7. First grade language sample measures by language ability group interaction.

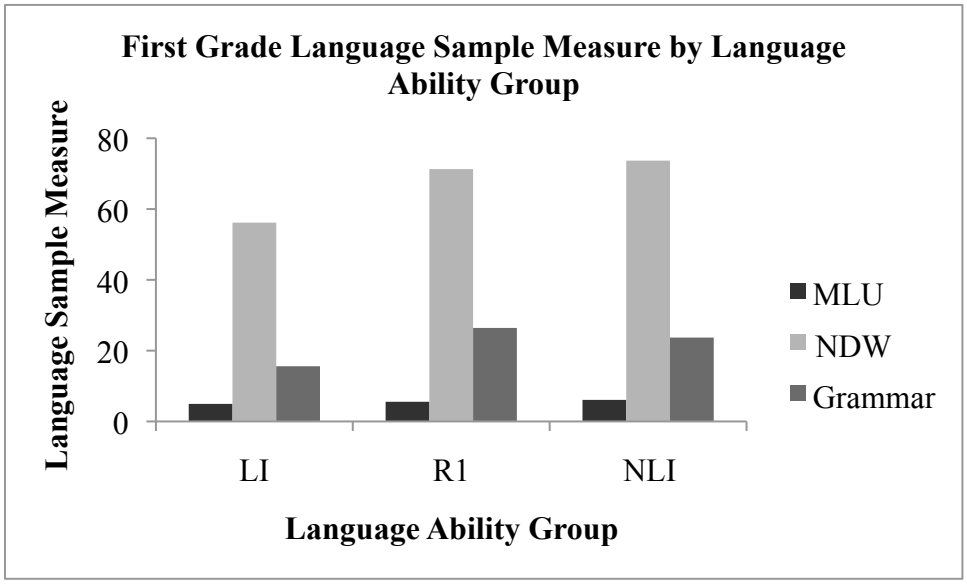
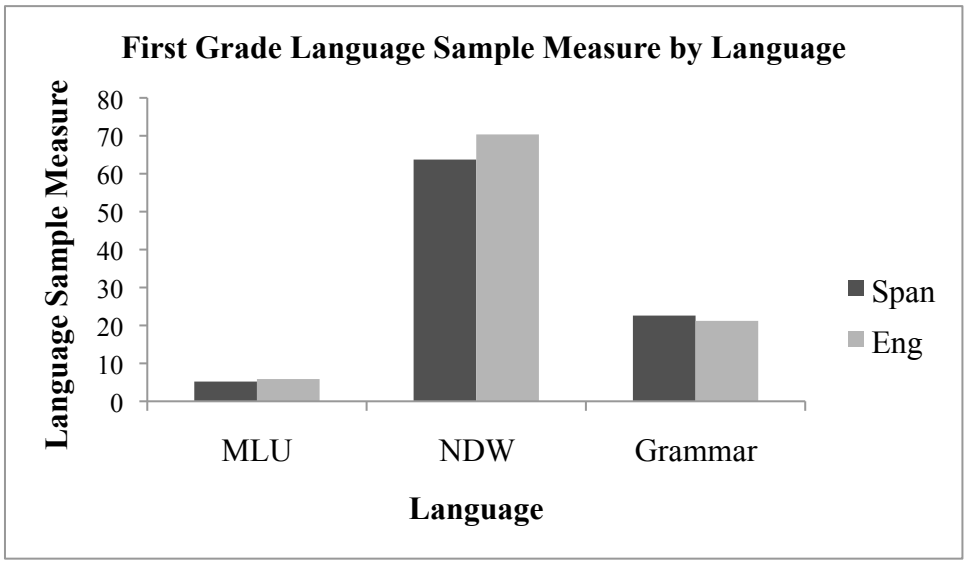


Figure 8. First grade language sample measure by language interaction.



DISCUSSION

Misdiagnosis of bilingual children as either language impaired or typically developing is an increasingly widespread problem in societies with large numbers of bilingual children. The growing population of school age bilingual children increases the probability that special education professional service providers will be faced with a disproportionately high volume of referrals of students from these culturally and linguistically diverse backgrounds.

The purpose of this report was to closely examine the patterns of performance of a sample of these early sequential bilingual students on formal and informal language measures. Of particular interest were those students who were identified as "at-risk" due to disagreement among speech language pathologists' professional diagnoses of these children. The first research question we sought to answer was, "Do these children in the at-risk group demonstrate a pattern of performance on language assessments?" The second research question asked was, "Do these bilingual children who were classified as at-risk for language impairment demonstrate language performance patterns that more closely resemble the language impaired or the typically developing group?" Finally, "Which of the various assessment measures demonstrated the highest degree of differentiation among the groups?"

To answer the first and second research questions regarding patterns of language performance of those children identified as at-risk for language impairment, we plotted the "at-risk" (1's) sample of students to a sample of students classified as language

impaired (2's-3's) and typically developing (0's) on the factors of age at first and second testing, amount of bilingual language exposure, and cognitive abilities. We then compared the group averages of the scores obtained from the three Spanish and English *BESA* subtests, and the three informal language sample measures in Spanish and English.

Overall, the results revealed that children in the "at-risk" group demonstrated language growth more closely resembling the typically developing group. It was expected that the amount of language growth in Spanish would be smaller than the amount of English language growth, because of the increased exposure to English at school and the "dominance shift" that is expected to occur when a bilingual child begins formal education. This expectation was met and reflected in the greater amount of growth in English than Spanish on the formal measures of the *BESA,* as well as the informal measures obtained from the language samples. Results showed that the children in the "at-risk" group surpassed the typically developing group in the amount of growth they demonstrated in the domains of phonology and semantics in both languages. Furthermore, the at-risk group showed similar amounts of growth to the typically developing groups in the domain of English morphosyntax.

To answer the third research question, we analyzed the differences between groups on each of the language measures. Based on these observations, the *BESA* appeared to be the most discriminating of the three language measures administered, particularly in the domain of morphosyntax. All three language ability groups scored within the language impaired range on the *BESA* measures of semantics and morphosyntax in both languages in kindergarten and first grade. These results were

somewhat expected, considering the more structured responses required from a standardized test format. The more structured format of a standardized test allows the examinee less flexibility of responses, so language deviations are more obvious and more likely to result in differentiation between groups based on their relative strengths and deficits in each language domain. It was apparent, however, that even though the children scored lower on these formal measures, they demonstrated stronger language performance on the informal measures.

The children in the "at-risk" group demonstrated an even more pronounced example of this pattern of low scores on the formal measures with significantly higher scores on informal measures. This group scored lower on measures of the *BESA*, but they demonstrated stronger language on the functional, informal measures obtained from both language samples. Evidence of this was seen in the significant similarity between the average measures of the "at-risk" and typically developing groups across MLU, NDW, and grammaticality.

Language growth as measured by the informal language sample measures revealed that the amount of language growth seen in the "at-risk" group did not follow a definite pattern more closely resembling either the typically developing or the language-impaired group. Generally, the language impaired group demonstrated greater language growth across measures than the other two groups, especially in English. This could be due to the fact that the children in the language-impaired group demonstrated a low initial level of language, and therefore, more room for improvement over time. The at-risk group demonstrated language growth more similar to the typically developing group in

measures of English MLU and grammaticality. In Spanish, the at-risk group demonstrated less growth, more closely resembling that of the language impaired group, on the measures of NDW and grammaticality. Again, this lack of significant growth in Spanish was expected because of the reduced exposure to Spanish that accompanies the beginning of a child's formal schooling.

One future consideration for bilingual language assessment might be to utilize processing-based measures, such as nonword repetition tasks or dynamic assessment, to reduce bias and assess the child's underlying cognitive processes. For example, as Kohnert (2004) explained, the nonword repetition task is different from the knowledge-dependent measures of language because it is a measure of the efficiency of the child's phonological working memory. These types of measures may prove to be more sensitive in identifying bilingual children with true language impairment.

LIMITATIONS

This report did have several limitations. First, the children in the "at-risk" group, who were the focus of this report, were not explicitly identified because of any concern expressed by their teachers or parents. These children were simply chosen because one of the three speech-language pathologists from the parent study rated identified the child as presenting with a possible language deficit. Future research examining the parents and teacher ratings of these children would that have helped to disambiguate the data about their language performance. More information about these children's specific language concerns from a greater variety of sources may be a valuable next step for future research.

CONCLUSIONS

In summary, these bilingual children who were categorized as "at-risk" for language impairment demonstrated patterns of growth more closely resembling their typically developing peers. Formal, standardized language measures of semantics and morphosyntax, like the *BESA*, are more difficult for these children, as evidenced by their low scores, placing them in the language-impaired range across both of their languages. The performance of these "at-risk" children on the informal measures of language indicated that they were able to demonstrate levels of language more similar to that of the typically developing group than the language-impaired group. The results of this report suggest that those school-aged bilingual children who do not score highly on tests of language in either of their languages early on in their schooling do not necessarily present with language impairment. From the observations from this report, it seems that morphosyntax is the one language domain that continues to persist as a language difficulty for these children across time.

Because of the disproportionate rate of identification for language impairment and referral for related special education services in this population, it is important that speech and language professionals understand the variability of bilingual language development in early school-aged bilingual children.

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