# Understanding the Narrative Skills of Bilingual Adolescents with and without Developmental Language Disorder

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## INTRODUCTION

### Bilingual Adolescents' Language Development

- Majority of studies have focused on childhood bilingual development; little is known about bilingual language development beyond middle school (Soto-Corominas et al 2020).
- Research on oral language development in DLLs in senior elementary and middle school is limited (Hakuta et al.,2000; Saunders & O'Brien, 2006).
- Existing studies focus on vocabulary, reading, academic skills or global measures of proficiency, *but not* on individual oral linguistic domains (such as morphosyntax) (Murphy, 2014).
- It is not clear how bilingual adolescents with DLD present.

### Use of Narrative Tasks to Identify DLD in Bilinguals

- Nippold and colleagues (2014) used a narrative task to compare teens with typical development (TD) and language disorders. The TD group outperformed adolescents with DLD on several measures yielded from narratives.

**Will we find group differences in production of narrative measures in populations of adolescents *who are bilingual?***

## RESEARCH AIMS

**Aim 1.** To describe the nature of bilingual adolescents' narrative skills in their L1 Spanish and L2 English, and to explore how age of first exposure and current exposure to English relates to their skills within each language.

**Aim 2.** To compare whether group differences exist between bilingual adolescents with risk for DLD, and a TD control group on their performance of narrative measures, administered in L2 Spanish.

**Aim 3.** To compare whether group differences exist between bilingual adolescents with risk for DLD, and a TD control group on their performance of narrative measures, administered in L1 English.

## METHODS

### Participants

- Participants were recruited from a larger study on adolescents (n=129) with risk for DLD and mental health disorders. All participants with mental health disorders were excluded from the present study.

| | rDLD group n=12 | | | TD group n=66 | | | |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Range | Mean | SD | Range | *p* |
| **Demographics** | | | | | | | |
| **Age in months** | 12;5 | 18.90 | 11;3-15;6 | 12;4 | 17.54 | 10;1-15;3 | .525 |
| **Sex (% Female)** | 50.00 | | | 48.50 | | | |
| **Age of first English exp. (in months)** | 29.00 | 26.32 | 0-72 | 39.19 | 27.07 | 0-108 | .233 |
| **Current English exp. (% weekly)** | 60.57 | 19.02 | 22-96 | 59.20 | 15.55 | 22-95 | .787 |

### Measures

1. Diagnostic measures:
   - **Inventory to Assess Language Knowledge** (ITALK; Peña et al., 2018) a parent screener of children's language skills in 5 domains in both English and Spanish.
   - Children who received 4.2 or below of 5 points were considered at risk for DLD (rDLD) or students whose parents reported having had a history of Speech & Language services. Children who scored above that cut-point and who didn't have a history of receiving Speech & Language services were TD
2. Narrative measures:
   - **Test of Narrative Language** (Gillam et al., 2004) a standardized English narrative test , ages 5-11 yrs. Measures children's ability to understand and tell stories.
   - **Test of Narrative Language in Spanish** (Gillam, Peña, Bedore, & Pearson, in development) is an adapted version of the TNL. The structure is parallel to that of the TNL in English but uses different prompts and stories.
   - Both yield a comprehension score and a production score.
   - **Language Sample Analysis** (using Systematic Analysis of Language Transcription software, Miller & Iglesias, 2008)
   - Yielded MLU, total number of words, number of different words, subordination index and grammaticality in each language

**There are differential effects for age of first exposure and current exposure to Spanish/English, observed in both the DLD and TD groups. Current exposure presents as the dominant correlation to performance in Spanish narrative measures and age of first exposure influencing performance in English measures.**

## RESULTS

### Aim 1

**Tables 2 shows the bivariate correlations of in English and Spanish, the DLD group and for the TD group.**

| | Spanish: rDLD | | | TD | | |
|---|---|---|---|---|---|---|
| | Age | Age of 1st Exp. | Current Exp. | Age | Age of 1st Exp. | Current Exp. |
| TNL-Comprehension | .06 | .14 | .73** | .10 | -.07 | .22 |
| TNL-Production | -.20 | .41 | .81** | -.08 | -.10 | .37** |
| Nu. Total Words | -.17 | .36 | .67* | -.22 | -.11 | .26* |
| Nu. Diff. Words | -.21 | .43 | .74** | -.15 | -.11 | .34* |
| MLU in words | -.01 | .15 | .68 | -.14 | -.08 | .31* |
| Subord. Index | .29 | .15 | .68* | -.18 | -.09 | .33** |
| % Ungram | .34 | .11 | .60* | -.04 | -.01 | -.20 |
| | English: rDLD | | | TD | | |
| TNL-Comprehension | -.47 | -.09 | .17 | .25* | -.18 | .21 |
| TNL-Production | -.49 | .12 | -.58* | .06 | -.36** | .06 |
| Nu. Total Words | -.42 | -.10 | .37 | -.17 | -.29* | -.03 |
| Nu. Diff. Words | .41 | -.14 | -.32 | -.15 | -.33** | .05 |
| MLU in words | -.04 | .49 | -.49 | -.14 | -.19 | -.08 |
| Subord. Index | .27 | .40 | -.10 | -.26* | -.03 | -.23 |
| % Ungram | -.62* | -.83** | .35 | -.15 | .24 | -.28 |

**Table 3 describes the narrative skills of bilinguals, in both English and Spanish, by ability group.**

| | rDLD group n=12 | | | TD group n=66 | | | |
|---|---|---|---|---|---|---|---|
| | Mean | SD | Range | Mean | SD | Range | $\eta_p^2$ |
| **Spanish measures** | | | | | | | |
| I. Test of Narrative Language | | | | | | | |
| Oral Narration (Production) | 46.00 | .25 | 0-76 | 51.00 | .13 | 0-69 | .004 |
| Narr. Comprehension | 55.00 | .27 | 8-86 | 65.00 | .11 | 27-85 | .049 |
| II. Language Sample Analysis | | | | | | | |
| Nu. Total Words | 285.85 | 175.60 | 1-641 | 318.00 | 146.00 | 26-994 | .000 |
| Nu.Diff.Words | 109.93 | 56.51 | 1-200 | 121.24 | 38.20 | 18-236 | .000 |
| MLU in Words | 6.20 | 2.27 | 1-8.22 | 7.31 | 1.40 | 2.36-10.3 | .040 |
| %Ungram. | 22.00 | .02 | 18-26 | 23.00 | .04 | 18-39 | .006 |
| Subord. Index | 1.50 | .41 | .38-1.9 | 1.64 | .26 | .8-2.24 | .057 |
| **English measures** | | | | | | | |
| I. Test of Narrative Language | | | | | | | |
| Oral Narration (Production) | 53.00 | .19 | 45-90 | 60.00 | .10 | 38-82 | .085* |
| Narr. Comprehension | 75.00 | .13 | 23-81 | 78.00 | .08 | 55-95 | .039 |
| II. Language Sample Analysis | | | | | | | |
| Nu. Total Words | 284.00 | 144.50 | 9-494 | 375.00 | 144.00 | 38-987 | .027 |
| Nu. Diff. Words | 126.00 | 57.00 | 9-197 | 150.40 | 44.30 | 23-313 | .012 |
| MLU in Words | 7.6 | 1.34 | 4-9 | 8.05 | 1.0 | 5.8-10.99 | .037 |
| % Ungram. | 5.8 | .06 | 0-19 | 8.00 | .08 | 0-46 | .009 |
| Subord. Index | 1.17 | .14 | .93-1.44 | 1.26 | .16 | .82-1.71 | .029 |

### Aim 2

- We ran a two-group (rDLD versus TD) MANOVA with the 8 narrative skills in Spanish as the dependent variables. We used current exposure as a covariate given its correlation to many of the micro narrative measures in Spanish.
- Our omnibus test statistic was *not* significant (Wilks' lambda = .86, F(7, 66) = 1.53, p =.172) with a small effect $\eta_p^2$ = .14.

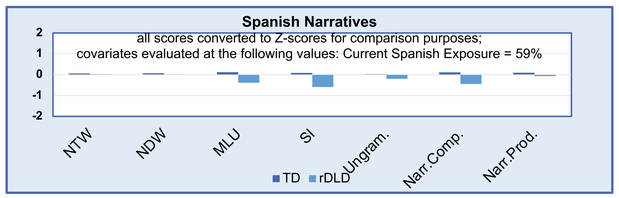


*Figure 1.* z-scores for Spanish narrative measures by risk group.

### Aim 3

- We ran a two-group (rDLD versus TD) MANOVA with the 8 narrative skills in English as the dependent variables.
- Our omnibus test statistic was significant (Wilks' lambda = .8, F(7, 69) = 2.44, p < .027) with a small effect $\eta_p^2$ = .20.
- Univariate post-hoc comparisons found significant differences between rDLD and TD on the following:

a. English TNL –Oral Narrative, production subtest F(1,75 ) = 6.97, p < .01) with a small effect $\eta_p^2$ = .08.

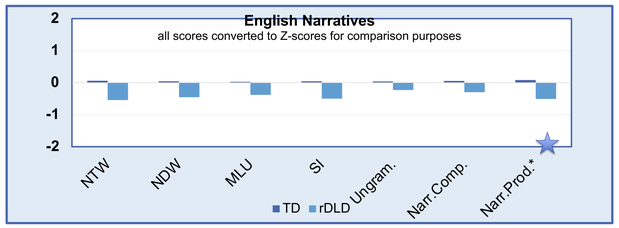


*Figure 2.* z-scores for English narrative measures by risk group.

### Additional Figures

- A third MANOVA was run, using the participants' better score in each language on each measure.
- The omnibus test statistic was *not* significant, with Wilks' lamba = .897, F(7, 70) = 1.14, p = .346, np2=.103.

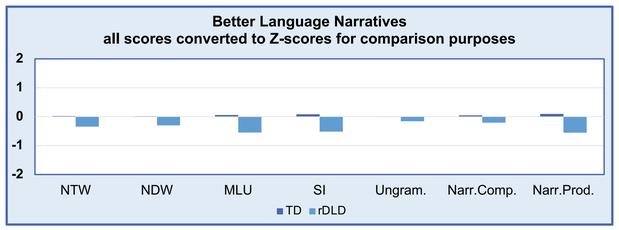


*Figure 3.* z-scores for better language narrative measures by risk group.

## DISCUSSION

### Future Research

- Adolescents with DLD, when presented with language tasks that are less structured, use compensatory strategies that make their language present like the language of their TD peers.
- The measures used for this study were not sensitive enough for this age group and warrants a deeper analysis of narrative micro & macro structure using tools that are better measures of adolescent language.
- Future research should focus on running between language comparison.

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