Comparison of narrative language production in DLL preschoolers with and without language impairment

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Background

- Spanish-speaking dual language learners (DLLs) are a rapidly growing population in the United States (Hammer et al., 2014).
- Scarcity of research on Spanish-English DLLs with language impairment (LI) has led to difficulty establishing developmental norms.
- Speech-language pathologists struggle to identify LI in DLLs.
- Previous research has identified grammaticality, utterance length, and lexical diversity as areas of difficulty for DLLs with LI (Bedore, Peña, Gillam, & Ho, 2010).

Purpose

- Compare the narrative language production of preschool-age DLLs with and without LI.

Research question

- On which narrative production measures in English and Spanish do preschool-age DLLs with LI differ from their TD peers?

Method

Participants

- 5 Spanish-English DLL preschoolers from an English immersion program with identified language impairment disclosed on home surveys and verified through school records (mean age = 50.8 months, SD = 8.3 months).
- 5 age-matched, typically developing, Spanish-English DLLs from the same program (mean age = 51 months, SD = 7.0 months).

Language sampling procedure

- Participants provided narrative retell language samples in Spanish and English based on four wordless picture storybooks about a boy and his frog (Mayer, 1969; 1974; 1975a; 1975b).
- The retell language samples were digitally audio-recorded, and orthographically transcribed and coded for analysis.
- Narratives were analyzed with the Systematic Analysis of Language Transcripts (SALT) software (Miller & Iglesias, 2017).

Outcome measures

- Percent grammaticality (%G) indexed overall grammaticality.
- Number of different words (NDW) indexed lexical diversity.
- Mean length of utterance in words (MLUw) indexed utterance length.
- Bilingual research recommends MLUw, rather than MLU in morphemes, due to its non-dependence on inflectional morphology (Rojas & Iglesias, 2009).

Results

Analytic approach

- Independent samples t-tests: Determine statistically significant differences in language production between DLL preschoolers with and without LI.

Findings

- Independent samples t-tests showed that DLLs with LI had a significantly lower proportion of grammatical utterances in Spanish compared to their TD peers (t(8) = 3.13, p = .014, d = 1.98).
- There were no significant differences on other narrative production measures in Spanish or English.

<table>
<thead>
<tr>
<th>Spanish</th>
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<th>English</th>
<th>TD</th>
<th>Cohen's d</th>
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<tbody>
<tr>
<td>SDgram</td>
<td>46.27 (20.44)</td>
<td>76.04 (15.91)</td>
<td>52.20 (22.01)</td>
<td>60.40 (16.95)</td>
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<tr>
<td>MLUw</td>
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<td>6.80 (1.09)</td>
<td>3.37 (1.01)</td>
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<tr>
<td>NDW</td>
<td>55.40 (16.93)</td>
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</table>

- Large effect sizes: %Grammaticality and MLUw in Spanish; MLUw-English.
- Medium effect sizes: %Grammaticality and NDW in English.
- Small effect size: NDW in Spanish.

Discussion

- Overall, these findings support previous studies that have identified grammaticality, utterance length, and lexical diversity as areas of difficulty for DLLs with language impairments (e.g., Bedore, Peña, Gilman, & Ho, 2010).
- However, this study highlights unique language production differences in DLLs with LI relative to those without, across languages and subdomains:
  - Grammaticality: Greater in Spanish; moderately in English.
  - MLUw: Utterance length greatly differed in both languages.
  - NDW: Lexical diversity moderately differed in English; comparable in Spanish.
- Future studies should investigate possible factors that affect performance in each language such as home language use and language of instruction.

Acknowledgments

This research was supported in part by a BBS Faculty Research Initiative Grant (Rojas); Grant GA 2013-016 – Jerry M. Lewis, M.D., Mental Health Research Foundation (Rojas); and Grant 13180 – Anonymous Donor (Rojas).

Disclosure Statement: Authors #1-3 (Wood; Gusewski; Rojas) have no relevant financial or nonfinancial relationships to disclose.