Influence of Syntactic Complexity on the Stuttering of Spanish-Speaking Children

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Abstract

This study examined the influence of syntactic function and structure on stuttering in the speech of young monolingual Spanish-speaking children. The fluency of longer and shorter utterances during spontaneous speech was examined with results indicating that length rather than syntactic function and form appears to influence the child's ability to maintain fluency.

Background

• Studies have demonstrated that for young English-speaking children, increased utterance length and/or syntactic complexity are associated with increased stuttering (e.g., Bernstein Ratner & Shriberg, 1987; Ganes, Rumar & Meyers, 1991; Logan & Cazaux, 1995; Weisz & Zaloga, 1992; Yaruss, 1999; Zvoseck & Cautero, 2000).

• Some reports suggest that certain syntactic structures (e.g., function) may be related to increased stuttering (e.g., Weisz & Zaloka, 1992; Yaruss, 1999). Results as to whether or not utterance length contributes to these effects have been equivocal.

• Limited studies have been completed examining the linguistic characteristics of children’s spontaneous speech in languages other than English (e.g., Au-Yeung, Gorry & Howell, 2002; Carles & Ingram, 2000; Jayaram, 2000; McKay, 1998; Sánchez, 2000; Watson, 2003).

• This report is one of a series of studies (e.g., Watson, 2003; Watson & Byrd, 2006; Watson & Carlo, 2006) that have examined English-speaking children in Puerto Rico. Utterances that did not result in 100% agreement and/or were ambiguous were excluded from the analyses.

Method

Participants

• Participants were 11 children (7 boys and 4 girls) 2:11 to 9:2 (M=4.34, SD=1.51) who were enrolled in Puerto Rican Spanish-speaking kindergartens and/or preschools.

• Each child contributed a total of 5420 words, ranging from 300 to 651 words

• Participants were 11 children from Puerto Rico.

• Utterances that did not result in 100% agreement and/or were ambiguous were excluded from the analyses.

Data Collection

• Video-taped spontaneous speech samples were obtained while the child interacted with and described pictures in a Puerto Rican Spanish-speaking clinic.

• Samples comprised a total of 5420 words, ranging from 300 to 651 words and a total of 6658 syllables, ranging from 305 to 565 (M=427.23, SD=273.04) in each utterance.

• Each sample, including both the clinician’s and the child’s utterances, was orthographically transcribed by bilingual (Spanish-English) research assistants. Transcripts were reviewed and corrected by a Puerto Rican, Spanish-speaking speech-language pathologist with the dialectic variations of the Spanish spoken in Puerto Rico.

• Once corrected, each transcript was translated into the computational language analysis system, Systematic Analysis of Language Transcripts (SALT) (Miller & Eibl, 2000).

Data Analysis

• Utterance structure was determined independently by two bilingual research assistants and compared to resolve any discrepancies, yielding 100% agreement in segmentation for all samples.

• A total of 264 stuttered utterances and 717 fluent utterances were analyzed.

• Utterance length was determined by subtracting the total number of disfluencies (including repetitions) in each utterance. In order to address possible length effects, SD = 35.15 (M = 1.50) syllable number was identified for each child and used to determine the relative utterance length for each participant. Utterances were then divided as shorter or longer and anovarically separated.

• Utterance length and/or syntactic complexity, are not significantly different between English-speaking children (Watson, 2003; Byrd, 2006; Watson & Byrd, 2006). This study asked, when controlling for utterance length, are there fluency differences in spontaneous speech when using different syntactic functions and structures?

Results

• In longer spontaneous utterances, stuttered and fluent utterances contained no disfluencies.

• In shorter spontaneous utterances of this sample of speakers, born in Puerto Rico.

• A total of 6856 syllables, ranging from 356 to 835 (SD = 162.90) syllable number was identified for each child and used to determine the relative utterance length for each participant. Utterances were then divided as shorter or longer and anovarically separated.

• In shorter spontaneous utterances of this sample of speakers, born in Puerto Rico.

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Conclusions and Discussion

Finding 1: In shorter spontaneous utterances of this sample of Spanish-speaking children, the use of specific syntactical functions and forms was not related to increased stuttering. The use of specific grammatical functions (i.e., declaratives, imperatives, interrogatives) and structures (i.e., -wh question forms, simple, complex) did not affect fluency by disrupting the child’s fluency when produced in utterances that were short for that child.

Finding 2: In longer spontaneous utterances, stuttered and fluent utterances containing declaratives and select simple and complex forms were statistically equivalent, indicating more stuttering when they were used by the child. Whether, when these functions/forms were present in both longer and shorter utterances increased stuttering was noted only in the longer utterances. This suggests that the use of these syntactical functions, may have a stronger impact on fluency.

Finding 3: In longer spontaneous utterances, stuttered and fluent utterances containing declaratives and select simple and complex forms were statistically equivalent, indicating more stuttering when they were used by the child. Whether, when these functions/forms were present in both longer and shorter utterances increased stuttering was noted only in the longer utterances. This suggests that the use of these syntactical functions, may have a stronger impact on fluency.