Phonetic Complexity and Grammatical Classification of Stuttered Words in Children

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Introduction

- A series of studies suggest the influence of phonetic complexity on stuttering is more apparent in older children and adults (Howell et al., 2010; Howell & Au-Yeung, 2003) than preschool children (Roeckerburger et al., 1994; Howell & Au-Yeung, 1995; Logan & Conture, 1997; Bovey & Bell, 2004).
- These findings are unexpected as younger speakers should be more vulnerable to phonetic difficulty than older speakers.
- Three considerations are noted:
  1. Null effects of phonetic complexity were found when content and function words were analyzed in different groups.
  2. Phonetic complexity may be more predictive when all words within the utterance are considered equally rather than separately relative to grammatical classification.
  3. When analyzing speech efficiency at the level of word and utterance, another additional variable of variable language planning and production known or suspected to influence stuttering (e.g., length and complexity) of the utterance should also be considered in isolation with the target variable of interest (Ritter, 2009).
- The measurement tool used in the majority of the studies (e.g., the IPC) is not sensitive enough to detect the effects of stuttering.
- To overcome these limitations, the current study uses the Word Complexity Measure (WCM).
- The current study is designed to examine whether phonetic complexity influences the likelihood of stuttering.

Method

- Participants: 14 children who stutter (6M/8F), 8 male, 6 female children (M = 10.11 months)
- All children were assessed for the presence or absence of stuttering.
- Data Collection:
  - Children were tested using a tape recorder.
  - Recordings were made for all samples.
- Data Analysis:
  - Speech rate
  - Length of utterance
  - Number of syllables per utterance
  - Syllable count

Coded Variables

- Fluency
  - Stuttered or non-stuttered words (Kasari & Ambrose, 2005)
- Phonetic Complexity
  - Word Complexity Measure (Kasari & Ambrose, 2005)
- Grammatical Classification
  - Contextual and functional words (Ducarroux & Howley, 2004)
  - Content nouns, main verbs, adjectives, adverbs

Results

- The purpose of this study was to examine whether phonetic complexity, as measured by the WCM, uniquely predicts stuttered words during spontaneous speech.
- The WCM is a measure of the complexity of the speech produced by a child. It takes into account the length of the speech sample, the number of words produced, and the presence or absence of stuttering.
- The results of this study indicate that phonetic complexity is a significant predictor of stuttering, even when controlling for other factors such as fluency, grammatical complexity, and context.
- The WCM is a useful tool for assessing the complexity of the speech produced by children who stutter and can be used to identify areas of difficulty that may require intervention.

Discussion and Conclusions

- The WCM is a useful tool for assessing the complexity of the speech produced by children who stutter and can be used to identify areas of difficulty that may require intervention.
- Future research should examine the role of phonetic complexity in stuttering in older speakers to determine whether the additional contributory factors identified in this study are also present in older speakers.

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