Lexical Constraints on Stuttering in Adults

Julie D. Anderson, Ph.D., CCC-SLP

Department of Speech and Hearing Sciences, Indiana University, Bloomington, IN

ABSTRACT

This study examined the effect of lexical variables on stuttered disfluencies in adults who stutter (AWS). Main findings revealed that part-word repetitions were influenced by word frequency and single-syllable word repetitions by imageability. These findings support the notion that different disfluency types may originate from disruptions at different levels of processing.

INTRODUCTION

- Children who stutter tend to stutter on words that are lower in **word frequency** and **neighborhood frequency** (mean frequency of a word's phonological neighbors) than their fluently produced words (Anderson, 2007).
  - Variables influence part-word repetitions (PWR) and sound prolongations (SP), but not single-syllable word repetitions (SSWR).
    - Suggest that PWR and SP may originate in disruption at the word-form level, while SSWR may result from difficulty at another level of processing.
- **Neighborhood density** (number of words phonologically similar to a target word) does not influence stuttering or disfluency type (Anderson, 2007).
  - High word frequency values may have interfered with neighborhood density effects (see Storkel, 2004).
    - If so, then AWS, with their lower frequency lexicons, should be more susceptible to its effects.
- **Imageability** (ease with which the mental image of a word can be formed) influences speech errors, presumably at the level of semantic processing (Harley & MacAndrew, 2001).
  - If SSWR originate early in lexicalization, then they should be vulnerable to its effects, but not PWR or SP.

RESEARCH QUESTIONS

- Do word frequency, imageability, and neighborhood variables have an effect on the production of speech disfluencies in AWS (**Analysis 1**)?
- Do these variables also influence the type of stuttered disfluency produced (**Analysis 2**)?

METHODS

Participants

- 18 AWS between 19 and 62 years (*M* = 34 years), scoring 13+ on the *Stuttering Severity Instrument-3* (Riley, 1994).

Procedure

- 200+ word speech samples transcribed using *Systematic Analysis of Language Transcripts* (Miller & Chapman, 1998).
- Stuttered words paired with the first fluent (control) word that matched it in length, grammatical class, and familiarity.
- Frequency and neighborhood values obtained from the Hoosier Mental Lexicon (Luce & Pisoni, 1998); imageability values obtained from the MRC Psycholinguistic Database (Wilson, 1988).

RESULTS

Analysis 1

- Stuttered words lower in frequency than control words (*p* = .02; Figure 1).

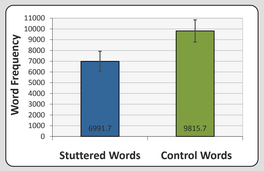

Figure 1

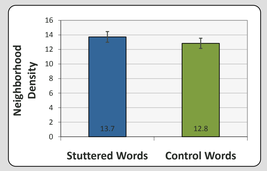

Figure 2

- No difference in neighborhood density (*p* = .22; Figure 2) and frequency (*p* = .33; Figure 3), or imageability (*p* = .15; Figure 4).

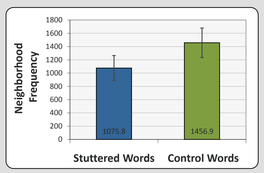

Figure 3

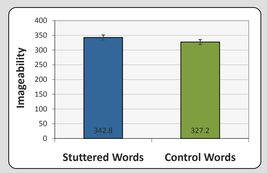

Figure 4

Analysis 2

- PWR lower in frequency than controls (*p* = .008), but not SSWR (*p* = .10) or SP (*p* = .81; Figure 5).

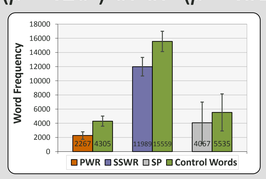

Figure 5

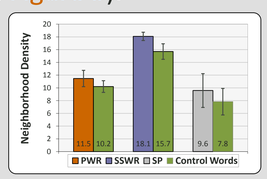

Figure 6

RESULTS (continued…)

- Neighborhood density and frequency did not influence disfluency type (*p* = .35 to .81; Figures 6 & 7).

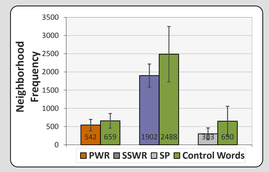

Figure 7

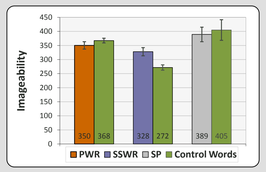

Figure 8

- SSWR higher in imageability than controls (*p* = .006), but not PWR (*p* = .09) and SP (*p* = .77; Figure 8) .

CONCLUSION

- Findings support and extend those of Anderson (2007).
  - Stuttered words were significantly lower than fluent words in word frequency and, although not statistically significant, lower in neighborhood frequency.
  - Stuttered and fluent words did not differ in neighborhood density.
    - The notion that word frequency may have interfered with the effects of neighborhood density in Anderson (2007) was not supported.
- PWR were significantly lower in frequency and SSWR significantly higher in imageability than fluent words.
  - High imageability words may have more close semantic neighbors, making them susceptible to competition (Harley & MacAndrew, 2001).
  - PWR (and possibly SP) may originate in disruptions at the word-form level and SSWR originate from difficulty in lemma retrieval (cf. Anderson, 2007).

SELECTED REFERENCES

- Anderson, J.D. (2007). Phonological neighborhood and word frequency effects in the stuttered disfluencies of children who stutter. *Journal of Speech, Language, and Hearing Research, 50,* 229-247.
- Harley, T.A., & MacAndrew, S.B. (2001). Constraints upon word substitution speech errors. *Journal of Psycholinguistic Research, 30,* 395-418.
- Storkel, H.L. (2004). Do children acquire dense neighborhoods? An investigation of similarity neighborhoods in lexical acquisition. *Applied Psycholinguistics, 25,* 201-221.

Handouts for this session (1014) are available on the ASHA website: http://convention.asha.org/handouts.cfm.