

Adaptation and consistency in PWS: How consistent is it?

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Adaptation, or the “adaptation effect”, refers to reduction in stuttering over successive oral readings of the same material. Consistency refers to which words/syllables are stuttered on in successive readings. Johnson and Knott (1937) found consistent patterns of words stuttered on during successive readings in adults. This pattern was also shown to exist in children (Williams, Silverman, & Kools, 1969). In spite of these findings, little is known about the acoustic signal during adaptation consistency measures.

Purpose of this study:

To investigate the patterns that exist during adaptation and consistency tasks in adults who stutter.

Methods

Participants:

Eight adults who stutter were recruited for this study.

Criteria for inclusion:

- Diagnosed as a PWS a qualified speech-language pathologist
- Confirmation by the individual participant
- Free of any major learning, reading, motor, or neurological impairment
- Stuttered syllables rate of at least 3% during the initial reading of the Rainbow Passage

Each participant was asked to read the standard reading passage from the SSI-3 (Riley, 1991) five times in succession. The participants’ readings were then recorded on a high quality digital audio recorder, then later transcribed and analyzed by one of the researchers. In order to ensure reliability, the transcripts were reviewed by the first author and wherever disagreements existed, the two people trained in transcription repeatedly listened to the recording until a consensus was obtained for 1) the exact words spoken, 2) whether the word/syllable was stuttered or not, and 3) what type of stuttering was observed.

Results

Adaptation scores ranged from 0% to 87% across readings. The greatest adaptation

took place between Reading 1 and Reading 5 across participants, and the least adaptation took place between Reading 4 and Reading 5 across participants. The individual data for adaptation and consistency could be reported here, but the emphasis of this study was to look at the similarities or differences of the consistently stuttered words/syllables. For this study, consistency scores ranged between 8% and 100%. Special emphasis was placed on words/syllables that were stuttered on all five readings by the same participant. These words/syllables formed a corpus of 64 words/syllables. From this corpus of 64 words, 38 were the same type of stuttering across all readings. From this sample, 38 words, 15 were all PWR and 17 were all blocks. The acoustic properties of these were analyzed.

Results: Type of stuttering

1) The findings revealed that there was not a significant difference ($p > .05$) for type of stuttering.

Results: Comparison across consistently stuttered words

2) Nonparametric analysis revealed significant overall effects for # of repetitions per unit ($p < .05$).

3) Nonparametric analysis revealed significant overall effects for length of blocks ($p < .05$).

A post hoc analysis for repetitions revealed significant differences, especially after the 3rd reading.

A post hoc analysis for blocks revealed significant differences, especially after the 2nd reading.

After each subject completed the reading task, the examiner conducted a short semi-structure interview about their experience. The data was analyzed in a qualitative fashion, following a phenomenological framework (see Tetnowski & Damico, 2003). Results revealed three major themes that included:

- 1) anticipation of stuttering: “I knew which words I was going to stutter on each time”
- 2) attempts to not stutter: “Even though I knew I was going to stutter on that guys name [Tornabene], I did everything I could to not stutter...I think it even worked once”
- 3) increasing fear: “After I stuttered on a word the first few times, I knew there was no hope. I could see that word five lines ahead of when I had to say it. It just got worse and worse with each reading”

Summary and conclusions

Acoustic analysis of consistently stuttered words showed significant variance for both number of repetitions per unit and for length of block. Qualitative findings revealed that participants were aware of what they were doing during a repeated reading task. Many participants admitted having fear and anticipation. Some tried to not stutter while others just had more fear.

Research implications:

Through this mixed methods paradigm, it is possible to gain understanding about both the acoustic components of adaptation and stuttering, as well as the inner feelings that drive the adaptations made by the person who stutters. This could help in understanding fears and in planning for therapy.

Selected references

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