A case study of cluttering treatment outcomes in a teen

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Abstract

Cluttering is a type of fluency disorder characterized by perceived rapid and/or irregular speech rate and at least one of the following symptoms: excessive disfluencies, the majority of which are non-stuttering-like disfluencies; atypical placement of pausing in speech; and/or excessive over-coarticulation of sounds (St. Louis & Schulte, 2011). Various treatments have been implemented to decrease the rate and increase the clarity of speech in persons who clutter (PWC). This study compared the efficacy of two types of cluttering treatments, pausing and overemphasis, to determine which would reduce the occurrence of over-coarticulation in conversational speech of a teenage male. A decrease in over-coarticulation was exhibited with use of both strategies; however, pausing was determined to reduce the percentage of over-coarticulated words in conversational speech more than overemphasis. This strategy was also the strategy most likely to be implemented in carryover by the participant.

Keywords: cluttering; treatment

1. Introduction

Cluttering is a fluency disorder characterized by perceived rapid and/or irregular speech rate with one or more of the following symptoms: excessive disfluencies, the majority of which are non-stuttering-like disfluencies (i.e., phrase repetitions, revisions, interjections, multisyllabic whole word repetitions, and single-syllable whole word repetitions without tension); atypical placement of pausing in speech; and, excessive over-coarticulation of sounds (i.e., collapsing syllables such as “communy” for “community”) (St. Louis & Schulte, 2011). Three million people, or 1% of the U.S. population stutter (Bloodstein & Bernstein Ratner, 2007). Of this three million, experts in fluency disorders estimate that between 33% and 67% also clutter (Ward, 2006).

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It has been hypothesized that people with cluttering (PWC) speak at a rate that is not necessarily faster than average, but is too fast for their system to handle in the given speech context without breakdown in clarity. This idea was first proposed by Myers (1992) and has been supported by others in the field of cluttering (Myers, 2011; St. Louis, Myers, Bakker & Raphael, 2007; Van Zaalen-op’t Hof et al., 2009 a, b; Ward, 2006). It has been proposed that those with cluttering have difficulty with self-regulation of rate (Myers, 1992, 2011; Bakker, Myers, Raphael, & St. Louis, 2011). In a study comparing cluttering symptoms among PWC, exceptionally rapid speakers, and controls, Bakker, Myers, Raphael and St. Louis (2011) found that PWC completed diadochokinetic tasks under three different conditions at a faster rate than the two comparison groups, yet judged themselves the least fast of the three groups. The investigators postulated that PWC and exceptionally rapid speakers have a “drive” to speak at faster rates than controls. Self-regulation, an area that falls under executive functioning, is an area that is frequently addressed as part of cluttering treatment (Bennett Lanouette, 2011; Daly & Burnett, 1996; Myers & Bradley, 1992). From treatment recommended and findings in research data, skills related to executive functioning are suggested as a contributing factor to cluttering.

There has been some research focusing on the efficacy of specific therapy techniques with PWC achieved in a short number of sessions (Van Borsel & Vanryckeghem, 2000), including a smooth speech program involving rate control (Craig, 1996), bethanechol (Brady, 1993), and delayed auditory feedback (St. Louis, Myers, Cassidy, Michael & Penrod, 1996). Pausing and overemphasis of sounds have been used as therapy techniques in the past (Scaller Scott, Ward, & St. Louis, 2010; Simkins, Kingery & Bradley, 1970; Yorkston, 1996). Implementing the strategies of looking for listener feedback and repairing communication breakdowns, increased emphasis of sounds and syllables, and increased pausing have been shown to increase clarity of speech in a preliminary intervention study with a school-age boy with Asperger’s and cluttering (Scaller Scott, Ward & St. Louis, 2010). No research data to date has compared the efficacy of each of these specific treatment techniques alone on speech clarity.

1.1. Aims of study

The purpose of this case study was to compare two specific treatment strategies and to identify which cluttering strategy is most effective at reducing the percentage of over-coarticulated words in the conversations of a teenager. The two cluttering strategies utilized included pausing and overemphasis.

2. Methods

2.1 Participant

The participant was a 13-year-old male with a diagnosis of cluttering and no other speech, language, learning, or behavioural diagnoses. The participant’s primary cluttering symptom was excessive over-coarticulation. The participant’s parent provided consent for participation in the study and use of recording devices.

2.2 Procedures

The participant attended a university clinic one time each week for 60 minutes over the course of 19 weeks. All therapy sessions were recorded using the Landro video system. The participant was treated by a speech-language pathology graduate student who was supervised by a licensed and certified speech-language pathologist holding board certification in fluency disorders. Each therapy session consisted of a 5-minute baseline conversation, therapy activities using specific cluttering strategies, and a 5-minute probe conversation.

The two cluttering strategies utilized to address the participant’s over-coarticulated speech included: pausing and overemphasis. The pausing strategy involves inserting pauses at natural places in connected speech to slow down the rate of speech. The overemphasizing strategy involves exaggerating the articulation of speech to prevent over-coarticulation and increase speech clarity. Each strategy was learned and mastered through a hierarchy of contexts: reading, open-ended questions, structured conversation, and unstructured conversation. The participant was instructed to use the specified strategy prior to the start of the activity and reminded throughout the activity to
continue to use it. If over-coarticulated speech occurred during an activity, the clinician instructed the participant to repeat himself using the strategy targeted during the activity.

2.3 Measures

Four sessions were analysed using the recorded video of the therapy session. The second session, two evenly spaced middle sessions, and the last session were analysed. Baseline activities, pausing and overemphasis activities, and probe activities for each session were transcribed word-for-word and coded for stuttering-like disfluencies (SLDs), nonstuttering-like disfluencies (NSLD), over-coarticulated speech, and atypical pauses. Although SLDs are not considered part of the definition of cluttering, they were presented with this data to illustrate that the majority of the participant’s disfluencies were NSLDs rather than SLDs, as per the St. Louis and Schulte (2011) definition of cluttering.

SLDs were identified as single syllable whole word repetitions with or without tension, part word repetitions, prolongations, blocks/tense pauses, and broken words. NSLDs were identified as multisyllabic whole word repetitions, phrase repetitions, revisions, and interjections/fillers (Yairi & Ambrose, 1992; Ambrose & Yairi, 1999). Over-coarticulated speech was identified when at least one syllable or part of a word was eliminated from the word. Atypical pauses were identified when a pause occurred in a grammatically inappropriate place within a sentence.

3. Results

The data were analyzed for each of the four sessions during connected speech. The items analyzed included percentages of words containing SLDs, NSLDs, over-coarticulation, and percentage of atypical pauses during the following tasks: at baseline, during over-emphasis activities, during pausing activities, and at probe. Percentage of words containing each of these symptoms are displayed in Figure 1. The percentage of over-coarticulated words was calculated and compared for speech where the participant utilized over-emphasis or pausing. Percentages are displayed in Figures 2 and 3 respectively.

![Figure 1. Percentage of Cluttering Symptoms in Connected Speech](image-url)
Figure 2. Percentage of over-coarticulated words using overemphasis

Figure 3. Percentage of over-coarticulated words using pausing
4. Discussion

In the present study, the authors investigated which cluttering strategy, pausing or overemphasis, would reduce the occurrence of over-coarticulated words in the conversational speech of a 13-year-old male. Overall, a downward trend of over-coarticulated words was exhibited in all contexts across four sessions. There is a strong downward trend in the percentage of over-coarticulated words when using the over-emphasis strategy until the last session. There is also a strong downward trend in the percentage of co-overarticulated words when using the pausing strategy. There is a similar increase in disfluencies during the last session when using the pausing strategy, though the increase is not as great as for the overemphasis strategy. This suggests that pausing may have been a more effective strategy for reducing the percentage of over-coarticulated words in conversational speech for this participant. Additionally, the participant expressed that he preferred using the pausing strategy and found himself using this strategy during carryover more often than overemphasis. The participant expressed that pausing was a more practical strategy that felt natural to apply during conversation.

The reader is cautioned on generalizing findings to a larger context due to the small sample size. Furthermore, further data must be gathered before definitive conclusions can be drawn.

References

Ambrose, N. G., & Yairi, E. (1999). Normative disfluency data for early childhood stuttering. Journal of Speech, Language, and Hearing Research, 42, 895–909.

Bakker, K., Myers, F. L., Raphael, L. J., & St. Louis, K. O. (2011). A preliminary comparison of speech rate, self-evaluation, and disfluency of people who speak exceptionally fast, clutter, or speak normally. In D. Ward & K. Scaler Scott (Eds.). Cluttering: A handbook of research, intervention, and education. Sussex: Psychology Press.

Bennett Lanouette, E. (2011). Intervention strategies for cluttering disorders. In D. Ward & K. Scaler Scott (Eds.). Cluttering: A Handbook of Research, Intervention, and Education. East Sussex: Psychology Press. 175-197.

Bloodstein, O., & Bernstein Ratner, N. (2007). A handbook on stuttering (6th edition). Thomson-Delmar.

Craig, A. (1996). Long-term effects of intensive treatment for a client with both a cluttering and stuttering disorder. Journal of Fluency Disorders, 21, 329-335.

Daly, D. A. (1986). The clutterer. In K.O. St. Louis (Ed.), The atypical stutterer: Principles and practices of rehabilitation. New York: Academic Press.

Myers, F. L., & Bradley, C. L. (1992). Clinical management of cluttering from a synergistic framework. In D. Ward & K. Scaler Scott (Eds.). Cluttering: Research, Intervention and Education. East Sussex: Psychology Press, 152-174.

Myers, F. L. (1992). Cluttering: A synergistic framework. In F. L. Myers & K. O. St Louis (Eds.), Cluttering: A Clinical Perspective (pp. 71–84). Kibworth, Great Britain: Far Communications (Reissued in 1996 by Singular, San Diego, CA).

Myers, F. L. (2011). Treatment of cluttering: a cognitive-behavioral approach centered on rate control. In F. L. Myers & K. O. St Louis (Eds.). Cluttering: A Clinical perspective (pp. 85-105). Kibworth, UK: Far Communications (Reissued in 1996 by Singular, San Diego, CA).

Scaler Scott, K., Ward, D., & St. Louis, K. O. (2010). Cluttering in a school-aged child. In S. Chabon and E.Cohn (Eds.). Communication Disorders: A Case-Based Approach: Stories from the Front Line. Boston: Allyn & Bacon.

Simkins, L., Kingery, M., & Bradley, P. (1970). Modification of cluttered speech in an emotionally disturbed child. The Journal of Special Education, 4(1), 81-88.

St. Louis, K. O., Myers, F. L., Cassidy, L. J., Michael, A. J., Penrod, S. M., Litton, B. A., Coutras, S.W.,Olivera, J. L. R., & Brodsky, E. (1996).Efficacy of Delayed Auditory Feedback for Treating Cluttering: Two Case Studies. Journal of Fluency Disorders, 21, 305-314.
St. Louis, K. O., & Schulte, K. (2011). Defining Cluttering: The lowest common denominator. In D. Ward & K. Scaler Scott (Eds.). Cluttering: Research, Intervention and Education. East Sussex: Psychology Press.

Ward, D. (2006). Stuttering and cluttering: Frameworks for understanding and treatment. Sussex, UK: Psychology Press.

Van Zaalen, Y. F., Wijnen, F., & De Jonckere, P. H. (2009a). Differential diagnostic characteristics between cluttering and stuttering – part one. Journal of Fluency Disorders, 34, 137–146.

Van Zaalen, Y., Wijnen, F., & De Jonckere, P. H. (2009b). Differential diagnostic characteristics between cluttering and stuttering – part two. Journal of Fluency Disorders, 34, 146–154.

Van Borsel, J., & Vanryckeghem, M. (2000). Dysfluency and phonic tics in tourette syndrome: A case report. Journal of Communication Disorder, 33 (3), 227-240.

Yairi, E. and Ambrose, N., 1992, A longitudinal study of stuttering in children: a preliminary report. Journal of Speech and Hearing Research, 35, 755–760.

Yorkston, K. M. (1996). Treatment efficacy: Dysarthria. Journal of Speech and Hearing Research, 38, S46-S57.