



Experts' saliency ratings of speech-language dimensions associated with cluttering



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ABSTRACT

Purpose: The study aimed to investigate how cluttering specialists rated degree of prominence or saliency of various communication dimensions as contributing to the overall cluttering severity.

Method: Using a 9-point Likert type scoring system 31 cluttering specialists (with an average of 19 years of experience with cluttering) rated the relative importance of eight speech and language dimensions often associated with cluttering from '1' ('not important') at the low end to a '9' ('very important') at the high saliency end.

Results: Though the saliency ratings differed the values in most cases were toward the high end of the rating scale. Additionally correlational analyses revealed several patterns of inter-correlation among the dimensions indicating that contribution of each communication dimension to overall cluttering severity may not be the same for all. Rather, it suggested that these dimensions may speak to cluttering severity through differential perceptual pathways that characterized the thinking of the experts who participated.

Conclusion: Greater understanding of the various communication behaviors contributing to cluttering, severity is needed for theoretical research and clinical purposes. To the extent that the dimensions studied are thought to be relevant for cluttering, the results strengthen the notion that these dimensions (and perhaps others) should be included if we are to capture a comprehensive picture of cluttering severity.

Educational objectives: (a) describe the multidimensionality of cluttering; (b) discuss the perceptual saliency of speech-language dimensions associated with cluttering; (c) describe the interrelatedness of various speech-language dimensions associated with cluttering; (d) discuss how experts in cluttering rate the saliency of speech and language dimensions associated with cluttering when provided a list of these dimensions.

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1. Introduction

1.1. Multi-dimensionality of cluttering

Cluttering is universally conceptualized as a multidimensional fluency disorder (see Ward, 2011). Myers (1992, 2011) posited the systemic nature of cluttering such that the various dimensions together produce the perception of a "cluttered manner of speaking" and that certain features are perceptually more prominent or salient than others (Myers & Bakker, 2011). While two dimensions may have equal prominence if they were judged independently, one dimension may 'carry

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more weight' or be considered to be more salient when both dimensions co-occur in the same speech segment. As cluttering is multidimensional it is important to understand the degree to which these cluttering features (such as disfluency and mis-articulations) contribute to the assessment of cluttering severity. An initial line of inquiry, represented by the present study, would be to investigate the degree of saliency of each dimension when participants are presented a list of the dimensions and rate them on degree of importance of that feature in determining cluttering severity, to be followed by subsequent investigations regarding saliency of dimensions in actual speech segments containing cluttering.

The extent of dimension inclusion with regard to cluttering varies from author to author. Weiss (1964) posited various facets of communication (e.g., reading, writing, rhythm and musicality) and behavior in general. Perkins (1977) considered cluttering to be a microcosm of various speech and language disorders. Daly and Burnett (1999) targeted the cognitive, speech, linguistic, pragmatic and motor dimensions associated with communication. Daly and Cantrell (2006) subsequently developed an updated version of the predictive cluttering inventory (PCI) based on a survey of 60 fluency specialists. The PCI lists 33 symptoms that encompassed the areas of pragmatics, speech motor, language and cognition and motor coordination and writing behaviors. Ward (2006, 2011) proposed that cluttering may be on a spectrum to reflect a possible continuum between typical speakers and people with mild cluttering, incorporating both linguistic and motor aspects of communication. Van Zaalen, Wijnen, and Dejonckere (2009a,b) considers cluttering to stem from 'defective language automation' as well as articulatory anomalies due to a speech rate that is too fast. This notion of speaking faster than one's capacity is resonated in the writings of others as well (e.g., Bakker, Myers, Raphael, & St. Louis, 2011; Myers, 1992; St. Louis & Schulte, 2011). In recent years, St. Louis has spearheaded a series of efforts to seek the lowest common denominator definition (LCD) of cluttering. The primary motivation for the LCD is that

... it allows researchers and clinicians to conceptualize cluttering in the same way. As a result, research or clinical data on cluttering would be comparable from one report to the next. (St. Louis & Schulte, 2011, p.241)

The LCD definition has gone through several modest revisions (St. Louis, Myers, Bakker, & Raphael, 2007; St. Louis, Raphael, Myers, & Bakker, 2003; St. Louis & Schulte, 2011) but essentially revolving around the following:

Cluttering is a fluency disorder characterized by a rate that is perceived to be abnormally rapid, irregular, or both for the speaker (although measured syllable rates may not exceed normal limits). These rate abnormalities further are manifest in one or more of the following symptoms: (a) an excessive number of disfluencies, the majority of which are not typical of people who stutter; (b) the frequent placement of pauses and use of prosodic patterns that do not conform to syntactic and semantic constraints; and (c) inappropriate (usually excessive) degree of coarticulation among sounds, especially in multisyllabic words.' (St. Louis et al., 2007, pp. 299–300)

The 2011 version of this definition (St. Louis & Schulte, 2011, pp. 241–242) is essentially the same as the 2007 version, with some refinement of details posted as footnotes. Even this LCD definition incorporates multiple dimensions; namely, fast and/or irregular rate, disfluencies, prosodic anomalies, and/or excessive or inappropriate coarticulation of sounds. Based on an examination of the various writings by specialists in cluttering, it is fair to say that the LCD is likely to be the most restrictive of definitions, especially in regard to the exclusion of the role of language encoding and pragmatics. Most researchers and clinicians would incorporate aspects of language, including Myers (1992, 2011, 2012) and other authors cited above.

Empirical research on the multidimensional nature of cluttering is emerging. Using a large-scale national database, St. Louis, Hinzman and Hull (1985) examined the disfluency and language behaviors of stutterers, 'possible clutterers' (i.e., individuals with non-stuttering disfluencies), and controls. The 'possible clutterers' were found to exhibit more 'typical' or non-stuttering disfluencies (i.e., a larger number of word and phrase repetitions but fewer sound and syllable repetitions, prolongations and struggle behaviors) and misarticulations. Myers and St. Louis (1996) studied two youths who clutter, one with severe cluttering and co-occurring articulation/language disorder and the other with mild-moderate cluttering, both of whom underwent a treatment protocol using delayed auditory feedback. Periodic fluency samples were taken without use of DAF to assess treatment efficacy. The more severe youth exhibited 6.06 disfluencies per 100 syllables, compared to 2.56 for the less severe PWC. Both youths exhibited predominantly typical disfluencies comprised of unfinished words, interjections and revisions. Examining the data of these two youths from the vantage point of presence of disfluency clusters, Myers, St. Louis, and Faragasso (2008) found that the youth with more severe cluttering had four times the number of clusters, reflective of density of disfluency when disfluencies aggregate in the same location. The predominance of typical disfluencies rather than stuttering-like disfluencies was also found by Van Zaalen et al. (2009a,b) during spontaneous speaking as well as when retelling a memorized story. A major cause of disfluencies, according to these authors, is that the PWC speaks too rapidly so that there is insufficient amount of time to organize and formulate utterances.

Bakker et al. (2011) investigated the speech rate and disfluency of 24 participants comprising three types of speakers, eight with exceptionally rapid but clear speech (ERS), eight people who clutter (PWC), and eight controls. Syllable rate was examined in a number of speaking conditions: productions of simple diadochokinetic syllable trains or DDK (comprised of sequences produced in self-generated comfortable rate, a slow modeled rate about two syllables per second and a maximum rate around the point of speech breakdowns; reading of the 'rainbow passage'; recitation of a nursery rhyme; and sentence repetition.) DDK repetition rates did not statistically differentiate the three groups. While the ERS and PWC generally produced somewhat faster rates in the other conditions, the differences were not statistically significant. Interestingly, the disfluency data did not statistically differentiate the three groups and all groups exhibited typical disfluencies. This finding was confirmed using a larger pool of PWC compared to controls (Myers, Bakker, St. Louis, & Raphael, 2012).

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