PROCEEDINGS OF THE FIRST WORLD CONFERENCE ON CLUTTERING

May 12-14, 2007
Katarino, Bulgaria
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THE FIRST WORLD CONFERENCE
ON CLUTTERING

Katarino, Bulgaria: May 12-14, 2007

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Foreword

With the third anniversary of the First World Conference on Cluttering (FWCC) quickly approaching we are proud to be able to make the Conference Proceedings publicly available through the website of the International Cluttering Association. The moment of its release is fortunate as it coincides with the opening of the First Online Conference on Cluttering and together can send a signal that the growing interest in cluttering has established itself.

We are immensely grateful for the Bulgarian organizers of the FWCC. While many individuals contributed to this conference, internationally, a special thanks needs to go Dobrinka Georgieva (“Doby”), and her team of organizers among whom were Katya Dionissieva and Miglena Simonska and many others who had defied enormous odds in making the conference possible and never lost faith that the conference would be possible and turn out as well as it did. Their tireless efforts made it possible for the first international conference on cluttering to be held in May 2007 at the luxurious Katarino Resort near the town of Razlog and the Pirin mountains. It was very special that the conference counted well known Bulgarian politicians among its attendants (Mr. Emil Rainov, MD; Deputy Minister of Health; Mrs. Irina Papancheva, Vice Mayor of Sofia; as well as Prof. Dr. Ilija Gudjenov, Rector of South West University) among its Patrons. All of the patrons were present and spoke at the opening of the conference and showed unrivalled support by the various Bulgarian dignitaries.

Of course much credit goes to team that created the conference program (Ken St Louis, Florence Myers, Klaas Bakker and Larry Raphael). This program covered a broad range of topics of interest regarding cluttering, with the weight of the program leaning toward clinical and fundamental research into cluttering. However, persons who clutter themselves were represented in the form of two presentations (Peter Kissagizlis and Helene Kvenseth) and a video by Joseph Dewey (who coordinates the Online Cluttering Self Help group at Yahoo). Furthermore, the video “Cluttering” sponsored and produced by the Stuttering Foundation of America (Jane Fraser) was first shown to an
audience at this time. The new “Deso Weiss Award” was awarded to Ken St Louis, and the International Cluttering Association was established.

Finally, there were the Proceeding Editors and Reviewers, Klaas Bakker, Larry Raphael and later also Florence Myers who got to relive the conference multiple times over while reviewing the papers from the Conference contributions for the purpose of creating the long-awaited Proceedings document. While the original plan was to disseminate the Proceedings in the form of CDs to be mailed out to all participants and attendants of the conference, it was the wisdom of the Bulgarian Conference Organizers as well as the Proceedings reviewers to opt for a public release through the website of the International Cluttering Association. This guarantees that the unique knowledge and experience gained during the conference as well as some useful resources would reach a maximum number of individuals interested in cluttering research and treatment including those who have direct personal experience with this unique speech fluency disorder. Cluttering deserves the wider exposure it is getting on the ICA website that will allow this to expand further and reach more individuals interested in cluttering worldwide.

The First World Conference on Cluttering, along with the Proceedings now available through the International Cluttering Association website, represent important steps toward our collective efforts to promote heightened awareness and greater understanding of cluttering worldwide. On behalf of the International Cluttering Association, we thank South West University “Neofit Rilski” (Blagoevgrad, Bulgaria) and Adelphi University (Garden City, New York) for their generous financial support to make the conference possible.

April 14, 2010

Klaas Bakker
Missouri State University, Springfield MO, USA

Lawrence Raphael
Florence Myers
Adelphi University, Garden City, NY, USA
CEREMONIAL PAPERS
Welcome Speech

Ms. Irina Papancheva,
Deputy Mayor of Sofia, Bulgaria

Dear ladies and gentlemen,

First at all I would like to thank to the organizers for inviting me to become one of the patrons of the First World Congress on Cluttering and to open it. It is an honor to me and I am proud and happy that I am part of this big event in a way and that it is taking place in Bulgaria.

I have just come back from Croatia where I had a presentation at the 8th World Congress of People Who Stutter. It was an inspiring event and I have brought part of its energy here with me.

Preparing my opening speech I have found lots of information on the Internet about cluttering. Of course I had heard something before, having myself a personal story with speech disorders, but now I was especially curious to find out more about it and about the differences between stuttering and cluttering. I have read basic information, history as well as personal stories. It has been an interesting but may be a bit confusing process. For example at a number of places it was stated that Demosthenes and Winston Churchill were clutterers while till then I had seen their names in the ranks of the famous stutterers. It was just a prove to me that the line between these two speech disorders is thin and sometimes it is difficult to be recognized. And I still don’t know which is the real diagnosis of these outstanding historical figures. But probably it is not really the point. Probably the point is that though
they had a speech disorder they achieved a lot through their lives and have influenced the existence of many other individuals.

Coming back to cluttering I also read different definitions and explanations about it but I especially liked the words of Joseph Dewey, a clutterer himself. He says that “cluttering is the undiscovered country of speech pathology”. It is a very poetic way to call the lack of information and practice in this area. Then I hope and believe that this congress will make a tremendous step towards discovering and world recognition of this land. And sticking to this metaphor I wish to all of you to repeat Columbus experience, and furthermore to leave Bulgaria with the feeling of satisfaction with a fruitful congress.

Thank you!
Deso Weiss Award to Dr. Kenneth O. St. Louis

Isabella K. Reichel
Touro College, New York, Graduate Program in Speech and Language Pathology.

On Behalf of the Awards Committee, which is composed of John Tetnowski, Dorothy Roth, and myself, it is my privilege to acknowledge and express our deepest appreciation to the Stuttering Foundation of America, headed by Jane Fraser, for sponsoring this Deso Weiss Award. This sponsorship signifies that the Stuttering Foundation of America recognizes the importance of research, clinical excellence, and public awareness of cluttering.

We are devoting this historic conference to cluttering, a disorder which was most famously named an “orphan” in the field of speech pathology by Deso Weiss in 1964. Florence Myers and Kenneth St. Louis (1986) referred to cluttering as an orphan which resides in the house of speech-language pathology. Then Dr. Ken St. Louis and a select group of his colleagues expanded and renovated the house, creating a separate big chamber for the disorder of cluttering, full of excitement, scientific discoveries, and compassion.

Dr. Kenneth St. Louis and his dedicated colleagues have been striving to make sure that people who clutter will always have an inviting home, where they will never be left home alone, but where they will have independence, and everybody around them will acknowledge their presence, so that they will aspire to and have equality and rights to a normal and fully satisfying life.

According to David Daly, “Ken’s interest in the disorder of cluttering goes back at least three decades, when only a paragraph or two about cluttering were included in most SLP textbooks” (D. Daly, personal communication, March, 2007).

Once Dr. St. Louis became interested in cluttering, he inspired colleagues across the world. In his firm but graceful manner, he powerfully increased the awareness of
cluttering, from a “fraternal twin of stuttering,” to a disorder recognized not only within the scientific community, but also among practitioners and members of the lay public.

Just a few short words about Dr. St. Louis’ illustrious career.

Dr. St. Louis has a Ph.D. conferred by the University of Minnesota in speech pathology, with a supporting program in neurological sciences (1973). He is an ASHA Fellow and a Board recognized Specialist and Mentor in Fluency Disorders.

Presently, he serves as Professor in the Department of Speech Pathology and Audiology, in West Virginia University. Simultaneously, he is an Adjunct Professor in the Department of Speech Pathology, University of Alberta, in Canada, and he also serves as Adjunct Professor, Education, Research, and Training Center for Speech and Language Disorders, Anadolu University, Turkey. He has taught seven different undergraduate courses and nine different graduate courses.

Dr. St. Louis is the author of Living with Stuttering (Populore, 2001); the editor of The Atypical Stutterer (Academic Press, 1986); and a co-editor of Cluttering: Issues and Controversies (by Myers & St. Louis, Eds., 1992). One of the nominators referred to this latter book, which was dedicated entirely to cluttering, as a Herculean accomplishment.

Dr. St. Louis has completed at least 356 research projects and programs, to date, including 96 publications in journals, books, or monographs; 160 presentations at conferences and professional meetings; 57 invited presentations at professional sites, and 43 unpublished research projects, papers, and grant proposals.

Among the publications referred to above, Dr. St. Louis authored or coauthored 37 studies on symptoms of cluttering, 27 studies and presentations in the management of cluttering, and 4 studies on professional views and perceptions of cluttering. Dr. St. Louis coordinated the induction of 300 individuals into the Inaugural Cadre of Specialists in Fluency Disorders and the Inaugural Cadre of Mentors as Vice Chair of the Charter Specialty Commission on Fluency Disorders.
Dr. St. Louis’ contributions to the international speech-language pathology community are incomparable. He was one of the leading founders of the International Fluency Association (IFA) (1990), its first president-elect, and then its President, in 1992.

In addition, Dr. St. Louis founded the now world famous International Project on Attitudes Toward Stuttering (IPATS) (St. Louis, Fisher, Yaruss, & Lubker (2001), and continues to coordinate the collaborative IPATS initiative with partners in various countries around the world. I myself had an opportunity to use the instrument being developed in two studies.

Dr. St. Louis was considered for the first chair of a new department of Speech & Hearing Sciences at the Kuwait University. In Australia, he participated in research at St. Vincent’s Hospital, University of New South Wales. He received many prestigious honors, including a doctorate Honoris Causa and a Fulbright Senior Scholar Award at Southwest University, in Bulgaria.

I will now read excerpts of some of the letters in support of the nomination of Dr. St. Louis:

One of the letters of nomination stated, “I know of no other person in the country who has done more professionally to heighten the profession of speech-language pathology, and the lay public to the multi-faceted nature of cluttering.”

Another nominator wrote that “Dr. St. Louis genuinely is a good and easily approachable person; he is a colleague and friend to many people, the world over.”

Also: “Dr. St. Louis is one of the leaders who adopted cluttering into the extended family of speech–language pathology, and successfully raised awareness of its nature and intervention, both nationally and internationally.”

In conclusion, Dr. St. Louis’ inspiring leadership in numerous national and international projects and initiatives increases the awareness of cluttering in the general public and the professional community, which in turn optimizes the interplay of research and practice in the management of this enigmatic disorder.
References


Summary of Initial Planning Meeting for Possible International Cluttering Association

Kathleen Scaler Scott
University of Louisiana at Lafayette, Lafayette, LA USA

An initial planning meeting was held at the First World Congress on Cluttering in Katarino Bulgaria to discuss the possibility of establishing an International Cluttering Association (ICA). The purpose of the meeting was to discuss with persons who clutter and professionals in attendance: (1) the need for such an organization; and (2) initial concerns and thoughts regarding such an organization. The meeting was opened by Dr. Kenneth St. Louis, who appointed Kathleen Scaler Scott meeting coordinator.

Ms. Scaler Scott began the meeting by distributing copies of a tentative mission statement for the organization. She explained that this statement was established only to provide an initial framework for the organization, and that nothing that was indicated in the mission statement was absolute. That is, it was meant only to be a beginning point for discussion. All input (both negative and positive) was welcomed.

Ms. Scaler Scott explained that preliminary discussions amongst herself and other cluttering experts prior to this meeting led to the conclusion that, although cluttering is part of the content covered by the International Fluency Association (IFA), establishing ICA as a separate entity might help to raise more awareness about cluttering.

Two important elements of the ICA, as explained by Ms. Scaler Scott, would be that it be: 1) consumer driven (i.e. people with cluttering driving the goals and focus of the organization as much as possible); and 2) international in focus. Ms. Scaler Scott
briefly reviewed the tentative mission statement, and then opened the floor to feedback from those attending the meeting. The following points were raised:

Frances Freeman (USA) brought up the idea of staying connected to already established organizations such as IFA initially, given that building an independent ICA will be a formidable task. Dr. Freeman also brought up the idea of establishing separate sections of conferences geared specifically toward the topic of cluttering at annual meetings of organizations such as the American Speech-Language Hearing Association (ASHA). She called for getting such a section on the program for ASHA’s upcoming meeting in November 2007. Others from the USA involved with the program committee for the ASHA conference indicated that the deadline for such programs had passed, and that this would need to be a consideration for future conferences.

John Tetnowski (USA) expressed concern regarding having to choose between stuttering and cluttering meetings at conferences if cluttering were placed in a separate “track.” Others expressed agreement with this opinion.

Peter Howell (UK) explained that in watching the development of the International Fluency Association, he felt that the mistakes that had been made were with regard to a lack of consumer and international focus. He suggested that we keep these mistakes in mind when developing ICA so that they would not be made again. He asked to open the floor to more participation from those representing countries other than the USA.

Yvonne van Zaalen-op’t Hof (The Netherlands) stated that individuals from all countries should work together because they need each other for different reasons, and can benefit from each other’s strengths.
Judith Kuster (USA) explained how the Stuttering Homepage grew and developed since its inception. Ms. Kuster suggested that we begin development of the ICA now and just keep “doing it better.”

Kathleen Scaler Scott explained that Dr. Klaas Bakker had graciously offered to help set up an initial website for this organization, and that she and Dr. Bakker had discussed means for using low-cost or free technological resources, such as Skype, for ICA members to communicate with one another. This would take into consideration the fact that for many, especially the consumers, the cost of attending conferences or annual meetings may be too great. Using technology would therefore provide a means whereby anyone who would like to be involved in ICA would be able to without concern about cost. Ms. Scaler Scott expressed that the yahoo cluttering group founded by Joseph Dewey was quite active, and that she intended to bring the information that was discussed at this meeting back to the group to obtain more consumer opinion about development of the ICA, and to see if and how these individuals would like to be involved.

Peter Kissagizlis (UK) asked how many of those in attendance were aware of this Yahoo group. Fewer than 10 individuals raised their hands.

Kathleen Scaler Scott asked how many, now that the link to the yahoo group had been given at the conference, (http://groups.yahoo.com/group/cluttering/) would join this group and make other relevant individuals aware of the group. A majority of those in attendance raised their hands.
David Ward (UK) indicated that perhaps what is needed is local effort within each country to establish national cluttering associations.

Kenneth St. Louis (USA) indicated that it appeared from the comments offered at the meeting thus far that all agreed an ICA was needed. It was agreed that details could be worked out in future development meetings.

Frances Freeman (USA) indicated that there was a need to call for a vote for the ICA.

Peter Kissagizlis (UK) made a motion to form the ICA. Ms. Scaler Scott called for a vote. Vote was unanimous in favor of development of an ICA.

Ms. Scaler Scott closed the meeting with the final thoughts that she would be contacting those who had expressed interest by email, and that she was open to further comments, ideas, and suggestions at any time.
KEYNOTES AND INVITED ADDRESSES
Conference Overview and Purpose

Florence L. Myers, Ph.D.
Adelphi University

Cluttering as a clinical entity was of interest first to logopedists in Europe, and only recently gained momentum in the United States and elsewhere in the world. Many of the important early works included Weiss (1964, 1967, 1968), deHirsch (1970), Freund (1970), Froeschels (1946), and Langova and Moravek (1964, 1970). Subsequent contributions by researchers and clinicians such as Dalton and Hardcastle (1989), Van Riper (1982), Myers & St. Louis (1992), Preus (1992), and Daly & Burnett-Stolnack (1995) have also contributed to our understanding of this disorder.

Over the past decade, members of the organizing committee for this conference (namely, Klaas Bakker, Florence Myers, Larry Raphael, and Ken St. Louis) have aimed to put cluttering on the map through research and various invited miniseminars and institutes sponsored by the Special Interest Division - 4 of the American Speech-Language-Hearing Association (e.g., Bakker, Raphael, Myers, St. Louis, & MacRoy, M., 2004; Myers & St. Louis, 2006; Myers, St. Louis, Bakker, Raphael, Wiig, Katz, Daly, & Kent, 2002; Raphael, Bakker, Myers, St. Louis, Fichtner, & Kostel, 2005; St. Louis, Myers, Bakker. & Raphael, 2007). More recently, the Stuttering Foundation of America commissioned Ken St. Louis and myself to produce a film (Myers & St. Louis, 2007) on cluttering, to be premiered at this conference.

Your presence at this gathering represents the next logical and vital step in bringing cluttering to the forefront. That is, the goal of this conference is to link individuals from various parts of the world who have an expressed interest in cluttering. The goal is also to begin building a foundation upon which we can integrate our clinical, theoretical and research bases toward a more concerted effort to understand the nature and treatment of cluttering. Besides the papers presented as an outcome of this
conference, we hope to begin the process of organizing an International Cluttering Association.

This is a significant conference, as it represents the first-ever international conference devoted exclusively to cluttering. We want to thank our gracious hosts from South-West University for arranging to have the conference here in beautiful Bulgaria. We want to convey our deep appreciation to Dr. Georgieva, Dr. Dionissieva and their staff for making us feel so welcome. Many of you here today are also known for your work in stuttering. Some feel that although stuttering and cluttering are related, they are not the same disorder. It was Katrina deHirsch who said nearly 40 years ago, that one of the most significant questions in speech-language-pathology is the relationship between cluttering and stuttering.

This audience is a vibrant cross-section of individuals from various countries. There is also a healthy cross-section of expertise represented. You are clinicians, you are researchers, you are thinkers bent on pondering and theorizing about the nature of cluttering. Perhaps most importantly, a few of you in this audience have had first-hand experience with speaking in a cluttering manner.

You will notice that the conference program has a simple and hopefully familiar icon, the *yin-yang* symbol. As some of you know, this icon stems from Asian philosophy and has been applied to conceptualizing the state of one’s physical and even mental health. Put simply, *yang* represents the sun, the male gender, a source of great energy; *yin* represents the moon, the female gender, the gentler force. In traditional herbal medicine, one strives for a balance between the *yin* and the *yang*; *dis-ease* comes when there is an imbalance of the two forces.

We are borrowing this icon to reflect on our communication system. The gifted speaker is one who is fluent and articulate with his thought patterns, his language, and
the speech sounds he produces. Fluency involves a well-tempered and balanced integration of the various levels of the communication system, much like the equilibrium depicted in the *yin-yang* icon.

For many people who clutter, their symptoms may represent a system which is too “hyped up” (too much *yang*) – too much of a gush of unharnessed or unmodulated energy. Clutterers often say they are high energy people, who want to “spit everything out” quickly and at times intensely. This volatility can result in a staccato manner of speech delivery with reduced organization and synergy of the message output. The timing and coordination between thought, language and speech are not well synchronized.

Just what is the purpose of the conference? Put simply, the purpose is to share research findings and clinical insights about this complex and enigmatic disorder, and to set the stage for more formal dialogue about cluttering in years to come. Cluttering has often been considered an orphan in the family of communication disorders (Daly, 1993). Let’s adopt this orphan!

**References**


A Ten-Year Agenda for Cluttering: Excerpts Featuring Seven Key Guidelines

Kenneth O. St. Louis
West Virginia University, Morgantown, WV, USA

My primary purpose in this keynote presentation is to propose an agenda for the next decade. In my opinion, the following seven statements, if used as guidelines, have the best chance of advancing the field of cluttering.

1. “Rate is central.” With several of my colleagues (St. Louis, Myers, Bakker, & Raphael, 2007), I have come to believe that the most basic problem in cluttering is difficulty in managing speaking rate. Starkweather (1987) cited studies indicating that most normal speakers speak near their maximum rate, which coincides with their diadochokinetic rate, if segments without pauses and disfluencies are measured. Interestingly, most people do not attempt to speak much faster than this rate. They seem to have built in “brakes” that take effect when the preferred, maximum rate is exceeded. By contrast, although we cannot be sure, it appears that clutterers frequently attempt to speak at a faster rate than they can manage. The more this happens, the more frequently and severely they clutter. And, even though most clutterers are perceived to talk too fast, their actual syllables per minute is often not any faster—or sometimes slower—than rates for normal speakers (Raphael, Bakker, Myers, & St. Louis, in press).

I propose that research on rate, and rate-related symptoms, is likely to provide valid new clues about the basic nature of cluttering. I came to the notion that rate was central almost 20 years ago. In the 1980s, I collaborated on a series of studies of
coexistence among speech, language, and hearing disorders using a very large
database of nearly 39,000 children tested in the USA in 1968-69, known as the National
Speech and Hearing Survey (NSHS) (Hull, Mielke, Willeford, & Timmons, 1976; St.
Louis, Ruscello, & Lundeen, 1992). (I had been one of 18 examiners in the original
study.) It is relevant for this discussion that rate deviations were assigned by the original
examiners to only 1.1% of the 1st through 12th grade students. In our later studies, these
rate deviations were associated with the highest percentages of coexisting disorders,
i.e., 67% for articulation, 80% for voice, and 67% for language. In other words, when
rate was scored as deviant, the likelihood of other coexisting disorders was higher than
when any other variable was scored as deviant.

Five years ago, Ray Kent provided a review of kinematic and brain-imaging
literature on rate (Myers, St. Louis, Bakker, Raphael, Wiig, Katz, Daly, & Kent, 2002).
Pointing out that while speaking rate is not well understood, average and fast rates of
speech were much more similar to each other than they were to slow rates of speech.
(See below.) Citing Wohlert and Hammen (2000), he pointed out that suprasegmental
changes, such as rate variations, are accomplished through a “multidimensional
reorganization of speech motor control.” Assuming that Kent is correct, it is likely that
there are neurological reasons why most people have difficulty—and many greatly
dislike—trying to significantly slow their rate of speech. Most cannot do so very well
without considerable practice. Ironically, one of the most powerful therapeutic tools for
helping people who clutter is to teach them to slow down (See below).

2. “Definition matters.” Several speakers at this conference have asked, “What is
cluttering, really?” I have taken the position that we need to start with an operational
definition upon which we can all agree (St. Louis, et al, 2007). My colleagues and I have
debated for years what aspects of cluttering should properly be regarded as its “lowest
common denominators.” Even though I have collaborated in reports that have
highlighted the importance of language or linguistic aspects of cluttering (ASHA, 1999;
Myers & St. Louis, 2007), it has always seemed logical to me to define cluttering in terms of speech motor behaviors (St. Louis, 1992). Cluttering is perceived when a person’s speech is produced in such a way that it sounds too fast, too jerky, filled with too many disfluencies (primarily fillers, revisions, and interjections), or difficult to understand due to excessively collapsed (or over-coarticulated) words (St. Louis, et al., 2007). Of course, many clutterers have language that contains errors, irrelevant items, and interactions that do not follow the usual rules of conversation. By contrast, many of these language symptoms can and do appear in other disorders wherein the motor system is not affected in the way we observe in cluttering. In addition, novice speakers of foreign languages often produce similarly compromised language. Importantly, at least some clutterers do not have obvious language difficulties (e.g., Myers & St. Louis, 1996).

Definition matters for scientific, clinical, and political reasons. The scientific reasons relate to the centrality of rate. Of course, speaking rate does not occur in a vacuum; one must be saying something. Therefore, coarticulation, speech disfluencies, language planning, syntactic accuracy, pragmatic skills, and articulation accuracy do come into play. Yet, I submit that studying these symptoms as a function of variations in rate, e.g., normal, fast, or compromised rates, will be more fruitful in understanding the nature of cluttering than simply describing and cataloging various symptoms of the disorder.

Definition also matters for important clinical reasons. Surveys have indicated that neither SLPs nor the public are nearly as well informed about cluttering as they are about stuttering (St. Louis & Rustin, 1992; St. Louis, Goranova, Georgieva, Coskun, Filatova, & McCaffrey, in press). And even for stuttering, SLPs are woefully uninformed (St. Louis & Durrenberger, 1993). Therefore, those clutterers who seek or are referred for treatment often do not get the help they need. Clutterers are often treated for articulation, language, or stuttering, with little or no attention to their cluttering. Such
therapy may be effective, but the clinician’s idea of the basic problem of cluttering can affect treatment—or the client’s perception of the problem—dramatically. Following are two examples. First, Joseph Dewey, founder of a Yahoo ListServ for cluttering, wrote that: “...Some of the first things I read about cluttering seemed to indicate that lack of awareness was mandatory. The first thing they taught me in speech therapy was self-monitoring, which I caught on to pretty fast. So, I went from having absolutely no awareness of cluttering to having a very acute awareness of all of my disfluencies in a matter of weeks. I became self-aware. I thought, ‘If lack of self-awareness is mandatory, and I’m now aware, in theory that means that I’m cured.’ But, my speech patterns and my disfluencies and my organization and everything else that went along with cluttering were still exactly the same” (Dewey, 2007). Dewey’s experience could suggest that lack of awareness may not be mandatory in a clinical definition of cluttering. Second, if therapy were based on a definition with a primary pragmatic language component, then it would focus on the rules of conversation such as watching for listener cues and not interrupting. While these strategies may be effective, the clutterer would no doubt come to believe that his problem is more social than physiological.

The foregoing relates to the question, “How will the clinician know that the client has reduced his cluttering?” Is it when he can demonstrate awareness of his speech accurately in most situations? Is it when he demonstrates normal pragmatic skills? Is it when he can speak with only the normal frequency of normal disfluencies? Is it when he can relate stories coherently? Is it when he can control his urge to fidget and move or can pay attention longer? I submit that we know our clients have successfully reduced the severity of their cluttering when they can speak at a rate that does not sound too fast or too jerky, when they pronounce words—especially long words—normally and intelligibly, when they no longer produce excessive disfluencies, and when they use normal-sounding prosody. This is not to minimize other problems that may exist related to communication, e.g., marginal pragmatic skills, attention-deficit/hyperactivity disorders, learning disabilities, or limited awareness. Of course, these should be addressed in therapy, tutoring, or referrals to other professionals.
Definition matters for political reasons as well, especially in areas where speech-language pathologists have the tradition of distinguishing “speech” from “language” disorders. On the Cluttering Yahoo group, a number of posts have suggested that people who clutter have reached the conclusion that stuttering is a “speech” problem and cluttering is a “language” problem. It is hard to predict in which terminology “camp” cluttering will eventually end up, but I have tried—with some success—to keep cluttering in the “speech”-related “fluency disorders camp,” as opposed to the “language camp,” the “ADHD camp” and so on. In the area of “fluency disorders,” cluttering is greatly overshadowed by stuttering and has been essentially ignored in the past (St. Louis, et al., 2007). In spite of this, progress is evident; cluttering is now widely regarded primarily as a “fluency disorder.” I submit that if cluttering comes to be regarded primarily as a language disorder or perhaps one of the autism spectrum disorders, it will again—and perhaps irretrievably—become swallowed up and essentially ignored in favor of other, more “popular” disorders. The activities at this conference to inaugurate a new international organization for cluttering are an important political step in the right direction. Once the organization becomes established and once the field of speech-language pathology has a solid tradition of considering cluttering equally along with all the other communication disorders, it probably will not matter as much where cluttering finds its theoretical home. Currently, in my opinion, it matters a great deal. Otherwise, we run the risk of returning to the debates of Froeschels, Weiss, and others as to what cluttering really is (Weiss, 1964). My position is that being “right” about the definition is currently less important than placing cluttering squarely on the map of communication disorders. If this is to happen, we must reach consensus soon on the minimal characteristics that will allow us identify individuals whom we can all agree clutter. If not, I believe that influential researchers and major granting agencies will continue to ignore the disorder.

3. “Start with pure clutterers.” Analogous to the debates regarding whether or not cluttering is a disorder distinct from stuttering, certain language disorders, or ADHD,
prior to the 1970s scientists disagreed about whether or not apraxia could exist apart from aphasia. However, Darley, Aronson, and Brown (1969) published a study of a sizeable number of subjects with pure apraxia, i.e., apraxia without aphasia, in which they carefully described each group and its symptoms. Almost immediately, the debate disappeared. In my opinion, nothing would do more to advance cluttering research than a large, descriptive study of pure clutterers. Cluttering participants would be selected who have the rate, and rate-related symptoms of cluttering (as well as the resultant excessive normal disfluencies, overly coarticulated multisyllabic words, or unnatural prosody), but no other obvious or significant problems with stuttering, language, articulation, learning, attention, activity, or psychopathology. If such a study could be carried out with careful research methodology, the issue of “What is cluttering, really?” would likely fade considerably. In addition, such a “gold standard” research project could begin to identify basic physiological, acoustic, and perceptual characteristics of clutterers and of cluttered speech that should be explored in depth. Pure clutterers are rare. Accordingly, such a study may require a collaborative effort at multiple sites by different investigators. Also, since we do not yet have a consensus definition and a body of research based on that definition, this study might well need to be carried out without major external funding.

4. “Epidemiology is critical.” Following a consensus definition and data from a carefully selected group of “gold standard” cluttering participants, there is a critical need for better estimates of the scope of the problem (Craig, in press). What is the prevalence of cluttering at various ages? More specifically, in what age range does it first appear? How does it change over time? What percentage of clutterers have other coexisting disorders, e.g., stuttering or ADHD? What is the prevalence of such subgroups as pure clutterers, clutterers with coexisting disorders, and clutterers who normalize, i.e., do not “clutter,” in experimental situations? It is far too soon to expect definitive data on incidence; nevertheless, other related questions should be addressed. Who is at risk for cluttering? To what extent do genetic influences for cluttering overlap
with those for stuttering and other related disorders? What is the ratio of males to females, and how does that ratio interact with genetics and change with age?

5. “Improve assessment.” It might be fair to say that the state of the art of clinical management of cluttering is ahead of theory and empirical data. Nevertheless, there is no question that we need new and innovative ways to measure cluttering—and fluency in general. Bakker has introduced computer-assisted strategies that will allow us to begin to quantify cluttering (Bakker, St. Louis, Myers, & Raphael, 2005). Other measures should be investigated and standardized as well. The Systematic Disfluency Analysis system provides a useful framework for identifying and quantifying disfluencies in cluttering, especially in relation to stuttering (Campbell & Hill, 1994). The Predictive Cluttering Inventory (Daly, 2006), and perhaps other instruments need to be tested with groups of clients so that clinicians can make better prognoses. The St. Louis Inventory of Life Perspectives for Speech and Language Difficulties (St. Louis, 2005) is a first step in getting much needed information on quality of life issues related to cluttering. Also, we need better measures of awareness. The Self-Awareness of Speech Index (St. Louis & Atkins, 2006) provides one such experimental measure.

Past classifications have postulated a continuum between cluttering and stuttering, e. g., cluttering, clutter-stuttering, stutter-cluttering, and stuttering (Weiss, 1964). Clearly, cluttering can coexist with many disorders other than stuttering. Following the call to describe coexisting disorders epidemiologically is a need for better descriptive classification systems of cluttering as it coexists with any other disorders. This might be as simple as “cluttering with ADHD,” “cluttering with stuttering and articulation disorder,” and so on. My suggestions are to identify the most salient disorder first, and then follow it with coexisting disorders, in order of saliency, e. g., “stuttering with Tourette’s syndrome and cluttering.”
6. “Systematize therapy.” Therapy for cluttering is often implemented by trial and error. Clinical efficacy research, using solid measures, on the most common therapeutic strategies is urgently needed (Craig, in press). Considering all the various disorders coexisting with cluttering, what types and combinations of therapies would likely be more or less effective with different combinations of disorders? In addition, more effective techniques should be explored. It is widely accepted, for example, that rate reduction is an effective strategy. As noted above, clinical experience tells us that this is very difficult for clutterers. Ray Kent concluded that we use different parts of our brains to speak slower than to speak at average rates or faster (Myers, et al., 2002). Are there better ways to achieve reductions in cluttering, such as those that facilitate normal strategies for slowing down? Florence Myers has had success in teaching clutterers to pause at syntactic junctures, and this seems—and sounds—less artificial than the prolonged speech produced by a delayed auditory feedback device (Myers & St. Louis, 2007). We also need to determine if there are ways to harness the common ability of clutterers to normalize during taping and evaluations, and to extend it to other situations?

7. “Advocacy must grow.” Even though the terms for cluttering are often confusing (e.g., “cluttering” is associated with “being messy” in English), we must begin the long and difficult process of educating professionals, consumers, and the public about this disorder. The Internet will no doubt play an important role. The Stuttering Foundation [of America] (SFA) has taken the lead with a brochure on cluttering (St. Louis, 1998) that has been widely requested and distributed. The new SFA DVD on cluttering (Myers & St. Louis, 2007) will definitely be helpful as well. In addition, there is a need for more newspaper, radio, and television features on cluttering as well as the various other ways that public awareness is increased. Descriptions of cluttering must be included in standard textbooks in elementary education, special education, medical education, and vocational rehabilitation. Finally, consumers—those who clutter—must advocate for themselves. The Cluttering Yahoo Group is pioneering in this regard. Almost every week, someone writes to say that they have had a communication
problem their entire life and that this is the first time they have communicated meaningfully to anyone about it. This virtual self-help group needs to translate into face-to-face self-help activities. Advocacy for those who clutter will no doubt be enhanced by the new International Cluttering Association taking shape from this historic conference. The stuttering self-help community is just beginning to realize that many of their members clutter. Significantly, Peter Kissagizlis, a person who clutters, actually leads a chapter of the British Stammering Association in Leeds, UK. Since cluttering is rare, many of those who clutter can find a place for support in self-help groups for stuttering, if they are willing to help educate the other members about the differences between cluttering and stuttering. Eventually, I look forward to the day when there will be an annual convention of clutterers in the USA, like those of the National Stuttering Association or Friends. These conventions are empowering and life-changing, as members of this conference heard from the few clutterers in attendance. When someone who has lived alone with a problem is able to experience first-hand the relief and exhilaration of being firmly in the majority, and to experience the comfort of acceptance and understanding, a new sense of empowerment emerges.

References


The bad, the good and the misunderstood: cluttering and problems of image
Transcript of After-luncheon Speech: First International Congress on Cluttering

David Ward
The University of Reading, UK

A while after I had happily accepted Ken St Louis’ kind invitation to speak at this lunch, I did start to wonder whether I had made the right decision. I am very used to giving presentations, but an after lunch talk is a totally different proposition. I got back to Ken, asking if he had any special subjects that he wanted me to talk on. Ken suggested that I should simply work to my strengths – adding, slightly disconcertingly, “I don’t know what those are”. I became increasingly concerned that I wasn’t that sure either.

There were one or two suggestions – perhaps we, as a group of delegates, could try to generate a list of all the signs and symptoms which had been associated with cluttering. In fact, this was actually something I had considered as a topic myself. But after giving this some more thought I wondered (and I hope you will excuse a gastronomic pun, here) if this might be biting off more than I, or anyone else for that matter, could chew for a luncheon talk. I had visions of us all, or at least those with the necessary stamina, still sitting around these tables adding to an increasingly contentious list well into the early hours of tomorrow morning.

In the end, I decided that, as a person whose speech is (at the very least), on the cluttering spectrum, I would give you my take on my disorder; the bad bits, the good the misunderstood bits, and the problem of image that cluttering, I believe, suffers from. At odds with the cluttering stereotype, I now propose to discuss these in precisely this sequence.
**First the bad.** Cluttering inevitably draws comparisons with stuttering – something that is not always helpful, in my opinion. The two are natural companions in many ways – we know that they very commonly co-occur, and there may well be commonalities when it comes to genetic influences, to mention but two, but they also differ in important respects:

Severe stuttering is associated with slow speech rate – severe cluttering is associated with fast speech rate.

Stuttering is associated with specific word fears – cluttering is not

Stuttering (in adulthood) is associated with normal language skills – cluttering is not

Stuttering is associated with moments of visible struggle and increased physical tension – cluttering is not.

Stuttering is associated with high levels of anxiety, fear, cluttering is not. So, while those who stutter might take Susan Jeffers’ advice and “feel the fear and do it anyway” – those who clutter typically do not feel any fear… but do it anyway. In some cases with very low levels of intelligibility and coherence – but we do it, and then we wonder what the fuss is about when our audience is confused and baffled.
I could, of course, expand on this list…

These differences are significant not only from an aetiological perspective, but from a therapeutic one, too, and dealing with stuttering/cluttering combination can be tricky for precisely such reasons. In fact, we might question whether cluttering is actually a fluency disorder at all. Recent research indicates that listeners tend to pick up more on phenomena related to speech rhythm and non-segmental phonetic aspects of speech before they mention fluency. Taking things a stage further, one might consider that apraxia of speech or certain dysarthrias might have an equal or perhaps greater claim to be a disorder of fluency.

Arguably the biggest problem is that cluttering does not tend to get taken as seriously as stuttering. Well, why would it? People who stutter know they stutter. People who clutter, by and large, are unaware of their problem, and feel they are unaffected by it. People who clutter do not “build their lives around their problems” as some who stutter do. And people who clutter do not commit suicide because of their communication difficulties, as tragically can be the case in extreme situations for some who stutter. None-the-less, severe cluttering is a massive impediment to communication, and the disorder demands our respect.

The Good

Well, in a true cluttering-y type of way, I’ve already touched on some “good” points under the heading of “bad”. As I’ve already suggested, for many people who clutter the problem is really not something that affects their daily living, and thus is not something of great importance.
From my position as a researcher, and clinician, this is juxtaposed with the fact that, from an aetiological/theoretical perspective, cluttering must be one of the most fascinating and difficult of all the speech language disorders. Not only are there both speech and language components to the disorder to consider, but there may be subtle receptive components for some. Yet unlike other recognized disorders where we see such difficulties, cluttering exists without (for the present, at least, any neurological diagnosis!)

The Misunderstood

Cluttering surely, is all about misunderstanding. We as clutterers are misunderstood, and we often misunderstand the reasons for our being misunderstood. (Why didn’t that person get what I was saying? Perhaps he wasn’t listening…) It has also been suggested that we, as clutterers may have some high-level comprehension difficulties, and that we also misunderstand. Having grasped the wrong end of the stick on one occasion, my wife said to me “When most people imagine pounding hooves, they picture horses. You picture Zebras” She may well be right. But then again those hooves could also belong to Buffalos – or Caribou, or Wildebeest…

And of course, at a different level, the disorder is itself, misunderstood. More than anything, we need to arrive at a consensus as to the significance of the different strands of the disorder, and in turn to agree on a definition

Cluttering as a Problem of Image

Clearly, we as cluttering speakers suffer from a lack of identity in speech/language diagnosis. There is still a lot of misunderstanding in the general public about stuttering, but awareness has improved considerably in recent years. Listeners,
by and large will recognise overt stuttering, and the majority will respond to speech difficulties in what they will perceive to be a helpful way. That is they recognise stuttering as a *bone-fide* difficulty with speech.

As suggested earlier, though – and in contrast, not only is the general public unaware of cluttering, but so are the majority of people who suffer from disorder. Unfortunately, as we all know, this does not mean that the problems go unnoticed – just undefined and uncategorized.

My own problems come out more when I am tired, when I am distracted, under time pressure and having to multi-task, and interestingly, when I am rushed. Just very occasionally (usually when really fatigued) I will simply give up on speech, but for the vast majority of the time I know I can control things to the point where my speech and language does not sound abnormal. But I am lucky.

The few people I know with severe pure clutters do get noticed, and noticed big time. Cluttered speech can sound bizarre, and perhaps worsened by the fact that the listener has no idea that there is something pathologically wrong with the person’s speech. Speech does not perhaps sound disordered in any recognizable way to the listener (as stuttered speech often can) – just muddled, confused, rushed, and often, comic. The lack of visible struggle also indicates to the listener that as far as the speaker is concerned that there is no problem to deal with.

Here then, is the centre of the image problem that I refer to in the title of this talk. Because the disorder has a number of its roots within the area of “normal” speech and language errors, the speaker is not perceived as someone with a speech language problem, but just an incompetent speaker and/or a very confused thinker.
With this idea of cluttering being underpinned by many “normal” speech and language errors in mind, let me take an impromptu and highly unscientific survey…

Who here speaks fast?
Who rephrases sentence on occasions?
Who occasionally has word-finding difficulties? And uses fillers to compensate?
Who has made the occasional phonemic error – perhaps a spoonerism or two here and there?

On the other hand (and excluding those who stutter)…
Who blocks on speech sounds?
Who stretches sounds involuntarily?

I rest my case. (OK… I accept that you just might want to query one or two issues surrounding the validity of this poll)

Finally

…and while we are talking about image…this reminds me that cluttering has been described as “the Cinderella of speech and language disorders”.

Well, here we are - at the Ball - The First International Conference on Cluttering. And for this we all owe a big debt to Ken St Louis and the organizing committees, both in America and Bulgaria for making this happen. And now Cinderella is here, complete with a new image, it is up to us to make sure she gets up and dances.
There is, though, a further piece of the jigsaw to be put in place. For Cinderella to live happily ever after, we need the handsome Prince to show up. I now refer, of course, to the funding agencies to whom marriage is vital in order to allow large scale studies to proceed.

This conference - the first I hope of many, will greatly increase the visibility of cluttering as a “serious” speech and language disorder - that it is, indeed, a disorder deserving of people’s attention and interest, and whose study warrants financial support.

So to conclude, I really do believe that the mandate of this conference has been fulfilled: cluttering really has been brought into the 21st Century.

Thank you.
Concluding Remarks and Reflections
Florence L. Myers
Adelphi University

This was a landmark conference, the first time that delegates from nearly every continent congregated to put cluttering on the world map. This conference would not have been possible without the efforts and gracious hospitality of our hosts in Bulgaria, Dr. Dobrinka Georgieva, Dr. Katya Dionissieva, and their able staff from South-West University “Neofit Rilski.” Their counterparts in the States need also to be acknowledged: Dr. Klaas Bakker (Missouri State University), Dr. Larry Raphael (Adelphi University), and Dr. Ken St. Louis (West Virginia University). The conference program lists other individuals who were essential in making this conference a success. We also thank the dignitaries who took time from their busy schedules to greet the delegates, including Emil Rainov (Deputy Minister of Health) and Irina Papancheva (Vice Mayor of Sofia).

A major mission of the conference was to bring together researchers, clinicians, and consumers to pool our collective insights about cluttering. Unfortunately, there is minimal research-based knowledge about this enigmatic disorder. As Ken St. Louis (recipient of the first Deso Weiss Award at the conference and chair of the Program Committee) indicated in his Keynote Address, cluttering may be a disorder for which research lags behind clinical insight. Yet this is not necessarily a lamentable situation, as clinical insights serve as catalysts for research hypotheses. Systematic investigation of cluttering is just emerging, but progress in research is affected negatively because we are in dire need of an agreed-upon definition of cluttering. A number of papers addressed this need. One current working definition of cluttering considers it as

“...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 manifested 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, Myers, Bakker, Raphael 2007, pp. 299-300)

However, there are other perhaps equally valid perspectives about what constitutes cluttering (e.g., Daly and Burnett, 1999). The challenge in arriving at a definition of cluttering stems from its multidimensional nature. As John Tetnowski (2007) said,

…. many different conditions run concomitant to cluttering. However, we will never be able to determine whether conditions are concomitant to cluttering, or whether the conditions are part of cluttering itself until we reach agreement on the most basic issue of cluttering, the definition.

In addition to the development of a definition of cluttering is the need for research on cluttering and its treatment. Ashley Craig (2007) offered some solid guidelines for conducting controlled clinical trials to study the efficacy of treatment approaches. A logical dilemma arises, however, that points to the reciprocity between research initiatives and a universally accepted definition (or the lack thereof) for the research population. The ideal, which we have not yet achieved, would be first to arrive at an empirically-supported set of parameters by which to select the research participants. Yet we need to acknowledge that advances in the study of clinical populations are seldom linear nor even clearcut. For now, we need to pursue the next best alternative which is to operationally describe our subject population in terms of a set of a priori criteria (e.g., compromised speech intelligibility, excessive numbers of nonstuttering types of disfluencies, excessive and/or irregular rate) and to collect valid and reliable data.
The papers presented at this conference addressed a number of critical issues related to cluttering. Some of the papers were research-based or theoretical in nature, such as Per Alm’s model (Alm, 2007), while others discussed clinical approaches to the assessment and treatment of cluttering. Papers presented were based on findings stemming from the genetic study of fluency disorders, as well as the neurophysiological, acoustic and perceptual bases of cluttered speech. Clinical approaches included discussion of therapy techniques as well as the use of instrumentation and computer software to provide measurement and/or feedback for assessment and treatment. As cluttering has often been considered an orphan in the family of communication disorders, several papers took up the issues of public attitudes and awareness of cluttering (and stuttering) in various countries, as well as the paucity of time devoted to cluttering in university curricula. We are especially appreciative of the insights provided by the consumers, namely Joseph Dewey, Peter Kissagizlis, and Helene Kvenseth. The Conference Proceedings provides a repository of the edited version of presentation summaries. I want to personally thank Klaas Bakker and Larry Raphael for their editing of the papers. We are also indebted to Jane Fraser of the Stuttering Foundation for commissioning the DVD *Cluttering*, which will undoubtedly generate heightened awareness of cluttering.

Increased understanding of the nature and treatment of cluttering will undoubtedly be aided by the formation of the International Cluttering Association (ICA) which took place on the last day of the conference. The ICA, currently under the able leadership of Kathy Scaler Scott, will serve as a key conduit for the exchange of research and clinical insights. It will also serve as a vehicle of advocacy for consumers and their families. The ICA’s website, along with the Yahoo listserv founded by Joseph Dewey, will be instrumental in disseminating important research and clinical information to the general public, to speech-language clinicians worldwide, as well as to consumers and their families.
A spark has been ignited at this conference to promote a better understanding of cluttering and its assessment and treatment. We have officially put cluttering on the world map. However, this is just the beginning; the bulk of the work is still ahead of us. This includes collecting data on operationally-defined participants who clutter---compared to those who (1) stutter, (2) speak rapidly but clearly and fluently, and (3) are typical speakers---in order to capture the essential nature of this complex and multifaceted disorder. May we find ourselves armed with more empirically-based studies toward a better understanding of cluttering and its relation to stuttering and typical speaking behaviors, at the Second World Conference on Cluttering!

Given the paucity of research in cluttering, may I suggest some key questions to address in future research:

1. What is the relationship between cluttering and stuttering?
2. When do cluttering behaviors first emerge? What is the developmental course of cluttering during the lifespan?
3. What is the prevalence of cluttering? Do incidence and prevalence differ across cultures?
4. What is the underlying causality (e.g., motoric vs. linguistic etiology) for the disfluencies often seen in cluttering (e.g., interjections, incomplete words and phrases, revisions) compared to the atypical disfluencies that are characteristic of stuttering, such as prolongations and tense pauses?
5. Is there a lack of inhibition of behavioral impulses in individuals who clutter? What is the role of brain functions at the basal ganglia vs the cortical levels (Alm, 2007) in regulating the encoding of thoughts into speech/language units? Is cluttering a part of the so-called basal ganglia syndrome, as speculated by Wiig at a recent American Speech Language and Hearing symposium (Myers, et al., 2002a, 2002b) whereby the brain’s “executive functions” do not function properly, affecting the individual’s ability to plan, initiate, monitor, and regulate behavior?
6. What is the etiology of cluttering? Is it a “central” timing disorder that influences the tempo with which the individual activates behavioral impulses? Are the behavioral impulses specific to the sequencing of speech segments, or do they pertain also to nonspeech movements and linguistic encodings?

7. What is the relationship between the speech and language behaviors of individuals who clutter and those of typical speakers when attempting to speak faster than they are able?

8. Do individuals who clutter typically exceed their maximum capacity to encode speech segments? If so, what are the behavioral consequences of this? Conversely, do typical speakers speak at or near their maximum rate but seldom exceed this rate? Is there a self-monitoring system in typical speakers that enables them to “hold back” so they do not exceed their limits?

9. What is the nature of articulatory disintegration when clutterers their maximum rate? What is the nature of articulatory disintegration when typical speakers are asked to exceed their capacity?

10. What accounts for the staccato-like rate irregularity often observed in cluttering? What is the relationship between rate irregularity and the speaker’s ability to sequence and organize thoughts, especially when talking about a topic of great excitement or complexity?

11. What is the nature of temporal perception in individuals who clutter?

12. Do individuals who clutter necessarily speak faster than nonclutterers? Or are they better described as individuals who have a tendency to “surge ahead” by speaking too fast relative to their ability to encode a message? Can this tendency to “surge ahead” be studied as a part of an individual’s temperament?

13. What general role does temperament play in the tendency to clutter?

14. How do types of speaking tasks (e.g., diadokokinesis, sentence repetition with or without modeling, short extemporaneous speech, longer narratives in informal settings, topics of great personal interest) influence cluttering at the motoric and linguistic levels?

15. Are there subgroups of clutterers who share a common core etiology but also exhibit symptoms unique or more prominent to particular subgroups?
16. Why do clutterers vary in their ability to self-monitor when speaking? What is the relationship between self-monitoring skills and the ability to self-modulate (i.e., make adjustments after becoming aware) speech/language output? Why do some clutterers normalize seemingly effortlessly, at least for short and structured segments of speech?

17. What role does emotional excitability play in the manifestation of cluttering? Why is cluttering more pronounced when speaking in an unguarded and informal manner?

18. What accounts for the differences in sensitivity to pragmatics among clutterers?

19. Why is it difficult for many individuals who clutter to sustain slower, clearer, and more fluent speech over long periods of time? Similarly, why can some clutterers self-modulate relatively easily, at least for short periods of time, and others not?

20. What is the nature of clutterers’ self-awareness skills as related to their speaking rate, fluency, language encoding skills, speech intelligibility, pragmatics?

21. What roles do the skills of attending and central auditory processing play in cluttering?

22. Are diagnostic entities (e.g., cluttering, oromotor deficits, narrative encoding deficits) necessarily mutually exclusive? Are related symptoms such as attention deficits concomitant to cluttering, or are they part of cluttering itself?

23. What effect does cluttering have on the individual’s writing and word processing skills?

24. How can we best measure cluttering?
   a. Microscopically using discrete indices such as percent disfluency? Or perceptually, taking in the multifaceted nature of cluttering “as a package” as in Bakker’s freeware (2005a, 2005b) for determining proportion of speaking time containing cluttered speech?
   b. Using standardized articulation and language tests vs analyzing a language sample taken in naturalistic settings for aspects of narrative cohesion and coherence?

25. What is the role of listener perception in determining degree of speech intelligibility and speaking rate in cluttered speech? Is cluttered speech judged
to be excessively fast in part because the message signals are incomplete or distorted (e.g., syllable deletions, vowel neutralizations, inappropriate resonance, distorted prosody, lack of smooth flow of the message with inappropriate pausing for syntactic and semantic units, even though the actual articulatory rate may (or may not) be faster than that of typical speakers?

26. What areas should receive first priority in treatment, given the multifaceted nature of cluttering (Myers, 2007)? What is the effectiveness of the various treatment approaches to cluttering (Craig, 2007)? Are some treatment approaches more effective for some clutterers than others, depending on symptoms observed?

Note: My closing remarks at the conference focused less on the content of the papers delivered, and more on the Cinderella metaphor that David Ward used during his conference luncheon speech. It was an appropriate metaphor, as cluttering had long been a step-child or orphan in the family of communication disorders. Moreover, we were all quite "overloaded" with three days of conferencing. The Concluding Remarks in the present Proceedings represent a more serious synopsis of what was discussed and where we should go from here.

References


NON RESEARCH PAPERS
I would like to comment on my attendance at the first world’s conference on cluttering.

The conference was well attended by many professionals from around the world, amongst them being: USA, Australia, Germany, Holland, Japan, Israel, UK, Norway, Sweden, Denmark, Russia, Bulgaria, Turkey, Greece.

The conference got off to a good start being opened by Dobrinka Georgieva, the Bulgarian host, and Irena Papancheva, the vice-mayor of Sofia who herself has a stutter.

I had to revert to using the term "stutter" whilst at the event as everyone was using the term and some were not aware of the term "stammer," although it was explained to me by one of the persons attending, in Victorian times a person with a stutter was looked down upon as someone having a retarded education or poorly off and possibly some mental health problem, whilst a person who was deemed to have stammered was not of this origin. I don't know if this is true or not and I will research into it as it could be useful reading in the future.

I was excited that so many people understood that there was a problem called cluttering, but of the many people there, it was only a few who had dealt with clutterers and even then it was difficult to diagnose because of differing criteria. Not many people would be termed as a "pure" clutterer, but in my case, as diagnosed by several SLP’s at the event, it was deemed that I was in fact a pure clutterer.
It was wonderful to see so many people doing something about a problem that is little understood and that I and others have had to contend with for most of our lives without much help.

I agreed to be recorded on video and audio so that my speech could be viewed by language trainees world wide and used as a reference for “pure” cluttering.

There were so many different interpretations of cluttering and how it affects a person’s life and so many angles of how people could address the problem. I listened to many people discuss a problem which I have and they had little knowledge of the true aspects of cluttering and many had not even seen a pure clutterer before. At this time I felt it prudent to speak out in recognition of my communicative disorder, to explain to people just what cluttering is and how it has affected my life since childhood. I found it very difficult to speak from the floor but soon felt that I had provided a great service in providing such information as it was received with applause.

Joseph Dewey from the USA was hoping to come to the conference but was unable to do so for various reasons, but he did make a very informative video of himself of which we were able to watch for about half an hour. His testimony could read as though I was giving mine at the same time as we have so much in common. I have kept in contact with Joe since joining his listserv yahoo group: http://groups.yahoo.com/group/cluttering/ in 2003. We have chatted many times at length and also managed to speak through the internet.

It was good to know that people are out there who understand cluttering and that I am not on my own, I have felt isolated and excluded for many years but the
conference has given me hope, personally, and has also indicated that others may be diagnosed and receive treatment for cluttering.

I look forward through the formation of the ICA to be able to go forward and assist in any way to help raise the awareness of cluttering, and also to assist any professionals in their quest to research this communication disorder.

I have sent out press releases to most of the UK’s National papers and the regional TV and radio before and after the conference. The only response I have had is from local Radio Humberside, the lack of interest in an important health matter.
Cluttering, Helene’s personal experiences

How I experience cluttering in general

As far as I can remember I have always been speaking like I do, often “forgetting” letters.

My emotions and problems regarding cluttering have varied a lot in my life. As a child I was terrible shy, and the cluttering made it worse. Why should I spend a lot of energy working with the shyness when none is understood anyway? As a child I also had a teacher that made me say the number one between each word when I had to read a poem loud. Not a very pleasant experience, but luckily it only happened once.

In my private life cluttering does not really bother me. My friends and family are used to the way I talk, and I am used to repeating anyway. What I find difficult is meeting new persons. I have had episodes when the person I spoke to almost didn’t make me repeat things making me feeling very proud. Finding out later that the person didn’t understand anything and just was afraid to ask me to repeat it, made me paranoid in stead. I don’t mind repeating, but I am still not mind reader.

Cluttering and work

When it comes to work it is a different story. I work in health care, and even though the fact that I know how important it is to be understood makes me focus extra on it, it can still be a problem. Where I work now it works just fine, as it is a small place where everyone are used to the way I speak, but when I change it will most likely be an issue. The thought bothers me from time to time “who wants to hire a health care worker with a speaking disorder?” Having said that, I do not think I do a worse job than the
others working there. The fact that I know that my speech can be difficult to understand, makes me very aware to write down messages in stead of just saying them. When I am using the phone at work doing things like ordering a taxi, I usually try to have the details in writing in front of me and repeat the important part before hanging up. It works.

**My experiences with speech therapy**

I have been to speech therapy twice, both at age 15 and 21. When I went the first time it was mostly to get my teacher to stop bothering me. I remember telling the speech therapist in my first session “I do not have a problem, it is they who do not understand”. Going to speech therapy was a positive experience. I learned that it was in fact my problem, and methods like “be open about it”, “talk in segments of about 5-10 words”. After about a year I quit, I felt like she had taught me everything she could, and that the rest was up to me. I also wondered if I was wasting her time as I was able to talk pretty good when I was with her.

When I was 21 I had my first occupational therapy practice, and my speech was turning out to be a problem. My clients and colleges could not understand what I said, so when I came home I found an advert for a private practicing speech therapist. This time I told her “I have loepsk tale, and what I need from you is to remind me of the methods than can help me keep it under control. I also need literature and the English word for it so I can find more on the Internet.” She told me to get in touch with my former speech therapist, as she didn’t know a lot about it. In round two I learned even more about being open about it, and introduced more techniques, and that the reason why I speak like I do is in my brain. After feeling shocked for a few days I fell at ease with it. At that time I felt like a giant duck beak not being able to communicate, and after the beak had established itself, the rest of me would come along. I also felt like an idiot not being able to control my mouth. The fact that the cause of it was in my brain, actually felt a lot better.
Different self-made speech-controlling methods

Throughout the years I have been taking the methods from speech therapy and mixed it with methods created on my own. Some of the “self created” methods were more creative than useful- using an uncomfortable ring and a tiny red dot on my glasses reminding me to control my speech- the ring worked, the red dot only looked stupid. I have also tried to learn to associate eyes with controlling my speech, it has never worked, I forget it within a few seconds. The method that actually do work in changing my dialect. Part of the problem for me is that first my dialect kills one third of the letters, then the way I speak kills one third of the letters and then there are very few letters left. I do not change my dialect often though, as it sound a little unnatural. In English it depends on how long I speak it. I spent a month in Spain studying spanish a few years ago. As the people I was living with were as bad in Spanish as me we spoke English instead. What they told me was that while I was easy to understand in the beginning, after some time they had a hard time understanding me.

When is my cluttering at its best and worst

My cluttering is at its best when I speak about cluttering or doing presentations. As it is basically a prepared monolog, I can primarily focus on well-know material. It is the worst when I am completely relaxed and tired. It is at it’s absolute worst when I am stressed or enthusiastic.
How I feel being open about my cluttering

During speech therapy I was encouraged to be open about the fact that I have a speaking disorder. For me this is something I consider from situation to situation. When I began working where I do now, I didn’t tell anyone that I have a speaking disorder until after about six months. I have still not told my boss directly why I speak like I do and even though many at work knew that I was going to the conference in Bulgaria, only one knew that I was doing the presentation.

In other situations it varies what I do. Sometimes I tell people that I meet for the first time that “I have a speaking disorder called loepsk tale that makes me talk fast and eat the letters. I don’t allways notice, so please stop me when you do not understand”. Other times I say the same just leaving out the “speaking disorder” part. Other times I forget to tell them, so I bring it up at a later time, or never at all. Not everyone needs to know.

How people react

I know that cluttering combined with shyness has labeled me as stressed, insecure, scared, stupid and at one point it participated in someone wondering if I was having a nervous break down. When I tell them why I speak like I do, they respond differently. One asked me if I was sick, making me laugh. Others refuse to accept that it is a speaking disorder, claiming that I only speak fast, others again thought I seem to relax, learning that it is a logical explanation for why they do not understand me.

Helene
I. Simonska Panel
Differential Diagnosis of Cluttering and Stuttering: The Russian Perspective

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Introduction

Discussions of cluttering as a speech and language disorder in Russia are not beyond the theoretical level. In the clinical pedagogical classification of speech disorders it is considered to be a variety of tachylalia and is marked by the term “poltern” (Volkova, 2004). Only in the last several years has an academic course, “Cluttering,” been taught to students (Filatova, 2004). Clinicians facing clients with this disorder typically determine it to be stuttering, dysarthria, or some form of learning disability.

Findings of the professional awareness of cluttering by Russian speech and language therapists show that only an insignificant proportion of clinicians are familiar with the given definition of cluttering (22%). In most cases the description of this disorder is identified with ADHD (41%) (Filatova, 2005).

In Russian speech and language therapy practice, clinicians categorize persons who stutter as presenting either with neurotic or neurosis-like forms of the disorder (Beliakova & D’yakova, 2003). These two clinical forms of stuttering are affected by different pathogenetic mechanisms. Some clinical, pedagogical and psychological characteristics of two forms of stuttering are shown in Table 1.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Neurotic form</th>
<th>Neurosis-like form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form of Stuttering</td>
<td>Hyperactivity of emotional structures of the brain</td>
<td>Lesion of sub-cortical motor structures in the brain and disturbance of cortical regulative influences</td>
</tr>
<tr>
<td>Pathogenetic mechanism</td>
<td></td>
<td></td>
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<tr>
<td>Clinical and psychological-pedagogical characteristics</td>
<td>Age of appearance</td>
<td>3-4 years old</td>
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<td></td>
<td>2-6 years old</td>
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<td>Speech development before stuttering</td>
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<td></td>
<td>Comprehensive phrasal speech</td>
<td>The appearance of stuttering clashes with phrasal speech development</td>
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<tr>
<td>Cause</td>
<td></td>
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<tr>
<td>Acute or chronic trauma</td>
<td>No apparent reason</td>
<td></td>
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<td>Course</td>
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<td></td>
<td>The degree of stuttering depends on the emotional state and speech conditions.</td>
<td>The absence of periods of fluent speech. The quality of speech depends a little on speech situation. Increased attention to the speaking process facilitates fluent speech. Physical or psychological tiredness, somatic weakness, worsens the quality of speech.</td>
</tr>
</tbody>
</table>

Table 1. Clinical, pedagogical, and psychological characteristics of neurotic and neurosis-like forms of stuttering.
Some researchers propose that the neurosis-like form of stuttering is not homogeneous (Beliakova & D’yakova, 1998; Leonova, 1995). Analyzing the foreign cluttering literature leads to the hypothesis that some persons with the neurosis-like form of stuttering may also present with cluttering symptoms.

The purpose of this study was to analyze a group of children with speech fluency problems characteristic of cluttering, using diagnostic criteria typically employed in Russia as well as Daly’s Checklist for Possible Cluttering (1996). The aim was to produce a more comprehensive analysis by considering the children’s case histories, communication skills, serial movement organization, sense of rhythm, thinking and attention.

**Method**

This research was carried out in a unique special boarding school for stuttering children and consisted of several stages.

In the first stage, based on medical and pedagogical records, a group of children with the neurosis-like form of stuttering was selected (100 subjects, aged between seven and sixteen years old). A wide age range was selected for several reasons. First, cluttering as a congenital disorder may be found in the primary school; second, at senior school age stuttering may be overcome, thus revealing the symptoms of cluttering. Moreover, at this later age the temporo-rhythmic organization of speech finally takes shape.

In the second stage we tested this group of children using an adaptation of the modified Daly’s Checklist for Possible Cluttering (1996). The use of Daly’s Checklist for Possible Cluttering (1996) allowed us to consider the group of children with neurosis-like form of stuttering as heterogeneous, consisting of 4 subgroups: (I) persons with pure stuttering (73%); (II) persons with stuttering and some characteristics of cluttering
(21%); (III) persons with cluttering, complicated by stuttering (5%) and (IV) those with pure cluttering (1%). Subjects in subgroups III and IV made up the experimental group.

Figure 1 shows test results in graphic form.

![Bar chart showing the distribution of subjects across subgroups.]

**Figure 1.** Test results using Daly’s Checklist on 100 children with neurosis-like form of stuttering.

In the third stage, persons with pure cluttering (subgroup IV) and those with mixed form where cluttering was dominant (subgroup III) were studied in more depth.

We evaluated their case histories, their communication skills, serial movement organization and sense of rhythm, thinking and attention.

**Results**

Subjects with neurosis-like forms of stuttering and those with cluttering have a number of similar characteristics, such as:
1. a slight delay of speech and psychomotor formation in childhood;
2. a low level of temporo-rhythmical organization of movements in general and of speech development in particular;
3. peculiarities in oral speech such as a variety of repetitions, and language difficulties (programming of utterances).

Along with these similarities there are a number of differences. First of all, in the case of cluttering, a speech disinhibition, or talkativeness, is noted. Persons who stutter, conversely, answer in one-word utterances, use monosyllabic and stereotypic words, and limit the use of eye contact.

Persons who clutter differ in attention and memory. Their other thought processes do not deviate from the norm. Children with cluttering are socially active, and not critical about their speech and actions. The disinhibition of behavior and the lack of self-monitoring combine with a disinhibition of intention. Such persons, apparently, quite often are involved in groups that are not socially well-adjusted. Both behavior and the peculiarities of motor functions and speech of persons who clutter are evidence of certain weaknesses in the organization of high levels in the central nervous system. From our point of view, such children, finally, show differences in how speech and language are coordinated.

Conclusions

The results of this study allow us to draw the following conclusions:
1. The analysis of the Russian literature on cluttering shows that the diagnostic symptoms of cluttering as described by different authors are similar to the characteristics of a neurosis-like form of stuttering.
2. The use of Daly’s Checklist for Possible Cluttering allows us to divide the group of subjects with neurosis-like forms of stuttering into four subgroups:
a) persons with pure stuttering;
b) persons with stuttering and some characteristics of cluttering;
c) persons with cluttering, complicated by stuttering;
d) persons with pure cluttering.

3. The basic characteristics of cluttering include the following symptoms:
   a) fast speech with a significant amount of disfluency types;
   b) disturbances in sequencing of speech;
   c) attention span problems;
   d) memory problems of different modalities (locomotor, visual and auditory);
   e) behavioral features (impulsiveness, motor and speech disinhibition);
   f) indifference to their own speech and behavior.

4. Characteristic symptoms of persons who clutter demonstrate the need for specialized therapy directed to the development of (1) certain cognitive abilities (e. g., attention and several different types of memory), (2) temporo-rhythmical organization of movements and (3) sequencing of utterances.

   It seems likely that persons with cluttering may be revealed not only among children with the neurosis-like form of stuttering (which would correspond most closely to the description of cluttering) but also among students with learning disabilities in public schools.

References


Stuttering, cluttering or mixed?

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Introduction

Traditionally, cluttering has been viewed as a fluency disorder. It is thought to be congenital in nature and is often called a syndrome because of the myriad of symptoms reported to characterize it (St. Louis, 1992; Weiss, 1964 1992.). It is, however, still viewed as an incomplete puzzle- a puzzle with many interlocking pieces, many of which we do not yet fully comprehend (e.g. St. Louis, Raphael, Myers & Bakker, 2003).

Like fraternal twins, cluttering and stuttering are related, different and to some extent antagonistic disorders. Stuttering and cluttering can be differentiated because cluttering, unlike stuttering, is not solely a fluency disorder but has both linguistic and articulatory aspects. One reason why cluttering and stuttering have not always been differentiated is that the two disorders are often found in the same individual and thus most of the clutterers who ask for treatment are also stutterers.

A decade back, clinicians seeing a client with a fluency disorder would most often diagnose him or her as a person with stuttering, without thinking of the possibility of cluttering (at least for the first few sessions). At some point, it would occur to the clinician that the client was an atypical stutterer (although some may have thought of cluttering). Confusion, however, remained and so very little was done to suit the client’s special needs. Clinicians would continue to treat the client as a person who stutters.

There have been a few assessment protocols to help the professional identify individuals with cluttering, such as the one by Daly & Burnett (1999); and Bajaj (2000). Much more, however, needs to be done in this area to clearly distinguish clutterers from stutterers, as well as to describe the symptomatology of the ‘mixed’ category, the so-called ‘clutterer –stutterer.’
**AIM**

The purpose of the present study was to (1) develop a clinical checklist differentiating cluttering, stuttering, and mixed stuttering and cluttering from data taken from diagnostic history and testing, and (2) report preliminary data on the validity of the checklist.

**Methodology**

1. Based on literature, clinical experience and research, checklists for cluttering and stuttering were designed by the authors. The cluttering checklist consisted of 33 items and the stuttering checklist consisted of 20 items.

2. The checklist items were scored categorically by the authors. “Yes” was assigned a value of one and “no” a value of zero. For the items having subparts, if more than 50% of the subparts were present, the item was scored as ‘yes’.

3. The above-mentioned checklists and inventory were administered to typically fluent individuals and to individuals with fluency disorders.

4. A group of 30 typical (control) and 30 individuals (experimental) with fluency disorders who reported to the Audiology and Speech Therapy Department at Nair hospital from July-September 2004, were selected for this study. The ages of the subjects selected ranged from 15 to 30 years.
5. Pertinent information regarding developmental history and behavioral observations was given importance. All the data were based on clinical interviews and clinical observations.

6. To determine the communication attitudes of individuals with fluency disorders and to determine if these attitudes differed between clutterers and stutterers, the Erickson Communication Inventory (1969) was administered and scored accordingly by the authors. Erickson’s S24 inventory was not chosen for this study, as that inventory predominately reflects the communication attitudes of stutterers.

7. The clinical impression of the individual as a ‘clutterer’, ‘stutterer’ or ‘mixed’ was then formed using the following criteria: If the individual scored >70% on the authors’ cluttering checklist he or she was labeled as a “pure clutterer.” Similarly, if the individual scored >70% on the authors’ stuttering checklist he or she was labeled as a “pure stutterer.” If the individual scored between 40 – 60% on both the authors’ checklists (cluttering and stuttering) he or she was labeled as the ‘mixed” type.

Analysis and Results

Figure 1 shows the distribution of these 3 types categorised on the basis of the scores on the checklists
Analysis of data revealed that a substantial proportion of the cases was of the 'Mixed type' within the age range of 15 to 30 years. This suggested that perhaps these individuals earlier showed predominant cluttering which was not diagnosed. Probably due to negative reactions towards their speech, these individuals developed some self-awareness and hence eventually evolved into the ‘mixed’ category.

Analysis of the scores on the Erickson Communication Inventory (1969) revealed a similar range of scores for the typically fluent and the cluttering categories. High scores on the Erickson Communication Inventory are indicative of heightened awareness and hence suggestive of stuttering. This observation was consistent with that of Erickson’s range of individuals with stuttering. Low scores are suggestive of non-stutterers. There is no range of scores given for ‘clutterers’ or the ‘mixed’ category.

Percent of judgments for each of the features in the authors’ cluttering check list is shown in Figure 2.
Figure 2: Percent judgments for checklist features

It reveals that the 4 fluency categories were clearly differentiated by the ratings of the 15 features, indicating that the checklists used in this study can be useful. Admittedly, this is just a pilot study, but with more data and longitudinal studies, we may become more confident of the diagnostic tools reported here.

The obligatory features of an individual with cluttering that were present in all our subjects included (1) lack of clarity of inner formulation of speech, (2) elimination of non-stressed syllables, (3) cluster reduction and final consonant deletion, (4) poor concentration, (5) improvement of speech when attention is drawn to it, and (6) lack of awareness of the speech problem.

Conclusion

This study has attempted to provide a synergistic framework for the disorders of fluency. The basis of this perspective was drawn from clinical observations and research findings reported in the literature. However, given the multitude of concomitant deficits that may be present, determining a starting point can be difficult. We feel therefore that a checklist would help a beginning clinician to plan specific treatment goals, even in individuals in which the two conditions, cluttering and stuttering, coexist. It would be relevant to emphasize at this point that early identification of a child with cluttering may help us prevent that child from becoming a clutterer-stutterer. Clinicians,
however, must be reminded that the checklist is not a scientific instrument, but rather a tool that allows them to succinctly display patient information on one page and thereby facilitate management.

Our plans for future research include a comparison of our checklist with Daly’s (Daly & Burnett, 1999).

**References**


Differential Diagnosis of Cluttering from Stuttering: Balkan Perspectives

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Abstract

The main purposes of this study were to: (1) investigate how speech therapists in Bulgaria, Greece and Macedonia differentiate cluttering from stuttering; (2) find out what kind of diagnostic procedures and tests for differentiation they use in their practice; (3) determine what kind of educational status and qualifications they have; (4) assess their knowledge of cluttering and stuttering symptoms; (5) investigate how they acquire new information and training; (6) compare the data received from a specialized questionnaire with those from Georgieva’s (1997) and Papadopolus’ (1996) studies in order to discover if there has been any kind of progress in the past 10 years; (7) determine all perspectives for each country and in general as well; (8) target some problems speech therapists face in their practice. Results and ramifications will be discussed.

Introduction

In the autumn of 2006 a questionnaire was developed in Bulgarian, then translated into Greek and Macedonian and sent to speech therapists from Bulgaria, Greece and Macedonia with a request for them to complete the questionnaire.

Outcomes
A hundred questionnaires in Bulgarian, fifty in Greek, and thirty in Macedonian were sent to participants to be completed anonymously. Sixty-two (62%) of the speech therapists from Bulgaria, 28 (58%) from Greece, and 18 (60%) from Macedonia returned completed questionnaires.

(1) Educational status, place of practice and experience

(1.1) Most of the Bulgarian (70%) and Greek (72.73%) speech therapists had Master’s degrees in speech-language pathology. Some of them had completed in-service training in speech therapy as well. In contrast, nearly two thirds of the Macedonian clinicians (66.6%) had a bachelor’s degree in speech-language pathology, and 16.7% in other specializations such as defectology (special education). Nearly half of the Greek speech therapists (54.56%) were educated in countries in Western Europe such as United Kingdom, France, and Spain. The rest graduated in Bulgaria. Unlike them, the Bulgarian and Macedonian clinicians had graduated in the Balkans (mostly in Bulgaria and Serbia). We can conclude that most of the questioned speech therapists from the three countries have a degree in higher education.

One of the questions in the questionnaire asked: “Has there been a lecture course on cluttering during your study at the university?” Only 18.2% of the Bulgarian clinicians answered “yes.” The percentage of positive responses by Macedonians was higher than that for Bulgarians: 38.9%. Among the Greek participants in the study 72.7% answered that they had been trained to work with cluttering patients during their university study.

(1.2) There were differences between the countries with regard to the place of practice. Most of the Bulgarian speech therapists work at state institutions (nearly 70% in kindergartens and primary or/and secondary schools, 22.72% in special needs schools). In Greece private practice is wide-spread 90.09% responded that they were working as private speech therapists. The situation in Macedonia is different because
there Logopedics is in the process of development. Many speech therapists have multiple work venues: they are working in kindergartens (5.56%), schools or/and special schools (11.1%) and also in clinics (38.9%). Some of them have private practice as well (16.67%).

(1.3) With regard to work experience the average number of years of clinical experience for speech therapists in each of the three countries is: 6.48 for Bulgarians, 8.6 for Greeks and 8.67 for the Macedonians.

(1.4) With respect to experience working with cluttering and mixed forms of cluttering/stuttering, nearly two-thirds of the speech therapists from Bulgaria claimed never to have worked with cluttering and the rest reported clinical experience with one to four clutterers or two to five mixed forms. In contrast, 27.3% of the Greek speech therapists have never worked with cluttering clients or with mixed forms of cluttering/stuttering. The rest of those questioned (72.7%) have worked with one to five clutterers and two to ten clients with mixed forms (cluttering/stuttering). 38.95% of the Macedonian clinicians reported having no experience working with cluttering patients.

(2) Awareness of specific symptoms of cluttering and stuttering

(2.1) The questionnaire asked “Are cluttering and stuttering similar disorders?” and “If yes, what is the similarity?” 27.3% of the Bulgarian speech therapists characterized these disorders as similar, 68.2% as different, and 4.5% did not answer. A common characteristic of both disorders is the disfluency, as indicated by 45.5% of the participants. 27.3% mentioned an irregular rate or/and rhythm of speech; 18.2% mentioned irregular breathing, 22.7% mentioned sound/syllable and phrase repetitions, 4.5% motor coordination problems, and 13.6% did not give any answer. It is important to note that some of those questions included more than one of the listed symptoms. In addition, there were confusing, ambiguous descriptions such as “struggle behavior,” “prolongations of sounds,” and “silent blocks,” which are typical stuttering symptoms.
Answers received from Greek clinicians are quite different from those given by their Bulgarian colleagues: 63.6% answered that cluttering and stuttering were similar disorders, 9% gave no answer, and 27.3%-defined these disorders as different. Among the Greek speech therapists 45.5% identified rate and rhythm disorders as common symptoms of cluttering and stuttering, 9.01% mentioned repetitions, and identified them as a common sign indicating that both stuttering and cluttering are fluency disorders. Most of the Macedonian clinicians (66.7%) answered that the symptoms of cluttering and stuttering are similar. Nearly one third mentioned dysfluencies as a common characteristic, and 38.95% specified rate and rhythm of speech. Some of the participants gave more detailed answers and added repetitions and learning difficulties to the inventory of symptoms.

(2.2) To the question “Are there any differences between cluttering and stuttering?”, all Bulgarian speech therapists (100%) answered that there was. As for differences between stutters and clutterers, 40.9% indicated that clutterers are less aware of their disorder than are stutterers. 22.7% did not answer. However, some of the speech therapists (36.4%) were more precise and described in detail the differences related to awareness, blocks, prolongations, repetitions, and speech rate.

To the question about the differences between the two disorders, 27.3% of Greek clinicians answered “blocks,” 18.2% mentioned repetitions and prolongations, and 27.3% identified awareness/unawareness of the problem. However, there were some ambiguous answers such as “I think that cluttering is a mild form of stuttering” or “One of them is functional and the other is organic”.

Of the Macedonian speech therapists 72% agreed that there was a difference between cluttering and stuttering. They ranked the differences in the following order: 44.44% - blocks, 16.66% - awareness/unawareness of the problem, 5.65% - repetitions, and 5.6% - associated motor behaviors.

(3) Awareness of differential diagnosis of cluttering from stuttering
With regard to the question “Do you use any tests or methods for differential diagnosis of cluttering from stuttering? If yes, please specify.” 63.6% of the Bulgarian speech therapists said they did not use any. There were only 18.2%, who knew about Daly & Burnett’s (1999) checklist and 9% who mentioned Georgieva’s and Miliev’s (1996) diagnostics criteria. Some (9.1%) answered that they used “standard logopedical and psychological methods,” but did not specify any. There were confusing responses such as “I use a test to diagnose stuttering,” which led us to the conclusion that the therapists were not really ready to work with these two disorders.

The responses from the Greek speech therapists were similar to those from the Bulgarians: 72.7% gave a negative answer, 18.2% gave a positive answer but did not specify any tests or measures.

Unfortunately, the situation in Macedonia is similar: Only 38.9% of the therapists answered that they used specific tests or measures for differentiating cluttering from stuttering: 5.6% used Daly’s & Burnett’s (1999) check list, 5.6% used the ACIDA Test (they did not include a reference to the test), 16.7% used the “balbutiograf,” (they did not include a reference to this device) and 11.1% used EEG.

(4) Sources of information and training on cluttering and stuttering

(4.1) Results concerning ways of getting new information are shown in Figure1. Most of the requested speech therapists reported more than one resource.
81.8% of the Bulgarians used books and journals; 45.5% obtained information from Internet resources; 40.9% attended lectures; 45.5% consulted with colleagues; 4.5% requested consultations from universities.

Nearly half of Greeks used the Internet as a resource for getting new information; 72.3% used books and journals; Special lectures, courses and training sessions were used by 54%; 63.6% used clinical practice as a source of new information, and 45.5% consulted colleagues.

About two/thirds (72%) of the Macedonian clinicians used Internet sources; 61.2% of them consulted colleagues; 50% preferred books and journals; 44.44% used clinical practice and 28% attended courses.
(4.2) Answers to the question on *additional training and courses* gave the following results: 18.2% of the Bulgarian speech therapists reported that they had attended lectures at South West University during visits by guest-lecturers from the USA, Belgium, Denmark and Germany; 36.4% of the Greek speech therapists reported attending additional specialized courses/workshops on cluttering in the United Kingdom and Bulgaria; 27.7% of the Macedonian speech therapists reported having participated in training courses in Beograd and 5.6% in Struga (Macedonia).

(5) Difficulties speech therapists face in their practice regarding differential diagnosis of cluttering and stuttering

The question *“Do you feel sufficiently trained to work with cluttering?”* was answered negatively by 68.2% of the Bulgarian clinicians and some of them added that they needed more sources, information and training. Results from Greek speech therapists were similar: 63.6% answered that they did not feel they received sufficient training to work with cluttering. In contrast to them, answers from the Macedonian therapists were more encouraging: 66.7% stated that they were qualified enough to work with cluttering. Some of them answered that they *“had good theoretical instruction”* or *“were trained in effective treatments for cluttering.”*

**Discussion**

Even though the number of speech therapists surveyed is relatively small, we think that it is possible to identify some areas of weakness and strength concerning the differential diagnostic distinction of cluttering and stuttering in Balkan countries.

In the beginning of this paper we mentioned that we would compare results from this study with those from Georgieva’s (1997) and Papadopolus’ (1996) studies with the
aim to understand whether there has been any kind of progress in the past ten years. Unfortunately, although we do not have any data about Macedonia covering these years, we will nonetheless discuss the main contemporary differences and similarities among the three countries.

Data on the questions “Are cluttering and stuttering similar disorders?” and “Are there any differences between cluttering and stuttering?” are presented in Table 1. We can confirm that percentages of positive responses are higher than those reported by Georgieva (1997) and Papadopolus (1996). This can be explained by the increasing number of speech therapists who have been trained in cluttering during their studies at universities over the last decade. In the past several years it has been standard practice to include cluttering in logopedics curricula.

Most of the questions pursue differences between the two disorders but apparently Bulgarian speech therapists do not feel certain about the similarities between cluttering and stuttering. Many of them, however, are familiar with the primary characteristics differentiating these two disorders. We can conclude that clinicians from the three countries are clear about the necessity of differentiating cluttering from stuttering.

To our regret, speech therapists appear to be unfamiliar with techniques for the differential diagnosis of cluttering and stuttering. Only a small number of clinicians have mentioned tests and/or methods for differentiating cluttering from stuttering. In general, although they know that these disorders have to be differentiated, they are not aware of how to proceed. Results concerning experience working with cluttering showed that a large number of speech therapists answered that although they have worked with cluttering and a mixed form of cluttering/stuttering, they cannot specify any tests or techniques. Here we can ask ourselves: How then do they conduct a diagnosis “cluttering” or “cluttering/stuttering”? 
Table 1. Results concerning identification and differentiation of cluttering and stuttering in 1996 and 2006

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>IDENTIFICATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27.3%</td>
<td>43.4%</td>
<td>63.6%</td>
<td>6%</td>
<td>66.7%</td>
<td>No data</td>
</tr>
<tr>
<td>No</td>
<td>68.2%</td>
<td>56.5%</td>
<td>27.3%</td>
<td>80%</td>
<td>27.8%</td>
<td>No data</td>
</tr>
<tr>
<td>No answer</td>
<td>4.5%</td>
<td>0%</td>
<td>9%</td>
<td>14%</td>
<td>5.6%</td>
<td>No data</td>
</tr>
<tr>
<td><strong>DIFFERENTIATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>100%</td>
<td>62.3%</td>
<td>72.7%</td>
<td>80%</td>
<td>72.2%</td>
<td>No data</td>
</tr>
<tr>
<td>No</td>
<td>0%</td>
<td>34.7%</td>
<td>18.2%</td>
<td>0%</td>
<td>22.2%</td>
<td>No data</td>
</tr>
<tr>
<td>No answer</td>
<td>0%</td>
<td>2.9%</td>
<td>9%</td>
<td>20%</td>
<td>5.6%</td>
<td>No data</td>
</tr>
</tbody>
</table>

In view of the fact that some of the Greek speech therapists were educated in Western Europe, and that the rest of them and most of the Bulgarian and Macedonian speech therapists obtained their higher education in Bulgaria, it is puzzling that they do not have knowledge of how to differentiate cluttering from stuttering. Although literature on cluttering is limited, it is possible for them to find sources. For example, in Bulgaria there are several publications in this field including Georgieva (2000, 1997, 1994), Georgieva and Miliev (1996) and Stamov (1989), among others. This lack of knowledge can be explained by the fact that most of them have not participated in specialized courses and training after their graduation.

Regarding the sources of acquiring new information (see Figure 1) and comparing results with those from Georgieva’s (1997) and Papadopolus’ (1996) studies, it is clear that 2006 percentages are higher for all types of sources. As we can see, if in 1996/97 the use of the Internet was limited, it is now used by almost everybody.
As to the reasons underlying the answers to the question “Do speech therapists feel trained enough to work with cluttering,” we have mentioned that nearly two-thirds of the Bulgarian and Greek speech therapists gave negative responses, but a similar percentage of the Macedonian clinicians gave positive responses. In spite of that, many of the participants in each country described the problems they faced in their practices. Some of them wrote that they did not have enough experience or they have not had any instruction at universities, and that they need more resources, courses and trainings.

**Conclusion**

The outcomes of this study give us a reason to assert that, in the Balkans, we need to extend knowledge of and research into the differentiation of cluttering and stuttering. More tests and methods regarding differential diagnosis have to be developed and introduced to practicing clinicians. Because of the increased use of the Internet, a web-site about cluttering, its assessment, differential diagnostics and treatment should be developed. Additionally, speech therapists have to be trained in how to proceed during the assessment of cluttering and how to differentiate cluttering from stuttering. Associations of Logopedics should work closely with researchers from universities. Finally, it is advisable to offer workshops for clinicians.

**References**


II. Other papers
Diagnosis of a single case of cluttering according to four different criteria

Kathleen Scaler Scott, Heather L. Grossman, John A. Tetnowski
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Abstract
This study compared the diagnosis of cluttering according to four different diagnostic criteria widely used in the United States. A speech-language pathologist and a parent of a child diagnosed with cluttering-stuttering in a prior study were administered three versions of a cluttering checklist. The child’s speech characteristics were also compared to the current working definition of cluttering. Preliminary results indicate quantitative and qualitative differences in ratings between evaluators and criteria. Implications for diagnosis of cluttering are discussed.

Background

In the United States cluttering literature, speech-language pathologists (SLPs) are often referred to a version of the Daly Cluttering Checklist to assist with diagnosis (Daly & Burnett, 1999; Manning, 2001; St. Louis, Raphael, Myers, & Bakker, 2003). Although SLPs are cautioned against using such checklists as a sole means of assessment (St. Louis et al., 2003), the Checklist has a desirable feature in that it contains specific scoring criteria that suggest a diagnosis of cluttering or cluttering-stuttering. This checklist has been modified three times in a nine year period (Daly & Burnett, 1997; Daly, 2003; Daly, 2006) to reflect the adjustments to a
constantly evolving definition of cluttering (Daly, 1999), and to keep in line with
diagnostic criteria identified as most salient by fluency specialists (Daly, 1999; Daly
& Cantrell, 2006). In addition to this checklist, St. Louis, Myers, Bakker and Raphael
(2007) have been narrowing their definition of cluttering to its current form.

**Purpose**

With the availability of various diagnostic tools and criteria for cluttering, the
potential for differing diagnoses in the same client exists. The purpose of this study
was therefore to explore the significance of such differences in diagnostic criteria
within the same client. In addition, Daly and Burnett (1999) recommend that the SLP
question parents or clients about items on the checklist, but in cases of discrepancy
in rating between the parent/client and SLP, to defer to the SLP’s ranking. It would
be interesting therefore to examine the degree of discrepancy that might occur
between a parent and an SLP. Results of this study should provide researchers and
SLPs with information for refining the diagnostic criteria for cluttering.

**Methods**

**Participants**

The participants were a nine-year-old girl previously diagnosed with cluttering-
stuttering (via a comprehensive speech-language evaluation that focused upon the
features of cluttering as described in St. Louis, Raphael, Myers, & Bakker, 2003) at a
private clinic, and two adult raters. The raters were the girl’s mother and the primary
investigator, a speech-language pathologist (SLP) and Board Recognized Fluency
Specialist. The SLP had followed the child’s case for over one year, observing her at
home and school. Therefore, both raters were familiar with the participant’s speech
characteristics in various everyday contexts. At the time of the study, the child was being treated for cluttering by her school SLP, and for concomitant language and articulation issues by a private SLP.

**Data Collection**

A 15-minute conversation between the participant and the primary investigator was recorded with a cassette recorder (RadioShack CTR-121) and an external unidirectional microphone (RadioShack 33-3019) placed 30.5 cm from the child’s mouth. This conversation was used as the basis upon which the primary investigator completed the ratings. Although the child was known to the investigator, contact between the two only occurs every few months; therefore, the tape was made to ensure that ratings were based upon the most current sample of the child’s speech. As the child’s mother spends time with the child daily, it was felt that she would make the most accurate assessments based upon her daily interactions with the child rather than based upon the tape.

Both raters completed the Daly and Burnett Cluttering Checklist (Daly & Burnett, 1997), the 2003 Experimental Version of the Daly Cluttering Inventory (Daly & Cantrell, 2006a), and the version of the Daly Predictive Cluttering Inventory presented at the 2006 International Fluency Association Conference (Daly & Cantrell, 2006b) within a 6-week time period following the taping. At least one week elapsed between completion of each version of the checklist, in order to prevent raters from basing assessments upon previously made assessments rather than upon actual judgments of the child’s speech.
Data Analysis

Data coding

Numerical ratings on all scales were added to obtain an overall score for each scale. Numerical scores were compared across raters, and to Daly’s preliminary diagnostic criteria. For the version of the Daly Predictive Cluttering Inventory presented at the 2006 International Fluency Association Conference (Daly & Cantrell, 2006b), raters scored on a 5-point rating scale. Scores on this specific scale of between 35-55 suggest cluttering-stuttering (Daly, personal communication, August 22, 2006). For Daly and Burnett’s initial version of the cluttering instrument, scores greater than 55 are highly suggestive of cluttering (Daly & Burnett, 1996). It should be noted that these cutoff points are currently undergoing further investigation with the revisions of the checklists.

Definition comparison

The primary investigator searched the child’s speech sample for evidence of any of the characteristics in the St. Louis et al. (2007) definition of cluttering:

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) degrees of coarticulation among sounds, especially in multisyllabic words.
Results

Table 1 compares the ratings of the child’s mother and the SLP. In order to compare rater differences across scales with different total scores, for each scale, each rating was divided by the total possible score to obtain a percentage rating. Differences between the two percentage ratings for each scale were calculated and are represented in Table 1 below. The ratings of the SLP and mother vary in a similar manner across different versions of the checklist. The closest match between raters was noted for the 2006 scale. This 2006 scale breaks ratings down into the following four areas: 1) pragmatics; 2) speech-motor; 3) language-cognition; 4) motor coordination-writing problems. Ratings within each of these categories are presented in Table 2.

Table 1. Scores by raters and 3 checklists

<table>
<thead>
<tr>
<th>Checklist</th>
<th>SLP</th>
<th>Mother</th>
<th>Total possible score</th>
<th>Percent Difference in ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daly, 1997</td>
<td>61</td>
<td>47</td>
<td>108</td>
<td>13%</td>
</tr>
<tr>
<td>Daly, 2003</td>
<td>148</td>
<td>118</td>
<td>250</td>
<td>12%</td>
</tr>
<tr>
<td>Daly, 2006</td>
<td>107</td>
<td>94</td>
<td>165</td>
<td>8%</td>
</tr>
</tbody>
</table>
Table 2. Subsection scores of 2006 Checklist

<table>
<thead>
<tr>
<th>Checklist section</th>
<th>SLP</th>
<th>Mother</th>
<th>Total possible score</th>
<th>Percent difference in ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pragmatics</strong></td>
<td>36</td>
<td>37</td>
<td>50</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Speech-Motor</strong></td>
<td>27</td>
<td>28</td>
<td>50</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Language-Cognition</strong></td>
<td>24</td>
<td>28</td>
<td>40</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Motor Coordination-Writing Problems</strong></td>
<td>7</td>
<td>14</td>
<td>25</td>
<td>28%</td>
</tr>
</tbody>
</table>

This child meets the diagnostic criteria for cluttering according to the St. Louis et al. (2007) definition along the dimensions of irregular rate and excessive degrees of co-articulation among sounds. She does not meet the criterion of an excessive number of disfluencies not typical of people who stutter. She also meets the criteria for stuttering according to Wingate’s (1964; 2001) definition (i.e. involuntary repetitions of sounds, syllables and one-syllable words with tension and struggle as well as audible and inaudible prolongations, or blocks, of sounds with accompanying speech-related struggle). Table 3 outlines the differing types of disfluencies observed in a 500-syllable sample of the client’s speech.

According to the criteria for two of the Daly rating scales for which scoring information is available (i.e. 1997 and 2006), the participant meets the diagnostic criteria for cluttering (i.e. score of 55 or higher) in 3 out of 4 ratings. In only 1 out of 4 ratings does the rating meet the criteria for cluttering-stuttering (i.e. score of 35-55). Yet as Table 3 indicates, the majority of her disfluencies are more typical of stuttering than not.
Table 3. Percentage of disfluencies by type in a 500-syllable conversational speech sample.

<table>
<thead>
<tr>
<th>Inaudible sound prolongations with struggle (i.e. blocks)</th>
<th>Audible sound prolongations</th>
<th>Part-word repetitions</th>
<th>Single syllable whole-word repetitions with tension/struggle</th>
<th>Revisions</th>
<th>Interjections</th>
<th>Phrase repetitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>*8%</td>
<td>*0.4%</td>
<td>*3%</td>
<td>*2%</td>
<td>2%</td>
<td>2%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

* characteristic of stuttering

**Discussion**

The similarity between parent and SLP speech ratings on the three checklists examined suggest that parents may be acceptable raters who can score based upon knowledge of the child’s everyday speech. In the majority of cases, parents will have different training than SLPs, and because of their different experiences with the child and professional backgrounds, each will bring different but important perspectives to the rating process. Although more data will need to be gathered before firm conclusions can be drawn, preliminary findings suggest that, taken together, parent and child ratings can provide valuable diagnostic information, regardless of which rating scale is used.

Preliminary data support the warnings of experts in the field of cluttering to supplement checklists with other forms of diagnostic evaluation. Daly and Burnett (1999) remind us that looking qualitatively at the specific areas of impairment identified by the checklist may be more valuable than a specific score. This concept is clearly illustrated in this case study. By holding fast to a numerical score, the client in this case might be diagnosed as only cluttering. Only by further breakdown of the types of disfluencies is the concomitant stuttering identified. Furthermore, the SLP
must think carefully about the source resulting in the behavior when reaching a diagnosis. For example, 25% (14/57) of the total number of part-word repetitions and audible and inaudible prolongations occurred in the final position of words. These word-final disfluencies, in terms of location of the stuttering, may at first glance seem to meet one of the St. Louis et al. (2007) criteria for cluttering, that is, “an excessive number of disfluencies, the majority of which are not typical of people who stutter.” Yet in terms of type of disfluency, the word-final disfluencies are in fact a form of stuttering (albeit an atypical form which requires further investigation), and would not qualify as the disfluencies more typical of cluttering. As a second example, the client in this study did exhibit “the frequent placement of pauses…that do not conform to syntactic and semantic constraints,” as the St. Louis et al. (2007) definition of cluttering states. However, the source of these atypical pauses in this client was consistently the inaudible prolongations and accompanying tension. It is apparent from this study that differential diagnosis of this client’s speech requires a very clear analysis of not just the amount of cluttered and/or stuttered speech, but of the potential relationship between cluttering and stuttering.

There is not yet evidence to support whether the origins of cluttering are based in language, motor, or speech skills, or some combination. The St. Louis et al. (2007) working definition of cluttering corresponds to the “Speech-Motor” section of Daly’s 2006 checklist (Daly & Cantrell, 2006b) alone. With the exception of 2 symptoms (i.e. “festinating” and “loud voice trailing off to a murmur”), any combination of 2 or more of these symptoms fits the St. Louis et al. (2007) definition of cluttered speech, and cannot be confused with other disorders. However, in ranking a child within the other three categories of the Daly 2006 checklist, students with such issues as learning disabilities, autistic spectrum disorders or pragmatic language issues can be misdiagnosed as clutterers. It is important for SLPs to remember that one may find, for example, a child with a learning disability and with cluttered speech, but that currently there is no evidence to state that one disorder implies the other. Yet with the design of the 2006 checklist used in this study (Daly & Cantrell, 2006b), a child could be rated as a clutterer-stutterer or a clutterer just by scoring high enough in any of the categories other than the “Speech-Motor” category. This illustrates why it
is especially important to use the Checklist only as a guide in diagnostic decision making.

Because speech behavior is a mandatory component of accurate diagnosis according to the current working definition of cluttering, we propose a different way to use the Daly 2006 checklist (Daly & Cantrell, 2006b). Perhaps the "Speech-Motor" section can used, along with other information, to diagnose cluttered speech (St. Louis et al., 2003) rather than a larger disorder of cluttering. The numerical rating in this section can be used to judge severity of the cluttered speech, while the other three categories can discern behaviors accompanying the cluttered speech. Until further research provides definitive answers, we will not know whether those other three areas are part of the disorder of cluttering or concomitant disorders. Yet with individual study of each of their clients, SLPs can determine the factors most affecting performance, and tailor client therapy to address these areas.

Caveats

This study brought out certain points regarding diagnosis of cluttering. It is important to keep in mind, however, that this study was based on a limited sample; replications involving a variety of clinical cases would be necessary to confirm these preliminary findings. In addition, the fact that one of the raters was making judgments based upon live speech samples and one upon a taped sample may have influenced differences in ratings, as might the fact that each rater came from a different professional background and level of experience with the child (i.e. mother vs. SLP).

Conclusions

This study illustrates that differential diagnosis of cluttered vs. stuttered speech and any combination thereof requires analysis beyond a single score on a cluttering
checklist or simple comparison of speech characteristics with a definition of cluttering. The study provides a case illustration of why, as St. Louis et al. (2003) and Daly and Burnett (1999) have warned, checklists should not be used as the sole factor in diagnostic decision-making. The study also suggests that valuable information can be gained from parental input on speech characteristics via administration of checklists. Although the Daly checklists can provide valuable information regarding characteristics to consider in an overall speech evaluation, checklist results need to be examined qualitatively as well as quantitatively and compared against other data to ensure accurate differential diagnosis.

References


Assessment and Therapy of Cluttering (Bulgarian practice)

Elka Goranova
South-West University “Neofit Rilski”

Introduction

The aim of this report is to discuss and summarize the results of a series of diagnostic and treatment-related procedures used with a group of Bulgarian fluency clients who demonstrated stuttering, cluttering and mixed stuttering and cluttering. Fourteen persons, between the age of 4 to 18, with different fluency disorders were evaluated using a variety of criteria in order to differentiate symptoms of cluttering, stuttering and mixed cluttering/stuttering. The results showed that generally poorly integrated thought flow and language and speech organization associated with cluttering could be improved when proper cluttering therapy is applied. The effectiveness of the therapy depends on the age of the clients, but the latter should be further investigated.

Methods

By using a screening test battery including the Stuttering Severity Instrument –SSI, (in Guitar, 1998), the Checklist for Possible Cluttering (Daly & Burnett, 1996, in Georgieva, 2000) the patients were divided into three groups – 9 stutterers, 3 possible clutterers and 2 patients with mixed stuttering/cluttering.

The assessment tools used for the clutterers (S3, S6 and S13) and the mixed clutterer-stutterers (S9 and S14) included: measurement of speech rate in syllables per minute (SPM), the Cluttering Assessment Program (Bakker et al, 2005), Modified
Erickson Scale of Communication Attitudes - S-24 (Guitar, 1998); and the Self-Awareness of Speech Index (SASI – St. Louis & Atkins, 2005). These tools were used in various communication situations, including monologue, dialogue and reading.

The Cluttering Treatment Planning Profile (Daly & Burnett, 1996, in Georgieva, 2000) was used to determine the treatment goals for the clients who demonstrated cluttering. It showed that the most frequently observed fluency disturbances were: sound, syllable and phrase repetitions (S3, S6 and S13); very rapid speech rate with bursts of speed (S3, and S13); omission of syllables; unfinished words, phrases and sentences (S3, S6 and S13); disintegrated and fragmented writing, including poor handwriting; omission of letters and syllables; improper language structure; poor grammar and syntax (S3, S6 and S13); learning disorders and attention span problems (S6); lack of self-awareness; unconcerned attitude over inappropriateness of many behaviors and responses (S3, S6 and S13).

Treatment targets included: reducing speech rate through use of Delayed Auditory Feedback (DAF); development of the ability to practice a normal speech rhythm; improvement of language organization; development of self-concern and of awareness of the cluttering; extending the language and speech abilities developed in therapy to free conversation.

**Results and Conclusions**

The results after six months of therapy showed that awareness of cluttering was improved in S3 and S13 (both 18 years old), while lack of awareness at the end of the therapy was observed with S6 (7 years old). The slowing down of the speech rate of S3 was a contributing factor to improved clarity and comprehensibility of his language and speech. S6 and S13 also slowed down their speech rates and reduced their syllable
and word repetitions significantly. Thought and language flow improved in S3 and S6 but the therapy had no effect on the poor thought and language organization of S13.

This study used translated tests for differential diagnosis of cluttering, stuttering and mixed forms and no unique needs were found conducting diagnostic evaluations and treatments in Bulgarian.

References


**Pragmatics and narrative skills in cluttering therapy**

Kathleen Scaler Scott  
University of Louisiana at Lafayette, Lafayette, LA USA

**Abstract**

This presentation lays the theoretical, research and clinical foundations that form the rationale for treating pragmatics and narrative skills in some individuals who clutter. Specific treatment guidelines and activities are presented, based on the discussion of a small group of attendees at the First International Congress on Cluttering (FICC). The discussants considered treatment concerns, including carryover, from the perspectives of therapists and consumers.

**Foundations**

As a firm definition of cluttering is still being debated among researchers and professionals, and given that at least one definition focuses solely upon speech characteristics (St. Louis, Myers, Bakker, and Raphael, 2007), it is important to justify why treatment of pragmatic and/or narrative skills in cluttering should be considered. This justification must include arguments from theory, research, clinical experience, and client perspective. As an established therapist and as a beginning researcher, this author will present such justification on each of these fronts.

Based upon systems theory (Piaget, 1968; Bruner, 1983; Vygotsky, 1986) of speech and language development and Myers’ (1986) synergistic theory of cluttering, even if only cluttered speech is considered, difficulties with intelligibility will interact in a dynamic manner to create potential difficulties in social interaction. There is evidence to show that even as early as preschool years, children with communicative difficulties
may be left out of social interactions (Gertner, Rice & Hadley, 1994). As first-person accounts of individuals who clutter experiencing difficulties with conversation and social communication were presented at the FICC, this author proposes that we begin to think about how such exclusion can lead to an often subtle negative cycle that develops over time. That is, as persons with cluttered speech are left out of social interactions, they gain less experience with such interaction. Exclusion occurs at a time when such experience is critical for learning and development, both of pragmatic and narrative skills. As the person who clutters has fewer experiences, the knowledge and experience gap between an individual who clutters and an individual who does not grows wider. The individual may continue to be left out of interactions and gain less experience. Negative effects may not be completely evident until early adolescence, when social demands often switch from play to conversation (Roffey, Tarrant, & Majors, 1994).

Difficulties with narrative skills may be present in at least some individuals who clutter. The concept of narrative difficulty among those who clutter is based theoretically upon what we know about increased disfluency given increased linguistic complexity (Bernstein Ratner & Costa Sih, 1987; see Tetnowski, 1998 for a review), clinically upon what speech-language pathologists have observed and documented among clients who clutter regarding disorganized language (Bennett, 2006), and upon first-person accounts of individuals who clutter having difficulty communicating efficiently and effectively (Dewey, 2005; Myers & Kissagizlis, 2007). Yet it is important to keep in mind that, based upon current clinical information, first-person accounts, and research findings, all individuals with cluttered speech may not present with difficulties with narrative skills.
Intervention

Because of the potential for development of the negative cycle discussed above, this author proposes early intervention for cluttering, focusing upon presenting symptoms which may hinder social interaction, be they narrative skills, intelligibility of speech, rules of pragmatic interaction, motoric issues, and/or any other relevant skills. Should pragmatic intervention be warranted, it is recommended (keeping in mind the systems theory) that clinical mediation occur within naturalistic settings. That is, the clinician would provide cues for specific skill targets in everyday communication situations. It is critical that such cues be provided in an inconspicuous manner, so as not to socially single out the client in yet another manner.

Should work on narrative skills be warranted, this author has found that for many individuals who clutter, learning to use external organizers (e.g. story maps, color coding of brainstorming information for story or essay development) for written language often enhances the development of verbal narratives. In addition, the practical rules of organized narratives (e.g. provide the listener with background information, do not use too many examples, get right to the point), directly modeled and practiced, have often been effective. Clinical outcomes research for such techniques continues to be needed.

With regard to the of carryover of skills to situations outside the therapy room, this author suggests systems she has used effectively with clients, including working in group sessions, where all clients are each working on one individual goal. Clients are aware of both their own goals and those of others, and can support each other in the therapeutic context. In addition, clients are asked to use their goals outside of therapy, and to return to therapy and report on specific situations in which the goal was targeted. This allows clients to begin to take more responsibility for their targets in the moment, and to be aware of how effective or ineffective strategies are for them in everyday
situations. The importance of family involvement was pointed out by an attendee of the FICC, who expressed the client perspective that constant monitoring of goals is difficult (even after two or three sentences, and even when the intention to monitor is present). The attendee noted that while the client may feel motivated to do so, at certain times and for various reasons, the client may not choose or be able to sustain such constant self-monitoring.

**Conclusions**

Pragmatic and/or narrative therapy may be warranted with some clients who clutter. It is of paramount importance to: intervene early and address the roots of existing issues, work in naturalistic settings, obtain family involvement, and understand that self-monitoring may be difficult for the individual who clutters.

**References**


Treating the Person Who Clutters And Stutters

Isabella K. Reichel

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Graduate Program in Speech and Language Pathology.

Introduction

Almost two centuries of inquiry have passed since the time that the mysterious, intriguing, and misunderstood communication disorder that was eventually to be called cluttering was first noticed and described. This interest in cluttering began in just a few places in Europe, and then gradually attracted the attention of prominent scientists in the United States and in other parts of the world. Lately, the topic of cluttering has become increasingly popular, not only among seasoned professionals, but also among early career clinicians. However, most speech-language pathologists (SLPs) continue to receive minimum training and experience in the area of cluttering, with many expressing pessimism and revealing ignorance (St. Louis & Rustin, 1986). “We are still lost in the woods, as far as cluttering is concerned” (Van Riper, 1986, p. ix). David Daly believes, however, that people who clutter can be helped when SLPs play a significant role in their treatment, and when they are prepared, positive, and persistent (1986b). Van Riper suggested that in order to succeed in cluttering intervention, clinicians need to establish a close relationship with their clients, with mutual respect (Van Riper, 1986).

Treatment of Cluttering-Stuttering Clients

This paper will discuss the treatment of clients who have a combination of cluttering and stuttering, as well as how such treatment can be optimized by addressing the affective and cognitive aspects of both disorders. This discussion is important due to the fact that about a third of the people who stutter also present with cluttering, and the
fact that most of the people who clutter seek professional help only in cases when they also stutter (Preus, 1986). Deso Weiss (1968) recommended that the treatment of people who clutter and stutter has to be individualized, and that clinicians should prioritize the aspects of speech that are most impaired.

Freund (1966) proposed modification of the speech rate, believing that stuttering symptoms are not very pronounced in stuttering-cluttering clients, and therefore they can be ameliorated. Similarly, Daly (1986a) observed that people with cluttering do indeed make progress, but usually at a slower pace than people with stuttering. Preus (1986) described the combination of fluency shaping and stuttering modification approaches while treating the cluttering-stuttering client. For those who present with severe stuttering and avoidance, Preus recommended starting therapy with Van Riper’s non-avoidance treatment. The next step would be addressing symptoms of cluttering, which would include the fluency shaping approach, work on improving voice, rhythm, language, and articulation.

**Improving Fluency in Cluttering-Stuttering Clients**

Daly (1986b) described significant gains in clients with cluttering when a synergistic and multi-dimensional perspective in treatment was implemented. I also follow Myers and Bradley’s (1986) synergistic perspective with cluttering-stuttering clients, which means that I integrate different approaches with clients with various symptoms, which interact, change, and affect each of them in various ways. To address multi-faceted interactions is our goal, challenge, and quest. Improving speech fluency is a common goal for clients with cluttering and stuttering. I will describe my work on fluency with cluttering-stuttering clients and than briefly refer to the management of cluttering, which may address speech rate, speech intelligibility, pragmatic and organizational skills.

I refer to my approach to facilitating fluency as “Flexible Fluency Search” (FFS).
To elicit faster transfer, I use those fluency facilitators that affect speech naturalness the least. While using fluency facilitators, clients need to have a sense of safety not only in the motoric aspect of speech, but also in their minds. In other words, no disfluencies should be anticipated; no fears should be experienced. Among the fluency facilitators, I use smooth, easy onset, preparatory sets, phrasing, abdominal-diaphragmatic breathing, varying the length of the pauses between the junctures, continuous phonation, pseudostuttering, and, in rare cases, prolonged speech. Once we accomplish the sense of control, at the syllable, word, and sentence levels, we learn to feel it, enjoy it, and move ahead to the level of conversation. At this level, I encourage my clients to be independent in choosing the types of tools that work best for them – FFS.

The experience of safety and ease in their communication in conjunction with enjoyable conversation would transform not only the clients’ speech but their personal construct as well. It is crucial to praise and reinforce each client every time a goal is achieved. The sense of success and of mutual journey will bring them hope, pride, and courage to pursue the remaining symptoms of cluttering, such as improving the speech intelligibility (articulation and prosody), expressive and receptive language abilities, increasing organizational and word-retrieving skills. Special attention will be given to increasing awareness of speech and improving conversational skills (turn-taking, staying on topic, and story-narrating abilities).

**Treatment of Cognitive and Affective Aspect of Stuttering**

Although much has been written about cognitive and affective aspects of stuttering, many experts believe that SLPs lack the knowledge and skills to deal with emotional issues secondary to stuttering (Starkweather, 1999), and that counseling to deal with the emotional aspect of stuttering is not included in most graduate SLP courses (Shapiro, 1999; Worthington & Baker, 1998). A graduate curriculum for SLP students that was designed to improve the understanding of emotional and cognitive aspects of stuttering was described by Reichel and St. Louis (2004). The emotional
intelligence (EI) module was integrated into the fluency disorders classes where students had the opportunity to learn the neural, biochemical, cognitive, and cultural bases of human emotion, the nature of negative emotion, and the application of the theory of emotion to stuttering intervention. The following goals addressing the affective and cognitive aspects of stuttering were suggested: reduction of negative emotions, improvement of self-awareness and self-assertiveness, and mobilization of emotions for managing fears and self-defeating thoughts. SLPs could also encourage their clients to focus more on the feelings of others, which would assist them in coping with the negative stigma associated with stuttering.

### Cognitive and Affective Aspects of Cluttering

Much less attention has been given in the literature to affective and cognitive aspects of cluttering than to stuttering. Bennett (2006) describes feelings of apprehension and frustration when clients with cluttering encounter problems with communication. In order to mitigate the negative thoughts of people with cluttering, Daly (1986b) proposed the provision of cognitive training, counseling, attitude change, relaxation, affirmative training, and positive self-talk to clients with cluttering due to their stress, frustration, reduced awareness of the problem, and resistance to pursuing therapy goals. Daly suggested that such therapy goals would improve clients’ self-awareness, listening skills, and the awareness of the speech of others.

Based on my experience, I believe that people with cluttering represent a wide continuum of self-awareness and feelings (from denials to incessant concerns; from frustration stemming from one’s own deficits in speaking to frustration at others’ deficits in keeping up with what they are saying). They often had low self-esteem, and felt misunderstood and incompetent. For example, two school teachers were concerned about their students’ inability to understand them. An SLP graduate student was anxious about his future employment. A car mechanic was saddened due to his losing customers because of his unsuccessful communication. A high school student was annoyed by frequent requests to repeat what he said. This young man blamed stuttering for all his problems of communication even though his speech was highly unintelligible
and fast due to his cluttering. Another high school student was frustrated about his poor grades and constant conflicts with peers due to his poor social control. A 13-year-old boy was timid and confused due to his mother’s insistence for him to practice his speech exercises instead of playing video games. In sum, the negative thoughts and feelings of people who clutter were not as profound as in cases of people who stutter, but they were present and contributed to concerns about the future, lack of hope for successful treatment, poor self-esteem and low motivation.

In order to address the affective and cognitive aspects of clients with combined cluttering-stuttering cases, I modified Bar-On’s ten emotional intelligence (EI) skills for people to succeed in their everyday life (2000). I modified five of these skills for working with people with more stuttering-like symptoms, and five of them for working with people with more cluttering-like symptoms.

**The Five EI Skills for People with More Stuttering-Like Symptoms**

1. **Self-regard.** SLPs work on the clients’ ability to accurately self-appraise themselves and their accomplishments. Many clients with more stuttering-like symptoms have a low self-image, and underestimate their merits. Such beliefs result in sadness, dependence, uncertainty, and a lack of drive.

2. **Assertiveness.** People with more stuttering-like symptoms are frequently passive, fearful of the reactions of others, and have difficulties expressing their emotions. Such difficulties may convert problems in self-expression into psychosomatic disturbance or depression. Work on assertiveness will mobilize emotional energy and help them to express themselves in social settings.

3. **Stress tolerance.** People with more stuttering-like symptoms have difficulties managing their emotions during hyper-arousal in stressful situations. Poor stress management leads to a feeling of hopelessness, helplessness and anxiety. SLPs have to facilitate their ability to handle anxiety-provoking situations or to actively do something to improve the situation.

4. **Flexibility.** Clients with more stuttering-like symptoms may lack the experiences to spontaneously adapt their feelings and beliefs to new environments and
new people. Their negative deep-seated beliefs can be resistant to change. SLPs need to help them to see events from different perspectives.

5. Problem solving. People with more stuttering-like symptoms have difficulties dealing with distorted ideas on how to behave in challenging situations. Such distortions can be caused by depression or fear, which in turn results in inadequate judgment while communicating. SLPs need to teach their clients reasoning and decision-making in solving problems of a social nature.

The Five EI Skills for People with More Cluttering-Like Symptoms

1. Emotional self-awareness. The clients with more cluttering-like symptoms often have difficulties identifying their feelings, behaviors, and problems, which sometimes leads to frustration and helplessness. SLPs need to help these clients to understand their own emotions, needs, and goals. Such awareness will lead to improved motivation and hope for success.

2. Impulse control. Poor impulse control leads to unpredictable behaviors and haste. This is especially the case for individuals with ADD or those with poor pragmatic skills. SLPs need to teach their clients the ability to control a variety of emotions for facilitating self-control and composure.

3. Reality testing. The ability of people with the more cluttering-like symptoms to accurately validate their feelings, judgments, and cognitions is frequently affected by misperceptions and problem denial. SLPs need to teach their clients the ability to cognitively process emotions and to realistically assess situations.

4. Empathy. Clients with more cluttering-like symptoms may misjudge the reactions of others to their fast or unintelligible speech. SLPs need to teach their clients to be considerate of the feelings of others during communication.

5. Interpersonal relationships. The relationships of people with more cluttering-like symptoms are often permeated with a disruption or breakdown of communication with their families, co-workers, and others. SLPs need to explore and address their clients' ability to give and receive emotional closeness in relationships. Examples are warmth, friendship, and responsibility to meet expectations and obligations.
In addition, I suggest the following 10 emotional and cognitive transformations for improving cluttering-stuttering clients’ abilities to communicate:

1. Slavery to freedom;
2. Fear to courage;
3. Doubts to trust;
4. Anger to empathy;
5. Helplessness to control;
6. Shame to confidence;
7. Frustration to happiness;
8. Shyness to assertiveness;
9. Struggle to victory;
10. Withdrawal to joy of communication.

Once SLPs focus with their clients on the above objectives, they will inspire, give hope, and be ready themselves, to share the courageous journey of their clients.

**Group Discussion Following the Presentations**

I now will present some of the thoughts and ideas of the members of the group discussion which followed the presentations.

The main focus of this discussion was on dealing with affective and cognitive aspects of cluttering. Everybody agreed that work on emotional awareness, empathy, and motivation is of primary importance. “Speech is a gift to someone” should be the SLP’s attitude while working with a challenging client who lacks motivation, is resistant to change, and denies the problem. We discussed the procedures for working on emotional and cognitive aspects of clients with cluttering and stuttering, such as visual imagery, role playing, counseling, relaxation, and psychotherapy. Improvement of speech intelligibility, supra-segmental skills, pragmatics, and other linguistic goals were also discussed. Some group members stressed the importance of transfer activities and
the role of the family members for successful therapy outcomes. Everybody agreed that after resolving symptoms of stuttering, clients would be empowered to pursue therapy goals on the remaining problems of cluttering.

References


Primacy of Self-Awareness and the Modulation of Rate in the Treatment of Cluttering

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Cluttering is a multifaceted disorder affecting—to one degree or another—the speaker’s rate, fluency, articulation, pragmatics, as well as organization of language and thought patterns. Two assumptions serve as the basis for a “synergistic approach” (Myers, 1992) to the treatment of cluttering. First, cluttering occurs when there is a lack of organization or synergy at one or more levels of the above-mentioned aspects of communication. Second, for some—though not all—people who clutter (PWC), this dissynergy results from a prevailing disposition to do things quickly. This urge to rush may lead PWC to exceed their capacity to communicate in an organized or synergistic fashion. The clinician needs to discuss with the client to what degree, and under what circumstances, this inclination arises. Many PWC tend to rush especially when talking about an emotional topic, when telling a complex story with high information load requiring greater degrees of organization and sequencing, and when speaking extemporaneously in an unguarded fashion. This is understandable as it is especially during these speaking situations that PWC, indeed most speakers, need to channel energy to what is being said and not necessarily to how it is said.

Analogies are often helpful during therapy. I will talk about two such analogies. The first analogy is thinking of PWC as jugglers who go faster than they can handle. What happens when jugglers try to rush their act? They have false starts, and drop the pins they are juggling. Their movements are missequenced and appear erratic or disorganized. In other words, their juggling act is disfluent and incohesive. “They’re all over the place!” Perhaps the same things happen when someone speaks in a cluttering manner. PWC are in fact (a) speaking at a very fast rate compared to typical speakers, (b) speaking at a rate faster than they can handle, or (c) are perceived to be
talking at a fast rate because the listener has a difficult time comprehending the message. Any or all of these scenarios may apply. We have clocked one clutterer who spoke almost 500 syllables per minute! Clinical testimony to the second scenario is that the speech of many PWC becomes markedly clearer once they learn to modulate rate through strategies such as pausing, exaggerating stressed syllables, or prolonging vowels. Finally, some PWC are perceived to be speaking excessively rapidly because the listener has to work hard to follow their message. The PWC may pause at inappropriate and unexpected places, often followed by rushes of speech; inject maze behaviors such as false starts, revisions, parenthetical phrases that disrupt the semantic flow of the message; or go off on tangents, adding details that are related, but not immediately germane, to the message. The message may also be difficult to understand due to motoric dissynergy as manifested by multiple misarticulations (Dalton & Hardcastle, 1989). Having to “fill in the blanks” due to omitted and distorted syllables, the listener struggles to “catch up” with what is being said. Similarly, the listener may find it effortful to “piece together” a narrative due to unexpected disruptions in the linguistic flow of the message; an element of unpredictability is added to the processing of the message. This may leave the impression, rightly or wrongly, that the clutterer is speaking very fast (Raphael, 2007). Rapid speech rate can also influence resonance and inflection patterns because of the paucity of time to fully execute articulatory and laryngeal gestures (e.g., less distinct valving of stops, neutralized vowels, monotone, reduced oral resonance).

Skilled speakers, on the other hand, like skilled jugglers, are those who make the speech and language act seem effortless, easy to follow, and well-tempered. Thoughts are encoded fluently, cohesively and coherently, with appropriate pausing at syntactic junctures. They modulate rate, speaking faster or slower to fit the semantic and affective content of the message. They know their limits for encoding a message and do not exceed them. The latter may be a relevant distinction between clutterers and nonclutterers. We all have our individual rate capacities for encoding a message, much like rate capacities for executing any other complex act such as aerobic exercise movements. Most of us are respectful of our upper limits and recognize that
disintegration will occur if we exceed our capacity. PWC may not readily sense their individual limits or, when confronted with multiple thoughts to encode or a high degree of excitation, may exceed these limits because of an inherent inclination to rush ahead.

Many PWC say that they have a temperament that can be described as having “urges to surge.” The PWC who appear in the Stuttering Foundation film Cluttering (Myers & St. Louis, 2007) tell us that they are folks who have a preference to walk fast, to talk fast, to do everything fast, and to just “spit it out” and “get it over with”! This leads us to the second analogy, the analogy of fault lines associated with earthquake-prone regions of the world. These regions are geologically volatile. They have too much “yang,” if you will.

The “urge to surge” in the PWC can also create volatility, leading one to exceed one’s capacity. Fault lines of disintegration (a) can vary in severity, from hairline fractures such as occasional weak syllable deletions to major disintegration so that the semantic and phonological content of the message are not understood; and (b) can occur at one or more loci of communication, resulting in varying clusters of symptoms that may yield possible subgroups of PWC. Some PWC are prone to dissynergy primarily at the articulatory level. Others experience dissynergy at a more central level effecting organization of language and thought. Still others experience vulnerability at both the motoric and linguistic domains. Let’s examine some of these fault lines.

The thoughts of PWC—as expressed through language or as reported by clients—may not be well organized prior to speaking. PWC have expressed the sensation that “several thoughts come at once and either I don’t know how or I don’t take the time to organize this torrent of thoughts. But I keep on talking anyway.” Embedded in this intuition is a potentially important distinction: I would if I could vs. I could if I would. Think about this as you discuss with your clients to what degree they are aware of: (a) their behaviors of cluttering; (b) their ability to monitor and modulate these behaviors;
and (c) their inclination to take the time and effort to modulate behaviors. Regarding the latter, it takes discipline for most of us (but perhaps especially PWC) to speak at a rate slower than we typically do. The drive to “spit everything out as fast as possible” in some PWC can also result in pragmatic dissonance between speaker and listener. PWC may not think they have a problem or may not be attuned to listener feedback. Or, if they are aware of the feedback, they may find it effortful to disinhibit the “urge to surge” even in the midst of conversational breakdowns.

Some PWC exhibit vulnerabilities at the linguistic encoding level. Their “extended talk,” as when trying to make a point or tell a story, lack cohesion and clarity. It may be difficult to follow the story line because of (a) the disorganized structure of the overall talk (that is, the story grammar is convoluted and lacks organization), or (b) the linguistic maze behaviors that disrupt the flow of individual and contiguous sentences. Continuing with the earthquake fault line analogy, vulnerabilities for disintegration can also occur at the motoric level, causing sounds and syllables to be omitted or distorted, thus reducing speech intelligibility.

Therapy, therefore, needs to address two essential and related goals. The first is to make the PWC aware of their fault lines of vulnerabilities when they are talking faster than they can handle. The second is to help them to modulate their rate so that they do not exceed their (thought, pragmatic, motoric and linguistic) capacity. “Modulate” means “to adjust or temper in proper measure.” This is analogous to the skilled racecar driver who knows the capacity of the racecar (not to mention his own driving skills!). He also knows how to modulate speed along with the turning of the steering wheel to negotiate curves on the speedway. Many clutterers find it difficult to sustain monitoring and modulation over long stretches of talking. This calls for extensive focus on the transfer and maintenance phases of therapy.
In relation to the first major goal of therapy, it is important to remember that PWC vary in degree and nature of self-awareness (Myers, Bakker, Raphael, St. Louis, Dycka, Lawson, & Hencken, 2006). Some PWC, for example, are keenly aware of poor speech intelligibility while others are not as aware. It is important to confer with the PWC regarding self-awareness not only during the initial evaluation but throughout treatment, as this skill is an essential first step to effect behavioral change. A primary goal in therapy, therefore, is to improve the client’s awareness of relatively cluttered vs. less cluttered speech. Because of its multifaceted nature, cluttering cannot be captured by unitary dimensions such as fluency alone. A rating scale ranging from “very cluttered” to “moderately cluttered” to “mildly cluttered” is clinically useful. Awareness of cluttering arises from both internal and external cues. Internal feedback consists of various sensory cues associated with movement. External feedback includes various verbal and nonverbal cues from the listener.

The following therapy strategies have been found to be particularly helpful to increase the client’s self-awareness skills: (a) Start with nonspeech sensorimotor functions (such as kinesthetic awareness associated with varying rates of arm movement). (b) When possible, use feedback from multiple senses (visual, tactile, kinesthetic, proprioceptive). (c) Have the clients evaluate their own audio- or videotaped speech, perhaps in conjunction with Bakker’s freeware software (Bakker, St Louis, Myers, & Raphael, 2005). (d) Have clients orthographically transcribe their cluttered speech in order to identify linguistic mazes and spurts of unintelligibility. (e) Have clients contrast states characterized by an “urge to surge” with a “calmer” state of being using analogies from music (e.g., legato vs staccato). (f) Have the clinician simulate cluttered speech so that clients know what it is like to talk with someone who clutters. (g) Have clients attend to the listeners’ bewildered nonverbal feedback. (h) Have clients attend to the listeners’ verbal feedback, such as asking for repetition of what was said. (i) Have clients attend to various conversational breakdowns so that they can recognize when they are not getting their point across or are having pragmatically-based misunderstandings.
The second major goal of therapy is to provide the client the means to modulate or change speaking rate. One of the least effective strategies is to tell PWC “just slow down,” similar to telling chronic speeders to drive ten miles per hour slower on the interstate. These drivers may slow down for a short stretch when they see a highway patrol, only to speed up again soon thereafter. The advice “just slow down” is too generic, too abstract and too “open-ended” for most clients. PWC need specific and concrete behaviors to do in order to learn how to modulate rate with more lasting results. Regardless of the therapy strategy used, it is recommended to start with speaking materials that are short, structured, scripted (e.g., days of the week), nonpropositional, and of relatively unemotional content. These types of speaking materials maximize the likelihood of focusing on how something is being said, rather than what is being said. The following strategies, some of which I have discussed elsewhere (e.g., St. Louis, Myers, Bakker, & Raphael, 2007), have been found to be helpful: (a) pausing at thought junctures; (b) “valving” (i.e., exaggerating the articulatory contacts of the articulators, such as bilabial valving for “b” in “baby”); (c) elongating vowels; (d) accentuating stressed syllables (to slow the rate and to mitigate the tendency to speak with a monotone); (e) phrasing (use commas and periods as signposts for pausing if reading); (f) reciting poetry or skits in a deliberate and rhetorical manner; (g) using key words and phrases to anchor internal feedback (e.g., state of calm vs. surge, “nice ‘n easy speech” vs “choppy ‘n staccato speech”); and (h) organizing one’s thoughts by formulating an actual or mental outline of main points to be conveyed to reduce verbal mazes and tangents.

References


Assessing Cluttering Severity: Measuring Degree of Impairment

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The development of a scientifically scrutinized measure of cluttering severity is of utmost importance. Bakker, Raphael, Myers, & St. Louis (2005) and Bakker, St. Louis, Myers, & Raphael (2005) proposed “% talking time cluttered” as one possible severity measure for routine clinical applications. It is an attractive option for determining cluttering severity at the impairment level. In this presentation the scope of a search for cluttering severity measures was broadened to include aspects of functional communication and quality of life. It is proposed that no single cluttering severity measure can suffice for all treatment and research needs.

Can cluttering be measured like stuttering?

The World Health Organization (WHO, 1998; also see Note 1) promotes the viewpoint that disorders should be interpreted not only at the impairment level, but also as they affect necessary functions of daily living and quality of life. While in clinical practice measures at all these levels are ultimately needed, it may be most practical to determine how cluttering severity can be measured at the impairment level first, before capturing the full impact of this unique fluency disorder. After all, for many communication disorders, functional communication and life quality aspects have yet to be covered through formal assessment procedures.

As cluttering is most commonly considered a disorder of speech fluency, the various ways in which stuttering severity is measured could provide clues as to how cluttering severity could be measured as well. It was determined that stuttering severity
is typically approached in behaviorally explicit ways, and concerned with strictly quantifiable options for assessing these behaviors. Among the options used for measuring stuttering severity are:

**Frequency measures**

(1) Percent Syllables Stuttered (%SS, or more traditionally percentage of words stuttered); this is the most frequently chosen method for measuring stuttering severity

(2) Number of Stutterings per minute (or “stuttering rate”)

**Duration related measures**

(3) Average, or typical, duration of stutterings (e.g., Conture, 2001)

**Interval measurement**

(4) Percent Intervals Stuttered (e.g., Cordes & Ingham, 1994)

**Composite scores**

Stuttering Severity Instrument (SSI-3; Riley, 1994): this represents a composite measure with stuttering severity described by:

- %SS
- Mean 3 longest stuttering durations
- Mean rating of nonverbal behaviors associated with stuttering
Subjective ratings

(6) Severity rating scales (overall severity estimate based on one's perception of stuttering severity)

Cluttering severity assessment through frequency measures may not be a realistic option, at least at this point. Cluttering doesn't present itself in the form of specific clutterings, or events that can be distinguished in a discrete manner and that are similar enough to be counted and that lead to statistics with interval-, or even ratio-scale properties. This limitation affects potential use of measures such as percent syllables cluttered or number of clutterings per minute. Moreover, frequency measures would not take into account the variety of forms in which cluttering manifests itself. A related measure, percent intervals cluttered, would appear to have some potential utility because it is typically used in situations where behavioral identifications cannot be made reliably (Cordes & Ingham, 1994). However, the particular way in which the measure would need to be used with cluttering (that is, applied on speech samples of perhaps a few minutes in duration) would cause it to have too low a resolution to lead to a useful measure. The absolute error, for example, would be too large to be considered acceptable (Bakker, 2007).

Perhaps the cluttering identification problem could be side-stepped through the use of durational measures: the average/typical or longest duration of a period of cluttered speech; or alternately the average or longest length (in syllables or words) of a period of cluttered speech, would appear to have face validity as a measure of cluttering severity. However, such measures would still depend on how individual intervals with cluttered speech are perceived. That is, they do not reflect how much speech is actually cluttered. One speaker, for example, could have few but very long cluttering interval durations, leaving most of speech appearing typical. Other speakers could have most of their speech affected by cluttering, but in a form of relatively short cluttering durations. While most of their speech in this case would be cluttered, the average duration of a period of cluttering might be very short.
Because of the inadequacies of these measures, *percentage talking time cluttered* was suggested by Bakker, Raphael, Myers & St. Louis (2005) and Bakker, St. Louis, Myers & Raphael (2005) as a measure for cluttering severity. Percentage talking time cluttered reflects how much of speech is cluttered in a proportional-durational sense. It does not lead to different results whether cluttering consists of few but very long periods of cluttering, or of many instances of cluttering of minimal duration. The measure, in other words, is robust, and appears limited only in that it is insensitive to variations in subjective severity among individual intervals with cluttered speech. For example, a client’s speech might be characterized as 90% talking time cluttered, although most of what is identified as cluttering might not be very noticeable in a subjective sense. The percent talking time cluttered measure, then, is best used in combination with other measures that capture subjective severity in order to express the total extent of the problem.

There are, however, still other possible ways to measure cluttering severity. For example, cluttering severity may also be approached in a comprehensive (multi-variable) sense through *composite severity scores*. In analogy with the Stuttering Severity Instrument, or SSI-3, it would seem appealing to develop a composite score for expressing cluttering severity as well. This would be particularly appealing because cluttering severity in most instances emerges as a multi-dimensional clinical problem. Using the “working definition of cluttering” (St. Louis et al, 2007) as a starting point, a composite measure could combine the following components: (1) a cluttering prevalence score (such as percent talking time cluttered), (2) a speech rate, and rate variability score, and (3) a disfluency score (e.g. the absolute #-number of disfluencies, and a percentage of disfluencies unlike stuttering). In order for such a composite measure to express the total effect on communication, it would be beneficial to extend the score with an estimate of (4) intelligibility (for example percent talking time unintelligible). Although this approach has promise for research applications, it may be too laborious to be of practical value for practical applications, such as in cluttering treatment.
Finally, **subjective ratings** of cluttering severity may capture aspects of severity not already covered by the aforementioned assessment strategies. For example, a clinician could rate, and average, severity judgments regarding specific intervals of cluttered speech. Also, the rating procedure could be implemented using entire speech samples at once. Such ratings can be expressed in the form of a Likert type scale, Visual Analog Scale, or through the use of standardized and agreed upon severity descriptions. The latter method of matching the client to descriptions of different severity levels is commonly used for expressing severity of aphasia (Goodglass, Kaplan and Baresi, 2001). It is advantageous because descriptions can be made very broadly to combine aspects of impairment, disability, as well as the reduction in quality of life. The following examples are merely illustrations for how descriptions could be developed specific to cluttering (severity levels from 1 through 5):

**Severity level 1:**

Communication is not affected; the client gets information and needs across effectively without drawing attention to speech and speech fluency deficits. Speech and fluency are not a concern in social interactions, or building friendships and/or relationships. Neither is speech fluency a limiting factor in education, or relative to career-related opportunities in life.

**Severity level 2:**

Communication at times is affected by periods of unclear, cluttered speech. Speech may be rapid, or merely too rapid for the client to maintain normal speech fluency and integrity. Nevertheless, speech sounds are within normal limits most of the time. It is possible that speech and its fluency is a factor to some degree in developing friendships and relationships. It could also affect progress in education, as well as being somewhat of a limiting factor in one’s professional career.
Severity level 3:

Communication is clearly affected by periodic episodes of cluttered speech. During cluttered episodes, speech can be rapid, unclear, or significantly disfluent in ways different from stuttering. Still there are periods when speech is nearly or completely normal. The speaker needs to be reminded to speak more clearly on a regular basis. The problem may affect the client’s chances of developing normal relationships, and at times it has an impact on educational potentials. Occupational opportunities are at least affected to some degree.

Severity level 4:

Communication is much affected by frequent episodes of cluttered speech. Yet, at times the client may be somewhat intelligible and be able to get information across or express needs. At other times the speaker needs to be reminded to speak more clearly. Without effort on the part of the client, speech and its fluency are poor and serve as a limiting factor in social relationships or building friendships. Also, speech integrity and its fluency often affect educational performance, or are limiting factors in one’s professional career.

Severity level 5:

Communication is severely affected, if even possible, for the client. Speech is mostly unintelligible, with little or no information successfully conveyed, and with little ability to express one’s needs or requests. The problems of speech and its fluency continuously draw attention to the speaker. It is a
limiting factor in establishing relationships or friendships, while educational advancement or professional careers are severely affected as well.

Finally, the literature (Bakker, Raphael, Myers, & St. Louis, 2005; Bakker, St. Louis, Myers, & Raphael, 2005) reveals a precedent for the use of a **multiple scaling approach** (based on behavioral scales thought to be relevant to describing cluttering severity). Rather than producing one overall severity score, the multiple scaling approach allows the clinician to describe a client’s performance in the form of a profile. The dimensions of the profile should include judgments regarding rate, rate regularity, disfluency, syllable production integrity, overall articulation accuracy, naturalness, pragmatic appropriateness, language coherence, and thought organization. While using this approach may reduce the efficiency in pre- and post therapy comparisons, and comparisons with standardized norms, as we are dealing with multiple numerical quantities, it may have the added benefit of reflecting how individual aspects of cluttering severity improve, or affect each other, in the course of therapy.

**Severity assessment needs vary throughout therapy**

Which cluttering severity measure should be used depends on the purpose for which it is needed. That is, its scope may depend on whether the measure is collected for diagnostic, assessment or treatment evaluation related purposes. Severity measures during diagnostic evaluations tend to be comprehensive and multi-dimensional in nature. Assessment of *degree of disability*—or the functional consequences of cluttering for daily living—is relatively important, in addition to gauging the *severity of the impairment itself*. This means that cluttering assessments during the diagnostic evaluation process should speak to:
1. speech fluency

2. consequences for the ability to communicate (be intelligible, get one’s point or information across, and be able to express one’s needs)

3. life quality (the ways in which the client leads an altered life because of having the condition: socially, educationally, and vocationally).

During therapy, the use of cluttering severity measures changes. That is, measures should address aspects of cluttering itself (i.e., the "impairment").

Treatment affects the selection of a cluttering severity measure in other ways as well. That is, particular intervention procedures require different measurement targets. For example, if cluttering is treated through a rate reduction strategy, speaking rate temporarily becomes the target for measuring treatment effect. Nevertheless, later in therapy the need for comprehensive assessment strategies of cluttering severity may re-emerge. Certainly, when nearing the end of therapy, the assessment scope is broad and comprehensive including functional components and also directed at quality of life, which may be viewed in a social, educational, and vocational sense.

**Discussion and Conclusions**

We may conclude that a recurring difficulty with applying event-related measures to cluttering assessment is that cluttering doesn’t appear in specific instances with any consistency. It is unclear also, what is considered cluttering when a clinician identifies an interval with cluttered speech. Because there is no such thing as a “cluttering,” the percent talking time cluttered measure has promise because it is less dependent on specific behavioral determinations. Rather, it reflects the proportion of talking time when cluttering in any form is perceived.
Despite the noted advantages, there are also limitations to using the percent talking time cluttered measure. It does not, for example, reflect how severe the cluttering itself is, or if cluttering time marked by the clinician consists of many short, or a few long periods, of cluttered speech. However, when percent talking time cluttered is measured with the Cluttering Assessment Program (CLASP 2.0), the average duration of cluttering episodes is available as well as the variability of the durations.

In the end the percent talking time metric is a severity measure of the degree of impairment. It does not effectively speak to the general degree of disability or to differences in life participation for which still other severity measures will be needed.


References


Options for Using a VisiPitch System for the Assessment and Treatment of Cluttering

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Purpose

This presentation explores and demonstrates some not so commonly known potentials of a Visipitch workstation for the assessment and treatment of persons who clutter (PWC).

The Visipitch was chosen for this discussion as it represents a popular, frequently used clinical workstation, with publicly known and published specifications, and a professional grade digital speech recording system as its input (Note 1). Among the clinical activities reviewed are measurement, modeling, feedback, monitoring and control of speech rate, as well as procedures for increasing self awareness of speech integrity and quality.

Subroutines of the Visipitch workstation

1. The Auditory Feedback Tools program (AFT).

Figure 1 shows all options of the AFT program, including a Pacer (metronome), Delayed Auditory Feedback (DAF), Looping, Time-Warping (speech compression and stretching), and Masking.
Pacer: (a metronome): This program presents a click tone at a user-selected rate. It has utility for modeling targeted speech rates, but at a regular rhythmic pattern. The pacer, effectively, functions as a “starter” for establishing a rate model after which rate can be made more normally variable. The pacer can be set at a desired rate (from 50 to 150 beats per minute).

DAF (Delayed Auditory Feedback): While DAF is known to have a fluency-enhancing effect on persons who stutter, the effect is much less likely to occur (if at all) for PWC. DAF does have utility in therapy with PWC, as a method to help clients reduce and control speech rate to desirable levels. DAF is a good alternate choice when more natural procedures (modeling-imitation) don’t work. DAF delays are typically configured between 250 and 50 ms in 50 ms steps. Recently, there has been an increasing interest in the use of very short delays (e.g., with persons who stutter).

Looping (+ amplification by adjusting headphone volume): Looping is used to increase self-awareness of speech rate, quality and fluency. The program records an utterance and allows it to be re-played multiple times by pressing the start button as often as is needed. The program was originally included as a procedure for facilitating increased self-awareness of voice quality (e.g., Boone, McFarlane, & Von Berg, 2005). The AFT program allows a maximum of 30 seconds of speech to be recorded.
**Timewarp**: This program compresses or stretches speech in time while leaving most other qualities of speech and voice unchanged. Effectively this allows the clinician to create model utterances at varying rates needed for therapy that sound very much like the client’s. The Timewarp program allows the client’s own speech to be changed to a desired rate. **Caveats and limitations**: (1) speech can be “warped” only in steps of 10% of the original rate; (2) the client needs to produce the natural and desired rate model at least once without cluttering; (3) speech produced at lower rates requires different forms of motor planning and organization (for example, as discussed by Kent in Myers et al, 2002 a, b). In order for ‘time stretched’ speech models to be as natural as possible, it is recommended to “warp” only at rates close to the speaker’s natural rate to avoid unnaturalness.

2. **Realtime Spectrograms**

![Figure 2. Realtime spectrogram display.](image)

In a previous study using spectrography for analyzing the acoustic perceptual correlates of cluttered speech, Bakker, Raphael, Myers, & St. Louis (2000) noticed an overall quality difference between spectrograms obtained from PWC and from normally fluent speakers. Normally fluent speakers produce speech that reveals more
organization and definition of the acoustic features in spectrograms than is the case for PWC. Awaiting the necessary evidence, it is still reasonable to assume that the differential abilities of PWC and PWNC to monitor their own speech, and affect clarity in speech production, should have visual consequences for the way speech appears in real-time spectrograms.

3. **Realtime Pitch (RTP)**

![Real Time Pitch (RTP) Display](image)

Figure 3. Real Time Pitch (RTP) Display.

Although feedback on fundamental frequency and intensity of the speech signal are not typically targets in cluttering therapy, The RTP screen in an adjusted form can be useful as a simplified representation of utterances for setting speech rate models. For optimal effect be sure to (1) turn off the Pitch display, (2) turn the graph to a continuous line (instead of dotted), (3) adjust the recording duration to the appropriate time frame for the model, and (4) set the display on “single sweep”. Other than modeling utterances of a desired speech rate, it is also possible to use the RTP program to measure the durations (articulation time) of utterances to determine, for example, speech rate in syllables per second (or per minute).

Some have suggested that the speech of PWC distinguishes itself through prosodic factors. A Visipitch is very well suited for providing feedback for establishing a
more normally sounding prosody, or to conduct prosodic assessments. PWC may need to learn how to produce speech with a more varied and expressive prosody, or with intonation and stress patterns that are considered normal for the language.

4. **Waveform Editor:**

![Waveform Editor Display](image)

Figure 4. Waveform Editor Display.

The Waveform Editor perhaps offers the most accurate option for modeling, and providing feedback on utterances produced at targeted speaking rates. It shows the “raw” acoustic waveform signal instantaneously, without any effects from averaging time constants. The waveform is more difficult, however, to interpret than acoustic intensity envelopes (energy displays) or spectrograms. Be sure to set the screen to a “single sweep mode” and at an appropriate fixed duration. This way, modeling and practicing windows are optimally comparable to one another.

As the time-wave window offers an easy opportunity to author recorded speech samples, it would seem ideal for development of a library of brief utterances, or even extended reading passages, produced at specified speaking rates to serve as rate models for clients. Hopefully, the community of speech pathologists who treat fluency disorders can develop and electronically share such a data base for use with clients.
Conclusion

The Visipitch (Model IV) and Sonaspeech 2 platforms offer multiple opportunities for assisting clinicians in achieving common goals in the treatment of cluttering. The equipment is most helpful when initiating treatment while the clinician is making speakers aware, allowing them to gain control by monitoring their speech and by providing them with feedback based on measurements of speech rate and speech quality. However, once goals are established the client will still need to begin to transfer the new skills to natural speaking situations where changes are eventually needed. During this shift clinicians will look for procedures to help the client become independent of the effects produced by the previous programs.

For the purpose of establishing control over cluttered speech the SonaSpeech2 platform is entirely suitable if care is taken to produce reasonable digital recordings. Part of the program, the Auditory Feedback Tools, with the exception of the “time warping” function are available also in the form of a stand alone, portable, device (Facilitator, KayPentax).

Notes

Note 1. Visipitch, SonaSpeech2, and Facilitator are products of: KayPentax. A Division of PENTAX Medical Company. 2 Bridgewater Lane. Lincoln Park, NJ 07035-1488, USA. For more information please visit:  www.kaypentax.com


Impact of a pausing treatment strategy upon the speech of a clutterer-stutterer

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Abstract

This ABAB single-subject design examined the effects of a pausing treatment strategy upon the speech of an eight-year-old female diagnosed with cluttering-stuttering. Data were collected during structured reading and semi-structured conversation tasks for percentages of non-stuttered disfluencies typical of cluttering and percentages of stuttered syllables. Results were inconclusive, but revealed that use of a pausing treatment strategy has the potential to lead to an increase in percentage of stuttered syllables and a decrease in percentage of non-stuttered disfluencies in a clutterer-stutterer. Implications for future study and treatment are discussed.

Background

The current working definition of the disorder of cluttering includes an irregular and/or fast rate of speech which is accompanied by any or all of the following: an excessive number of non-stuttered disfluencies, atypical pausing and prosodic patterns, and/or inappropriate co-articulation (St. Louis, Raphael, Myers, & Bakker, 2007). Those referred to as stutterer-clutterers or clutterer-stutterers are those who exhibit patterns of both stuttering and cluttering. The prevalence of stuttering-cluttering has been estimated at 35% (Preus, 1986).

Pause times have been preliminarily documented in studies of cluttering and of cluttering-stuttering. Rieber, Breskin, & Jaffe (1972), in a study of 15 individuals diagnosed as clutterers, 15 diagnosed as stutterers, and 24 controls, found that
stutterers had significantly greater mean pause times than clutterers when reading aloud. In comparing these mean pause times with the controls who completed a similar reading task, the stutterers and controls had similar mean pause times, which were longer than the clutterers. Only descriptive data was provided for this latter finding, and the authors warn that no matching was done between participants and controls or between the reading tasks they each performed. From their study of perceived pause time in reading of 9 stutterers, 6 clutterers, 3 stutterer-clutterers and 10 controls, Hutchinson and Burk (1973) found that stutterers exhibited significantly greater perceived pause time than clutterers while reading under varying conditions of altered auditory feedback. There were no other significant results found for perceived pause time in this study. Descriptively, stutterer-clutterers exhibited perceived pause times that fell within the pause times of those of both stutterers and clutterers. Although the results of these studies are preliminary, they suggest some interaction of the disorders of cluttering and stuttering upon pause time.

**Purpose**

Goldman-Eisler (1968) defines pausing as breaks in phonation due to hesitation or the need to replenish the breath supply for speech. This excludes “…the discontinuity of phonation which occurs in articulatory shifts, e.g. when two plosives or stops follow each other (e.g. top part, tat tat) (p. 12).” Pausing at natural speech breakpoints, such as at commas or periods when reading aloud or between sentences when engaged in conversation, has been suggested as a strategy for working with individuals who clutter. St. Louis and Myers (1995) state that, “Pausing allows the client to plan the articulatory gestures as well as the what and how of the next proposition ( p. 191).” Given the linguistic and motoric disfluencies present in cluttering-stuttering, and the fact that pause time may be less than normal in this population, St. Louis & Myers’ recommended treatment may extend to clutterer-stutterers.
The effectiveness of increased pausing upon specific aspects of cluttering or cluttering-stuttering has only once been empirically investigated. Simkins, Kingery & Bradley (1970) instructed a nine-year-old girl, diagnosed with cluttered speech and childhood schizophrenia, to pause at commas or periods when reading aloud. The researchers used visual and tangible reinforcements when the child paused in the appropriate places. Reduction in rate of words per minute decreased from near 110 wpm to approximately 75 wpm over five therapy sessions. Over the next three therapy sessions, wpm gradually increased and leveled off at 100 wpm. The investigators noted that because soon after introduction of the pausing strategy other strategies were added (e.g. imitation of words to increase speech intelligibility), no conclusive results can be drawn for the effects of singular strategies alone (such as the pausing) upon cluttered speech. Although some initial results were demonstrated by the use of pausing, methodological concerns prevent any firm conclusions from being drawn. Investigation of the impact of pausing as a treatment strategy is therefore necessary before further treatment recommendations are made. Furthermore, because cluttering and stuttering have been found to frequently co-occur (Preus, 1986), it is relevant to investigate the impact of use of pausing upon both cluttering and stuttering. The purpose of this study was to investigate the effects of use of a pausing strategy on two specific speech characteristics of an individual diagnosed with cluttering-stuttering. Speech characteristics examined included: 1) the percentage of non-stuttered disfluencies typical of cluttering, and 2) the percentage of stuttered syllables. Results provide researchers and clinicians with information to continue to build hypotheses of treatment strategies for individuals diagnosed as clutterers and clutterer-stutterers.

Methods

Participant

The participant was an eight-year-old female diagnosed with cluttering-stuttering at a private clinic approximately nine months prior to this investigation.
Data Collection

Following an ABAB single-subject design, the study compared baseline vs. treatment data collected during structured reading and semi-structured conversation tasks (i.e. response to open-ended “why” questions). After baseline measures were obtained for the parameters of percentage of non-stuttered disfluencies and percentage of syllables stuttered, the client was taught to consciously insert pauses in her speech after short phrase groups of three to six syllables. This amount of pausing was chosen as an exaggerated model to facilitate learning of the pausing strategy. After training was completed, the aforementioned measures of speech were repeated under treatment conditions. Data for all baseline and treatment tasks was taken over three consecutive trials to ensure that an adequate number of measures were obtained, and to neutralize variability in the data. The second set of baseline and treatment measures was obtained one week after the initial baseline and treatment data were collected.

Treatment Fidelity

In order to verify that the pausing strategy was in fact being used in the treatment phases, pauses were confirmed via the spectrograph for 30-sec. samples of the participant’s speech. Spectrographic detail, including waveform and steady state formant patterns, were used to determine onsets and offsets of voicing. Following the methods of Viswanath(1989), words that could not be reliably segmented due to co-articulation effects were measured as one utterance containing the co-articulated words. Also following these methods, measures of moments of stuttering included all repetitions of sounds or syllables, and all pauses until the point of fluent production of the word. Therefore, any pauses that were part of a stuttering block were not counted as the deliberate pauses used in the treatment phases. Steady state formant patterns were used to determine onsets and offsets of voicing for stuttering blocks. Cursors were used to mark the starts and stops of the aforementioned speech segments and pauses in speech, and the playback feature of the Computerized Speech Lab (CSL Model
4400, Kay Elemetrics) was used to verify the selections (Ingram, Bunta & Ingram, 2004). The eight samples analyzed were drawn from the baseline and treatment phases of both reading and conversation conditions in sessions one and two. Intrajudge reliability was established by having the investigator identify pauses on the spectrograph a second time for 10% of the sample. The second set of judgments was conducted approximately one week after the first set of judgments. Intrajudge agreement was 100%.

Data Analysis

Percentage of syllables stuttered and non-stuttered disfluencies were calculated across sessions and speaking conditions. According to Wingate’s definition of stuttering (Wingate, 1964, 2001), the participant exhibited the following types of stuttered syllables: blocks, prolongations, single-syllable whole word repetitions, and part-word repetitions. The participant exhibited the following types of non-stuttered disfluencies: phrase revisions, interjections and broken words (Tetnowski, 1998). Blocks are distinguished from broken words in that blocks were characterized by silent prolongations of sounds with overt struggle (Wingate, 2001), whereas broken words were characterized by momentary cessation of phonation within words without struggle (e.g. par~ty) (Carlo & Watson, 2003).

Results

The two treatment sessions consisted of one baseline (no deliberate pausing used) and one treatment (deliberate pausing used) measure each for reading and semi-structured conversation conditions. A total of four comparisons between baseline and treatment conditions were obtained. When the participant used deliberate pausing during reading tasks, her percentage of stuttered syllables decreased by 1% during the first session, and increased by 1.4% during the second session. During the same
reading tasks, the participant’s percentage of non-stuttered disfluencies increased by .2% during the first session and decreased by .21% during the second session. When the participant used deliberate pausing during conversation tasks, her percentage of stuttered syllables increased by 2.1% during the first session, and increased by .2% during the second session. During the same conversation tasks, the participant’s percentage of non-stuttered disfluencies decreased by 2.9% during the first session and increased by .1% during the second session. Overall, the percentage of stuttered syllables increased in three of the four treatment conditions (i.e. reading for session two and conversation for sessions one and two), and the percentage of non-stuttered disfluencies increased in two of the four treatment conditions (i.e. reading for session one and conversation for session two). There was a larger average decrease in percentage of non-stuttered disfluencies overall (average decrease 1.56% vs. average increase .15%) and a larger average increase in percentage of stuttered syllables overall (average increase 1.23% vs. average decrease 1%).

**Discussion**

Because statistical analysis was inappropriate for the small amount of data gathered by this study, it is difficult to determine with any certainty whether any of the increases or decreases in stuttered syllables or non-stuttered disfluencies represent meaningful shifts in either direction. Descriptively, the increase in percentage of stuttered syllables warrants explanation, and is not surprising, given the fact that onsets of voicing are often most difficult for those who stutter (Horii, 1984). At the time of this study, the participant had not been taught any fluency strategies which might make this transition from pauses to voicing easier. It is also possible that the increased cognitive load of a new task created an increased stress on the participant’s system, thereby resulting in an increase in stuttered syllables.

Percentage of non-stuttered disfluencies increased during half of the treatment conditions and decreased during the other half of the treatment conditions. The absolute
changes in average percentage of non-stuttered disfluencies from baseline to treatment revealed a downward trend. The percentage of non-stuttered disfluencies from baseline to treatment decreased by an average of 1.56% (range of 0.21% to 2.9%), and increased by an average of only 0.15% (range of 0.1% to 0.2%). Given this information, it may be that a more significant decrease in percentage of non-stuttered disfluencies might have been seen over time with continued practice and use of the strategies. Such changes are only indicative of a possible trend rather than a conclusive decrease. Further research is needed to examine this.

In general, findings indicate that at least in the case of this clutter-stutterer, adding pausing to one’s speech to decrease rate and to increase time for language formulation may create other complications in the areas of disfluency and stuttering. This is an important consideration when choosing to implement a pausing treatment strategy with a clutterer-stutterer.

Caveats and Future Directions

Results of this study provide a start to compiling data on the effectiveness of use of a pausing strategy for individuals diagnosed as clutterer-stutterers. Further study of the effects of pausing upon stuttered and non-stuttered disfluencies is needed with larger samples and over longer periods of time in order to test the significance of effects of pausing upon the clutterer-stutterer’s speech. Furthermore, although use of deliberate pauses was confirmed via spectrographic analysis, this study did not attempt to compare the number of pauses the participant used in baseline vs. treatment conditions beyond the 30-sec. samples used for reliability measures. A comparison of the total number of pauses in baseline vs. treatment conditions for reading and conversation tasks would have been helpful in discussing meaningful change. For example, even though deliberate pausing was used, if the total number of pauses used did not change significantly from baseline to treatment conditions, perhaps it was not the amount of pausing but the location of pauses (and therefore the resulting phrasing
used) that resulted in the increased stuttering. It would be helpful for future study to standardize the number of syllables between pauses in treatment conditions, reflecting a specific increase from each participant's frequency of pausing in baseline measures.

Conclusions

This study revealed potential changes in two speech variables with use of the treatment strategy of pausing, and serves as an initial attempt to collect evidence regarding recommended treatments of cluttering. It is possible that for this participant and for many individuals who clutter and stutter, given the multitude of symptoms that may present themselves, layers of intervention addressing different areas are needed to reveal progress. In order to identify the effective “layers” of intervention, continued investigation of the effectiveness of these treatments, and their interactions with each other, is required.

References


EXPERIMENTAL AND DESCRIPTIVE CLINICAL RESEARCH PAPERS
Perceptual judgments of cluttering
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Abstract

The purpose of this study was to investigate the influence of speaking rate and amount of nonstuttered disfluency on perceptual ratings of cluttering. Twenty listeners made judgments of recorded speech samples that were systematically varied with four different speaking rates and three different levels of nonfluency. Preliminary results indicate that neither rate, nor percentage of disfluency were sole determiners of “cluttered speech” ratings. Rate and disfluency percentage, however, interacted to create “cluttered speech” perceptions.

Introduction

Although there continues to be a debate on the definition of cluttering, the fact remains that most clinical diagnoses of cluttering and the selection of most participants in research projects are selected through a perceptual judgment that the individual is indeed cluttering. This is in spite of the fact that professionals still do not agree on the exact characteristics that determine cluttering. Some definitions are based predominantly on speech characteristics (e.g. St. Louis, 1996a; St. Louis, Raphael, Myers, & Bakker, 2003), while other definitions include both speech and central language criteria (e.g. ASHA, 1999; Daly & Burnett, 1999; Weiss, 1964). However, the one common thread of these two competing schools of thought is that the speech commonly perceived as cluttered is significantly different from normal speech and somewhat different from stuttered speech. For the sake of consistency, any judgment of cluttering must therefore include the common denominator, that is, the speech characteristics.
A review of recent studies of cluttering indicates that the disorder is most typically determined by perceptions of “excessive disfluency” and “rapid and/or irregular” speech rate (St. Louis, 1996b; St. Louis, et al., 2003). The reliance on perceptual judgments as criteria for inclusion in studies on cluttered speech may be problematic. As of this time there is no standard for exactly “how disfluent” or exactly “how rapid” speech must be in order to be labeled “cluttered speech”. It is clear from our point of view that since rate and disfluency are included in almost all definitions of cluttering, there may be some standard referential threshold that leads to these judgments. Therefore, the purpose of this ongoing study is to systematically vary rates of disfluency and speaking rate to help determine a perceptual threshold for cluttered speech.

Methods

Digital recordings were made of 12 different speakers where rate of speech and percentage of nonstuttered disfluency were systematically varied. The speaking rates were 200, 250, 300 and 350 syllables per minute and the disfluency rates were 4%, 12% and 20% nonstuttered disfluency. Disfluencies were systematically balanced to include interjections, multi-syllable word repetitions, and phrase repetitions, the primary disfluencies noted in cluttering (in contrast to the behaviors that are most typical of stuttering, i.e., part word repetitions, prolongations, and blocks). Each of the speakers was provided with a script and had the opportunity to rehearse the reading as many times as needed. Recordings were made in a sound-proof room, with a high quality unidirectional microphone, and stored on a Marantz audio disc recorder. Each recording was examined to ensure that the sample was recorded at the proper rate and with the appropriate number of nonfluencies. The samples were then stored for later presentation to a group of judges.
Judges were recruited from a sample of graduate students at the University of Louisiana at Lafayette. In order to be selected as a judge, each participant had to have completed at least one graduate course in fluency disorders. Judges were selected because they were considered to be representative of beginning speech-language pathologists in the United States.

Prior to presentation, the audio samples were arranged in a random order. The samples were then played to the group of judges. Samples were played “open field” in a quiet classroom at a volume of no less than 75 dBA in each corner of the classroom. Judges were instructed to simply mark whether the samples were characteristic of “normal fluency”, “stuttered speech”, or “cluttered speech”. The samples were played one time each so that the judges’ first impressions were recorded.

**Results**

Results indicate that neither rate by itself, nor percentage of disfluencies by itself were significant factors in judgments of cluttered speech by the listeners. That is, not all three of the samples recorded at 350 syllables per minute were judged to be cluttered speech, and not all samples containing 20% disfluency were classified as cluttered speech. None of the samples recorded at 4% disfluency were identified as cluttered speech, however, for the samples recorded at 12% and 20% disfluency, those recorded at 300 and 350 syllables per minute were rated by the judges as cluttered speech. The samples most commonly identified as cluttered speech were spoken at a rate of 300 or 350 syllables per minute and a rate of disfluency of 20%. Results indicate that neither a rate of speech at or above 300 syllables per minute nor a disfluency rate of 20% were responsible independently for consistent judgments of cluttered speech. Rather, the interaction between rate and percentage of disfluencies appeared to be responsible for listeners’ judgments of cluttered speech.
Discussion

Almost all studies that explore cluttered speech include a perceptual judgment of what indicates cluttered speech, in spite of the fact that there are no clear indicators of exactly what acoustic cues are used to make these judgments of cluttering. We believe that this fact leads to confusion in interpreting much of the literature in cluttering. Research studies often classify their subjects as "stutterers," "clutterers," or "stutterer-clutterers." Exactly how judges and clinicians make these decisions is unclear. It is evident from our findings that these decisions are based on factors beyond simply speaking rate or rate of disfluency, but which are instead based on a combination of these factors. Based on definitions and descriptions of cluttering in the literature, it is possible that listener judgments of cluttered speech are based on characteristics including the presence of a specific disfluency type (e.g. abundance of interjections or phrases repetitions,) visual cues (e.g. lack of physical secondary symptoms,) the presence of other concomitant language or speech disorders, a rate of speech markedly rapid and/or irregular, or interactions among these factors. (St. Louis, 1996b; St. Louis, Hinzman & Hull, 1985; St. Louis et al., 2003). Future study will focus on delineating which of these factors, including which particular types of non-stuttered disfluency, appear most influential in guiding judgments of cluttered speech. In addition, research is ongoing to help further narrow the threshold ranges of rate and disfluency that are responsible for judgments of "cluttered speech."

References


Will you date a person with cluttered speech?

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Abstract

The purpose of the study was to examine whether cluttered speech affects the social attitudes of a listener as measured by personal traits, social acceptance and characteristics of speech. The Semantic Differential Scale (Osgood, 1967) and a separate list of questions was administered to 120 students, 16-38 years old. The additional questions probed issues of social acceptance and also asked for a description of the speaker. The participants listened to one of two speech recordings (cluttered or fluent speech) spoken by a single talker. Results indicate that listeners have more negative attitudes towards a cluttering speaker than towards a fluent speaker. Clinical implications are discussed.

Rationale

There is a mutual influence between the speaker and the listener. Empirical evidence shows that the listener may have negative attitudes towards Persons Who Stutter (PWS) (Blood, Blood, Tellis & Gabel, 2003; Emerson & Enderby, 2000; Susca & Healey, 2002; St. Louis & Andrade, 2003). Cluttered speech demands extra attention from the listener in order to understand a message. Hence we hypothesize that the listener will develop negative attitudes towards the Person Who Clutters (PWC). This assumption has not been tested empirically.

Objectives
1. To determine whether cluttered speech can affect social attitudes towards a speaker.
2. To identify the attitudes which are especially affected by listening to a person with cluttered speech.

Method

Participants:
Participants were 120 Hebrew-speaking student volunteers from Tel Aviv University and Ariel’s College, 16-38 years old, with an average age of 25.2; there were 59 females and 61 males. The participants were assigned, randomly to listen to one of two speech recordings and answer a social attitudes questionnaire.

Stimuli & Materials:
A man with cluttered speech was recorded twice while speaking the same text, first spontaneously (that is the recording included characteristics of cluttered speech) and then speaking the same text fluently (after therapy training aimed at removing cluttering from the speech). A Hebrew translation of The Semantic Differential Scale (Osgood, Suci, and Tannenbaum, 1967) The scale was administered to two groups: those who listened to the fluent speech sample and those who listened to the cluttered speech sample.

The version of the Semantic Differential used in this study included 58 bipolar characteristics, on a scale from 1 (positive characteristics, e.g. wise) to 6 (negative characteristics, e.g. stupid).
The Scale was accompanied by a number of questions about social acceptance and a description of the speaker the participants heard. For example: Would you set this person up on a date with a friend of yours? Would you sit next to him in the same class? How would you describe his manner of speech?

Procedure

The participants were asked to listen to one of the two recordings, through the earphones of a MP3 device. The assignment of the students to the two recordings was random, thus the selection of gender was controlled. They filled in the questionnaire and answered the questions. Until the end of the procedure, the purpose of the study was not revealed.

Results

A Mann-Whitney U-test revealed a significant difference ($P<0.05$) between the two groups for 22 of the 58 bipolar scales of the Semantic Differential.

- From the point of view of personal characteristics: The person who clutters was perceived as less sophisticated, less motivated, less competitive, less perfect, more childish, more cowardly, and as a more unfamiliar person.
- From the point of view of cognitive characteristics: The person who clutters was perceived as less intelligent than the fluent speaker.
- From the point of view of social status: The person who clutters was perceived as less successful, less important and with limited leadership qualities.
• From the point of view of attractiveness: The person who clutters was perceived as uglier, clumsier, and less masculine than a fluent speaker.

A Chi-square test was used to compare the two groups with regard to the questionnaire about social acceptance. The analysis revealed a significant effect in 1 out of 9 questions ($P < 0.05$). Only 26% of the participants were willing to prepare a final thesis with a person who clutters, compared to 54% willing to do it with a fluent speaker.

The participants were required to give a description of the manner of the speech they heard. The person who clutters was generally perceived as less self-confident and as showing similarities to drug addicts. In addition, the participants perceived the cluttered speech as disorganized and identified it as non-fluent and with characteristics of misarticulation.

There appeared to be an interaction between the gender of the participant (male/female) and the manner of speech (fluent/cluttered). Females showed a more positive attitude towards the fluent speaker than males, while no difference between females and males was found regarding the cluttering speaker.

Discussion

Our study shows that a person who clutters triggers negative attitudes from listeners. These findings are partially consistent with mainly clinical descriptions in the literature about the person who clutters (Daly, 1986; Freund, 1970; Weiss, 1964). The results indicate that the participants identified a speech problem and described the person who clutters negatively. We assume that these findings can be explained by the pragmatic dimension of communication. If the listeners feel that a speaker is not attentive to their needs, they become frustrated and blame the speaker, perceiving him or her as a person with negative characteristics such as limited intelligence, or as showing similarities to drug addicts. The females’ attitudes were significantly more positive than
the males’ attitudes only towards the fluent speaker. It seems as though the cluttered speech doesn't evoke the females’ tendency to be more accepting.

**Clinical implications**

Our research has clinical value in achieving better understanding of the influence of cluttered speech on a listener. This influence goes beyond the impaired communication, as some of the social attitudes towards persons who clutter are negative and can influence their life and social status. This external feedback must be taken into consideration in speech therapy.

**References**


Investigation of speech motor skills in cluttering by means of EMMA

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Abstract

This study used Electromagnetic Mid-sagittal Articulography (EMMA) to investigate if and how adult people who clutter differ from control speakers in terms of their articulation. The results revealed articulatory differences between these populations in the production of both syllable repetitions and multisyllabic loan words. The syllable repetitions showed fewer specific symptoms of cluttering. In a considerable number of the clutterers’ productions of loan words, however, there was evidence of the reduction and deletion of articulatory movements, in addition to strongly varying durations and amplitudes of tongue tip movements.

1. Introduction

Those characteristics of cluttering that were considered as essential in the present study were: a fast and irregular speech rate, phonological speech errors such as syllable omissions, inappropriate consonant blends or metathesis, and mumbled speech. By using EMMA, the experiment aimed: (1) to examine if a deficit in speech motor skills causes the unintelligible speech in cluttering (Lees, Boyle, & Woolfson, 1996; Daly & Burnett 1996), (2) to investigate the effects of fast speech rate on articulation, and (3) to analyse the spatial and temporal variability of articulator movement since variability is an important indicator of the stability of the speech motor.

2. Methods

Two-dimensional Electromagnetic Mid-sagittal Articulography (EMMA) was used for recording the articulatory movements of three people who clutter and three controls. EMMA is a medically harmless experimental method which allows the measurement of two-dimensional articulatory movements of the tongue, the jaw and the lips simultaneously with a high spatial and temporal resolution of about 0.5 mm.
2.1 Participants

Six adult native German speakers between 21 and 36 years of age took part in the experiment. Two male speakers and one female speaker who cluttered were diagnosed by speech pathologists as pure clutterers. They had recently taken part in one or more speech therapy treatments. For comparison, a control group, matched for age and sex, was included. In what follows, the speakers will be identified with initials that refer to their groups (C = persons who clutter, N = normal speakers, (controls), their sex (M = male, F = female), and by a number specific to each speaker.

The diagnosed cluttering of the participants was described by the speech pathologists as being characterized by fast speech rates, mumbled articulations, and syllable omissions. In the family of speaker CM2 the same symptoms were prevalent.

2.2 Protocol

Based on comparable studies in stuttering, syllable repetitions ([pa, ta, ka]) within a 10 second interval, and word material were recorded. Since the recording of spontaneous speech is not feasible in EMMA experiments, multi-syllabic loan words containing the sequence /nali/ were embedded in the sentence frame “Sage ___ bitte” (say ___ please). The final vowel in the targeted sequence, /e/ or /i/, was either stressed and lax as, in “dimensionalistisch,” or unstressed and tense as in “dimensionalsieren.” The underlined vowel in each word was realized either as pre-stressed 1 (p1) or as pre-stressed 2 (p2). The speakers were not aware that only the sequence /nali/ was relevant for data analysis. There were 10 repetitions of each of the 5 word pairs. The targeted sequence occurred in the p1- and the p2-positions and the order was randomized. The subjects were instructed to speak as fast as possible, while maintaining intelligibility.

2.3 EMMA recording

During the recording the speaker wore a plexiglas helmet to which three transmitter coils were fixed. Receiver coils were attached midsagittally to the jaw, the lower lip and four tongue positions with a distance of approximately 1 cm between each of them (see Figure 1). To enable data correction for head motions, reference sensors were fixed to the gums of the upper incisors and to the bridge of the nose.
Data analysis

All the data were labeled both acoustically and articulatorily. In this paper only the articulatory data will be discussed. Figure 2 illustrates an EMMA display with tongue tip movements during the production of /nali/. The acoustic signal is shown in the upper panel; in the second panel the vertical movement of the tongue tip is represented, the third panel shows the tangential velocity signal. During the articulation of the sequence /nali/, four gestures were produced. The vertical lines in the figure indicate the first tongue tip closing gesture (CG) towards /n/. The following gestures are the opening gesture (OG) towards the vowel /a/, the closing gesture towards /l/, and the opening gesture towards /i/.

Using the tongue tip tangential velocity signal (TV in cm/sec), shown in the third panel in figure 2, the onsets and offsets of each gesture were determined semi-automatically by the 20% threshold values of the left and right minimum, surrounding the velocity peak. For durational
measurements the time between the movement onsets and offsets was calculated for each gesture. For computing displacements, the tangential velocity signal was integrated between the two minima. Since the second gesture, i.e. the tongue tip opening gesture from the nasal /n/ towards the vowel /a/ in /nali/, showed the most interesting articulatory phenomena, we focussed exclusively on it in this paper.

Results

Excluded data

Items were excluded from the statistical analysis if movements, as determined from figure 2, could not be segmented because there was no left or right minimum or because complete gestures were reduced or elided. Table 1 shows the absolute and relative frequencies of excluded data. In contrast, in the syllable repetition data, no incomplete articulatory movements were observed.

Table 1: Absolute and relative frequencies of /nali/ sequences that could not be analysed due to either the absence of a left or right minima or to reduced or even deleted articulatory movements

<table>
<thead>
<tr>
<th>condition</th>
<th>Controls</th>
<th>PWC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NM1</td>
<td>NM2</td>
</tr>
<tr>
<td>p1</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>p2</td>
<td>2 (5.7%)</td>
<td>13 (26%)</td>
</tr>
</tbody>
</table>

Incomplete articulatory movements were most frequently found for the speakers CM1 and CM2. In CM1 contrary effects were observed. He tended to reduce movements more frequently in the p2-context (32%) than in the p1-context (14%). On the assumption that secondary stress exists in German, it could be assumed that the speaker produced more target undershoot in stressed (secondary) than in unstressed syllables.

While 42% of the opening gestures towards the vowel /a/ in the p1-context could not be analysed for CM2, this was the case for only 22% of the opening gestures in the p2-context. In 24% of these excluded data in the p1-context the speaker produced only 2 gestures instead of 4. CM2 was the only speaker who showed the complete deletion of articulatory movements. Furthermore, a high number of syllable omissions and break-ups within words were observed in
Since she did not produce speech errors, the break-ups might indicate that she anticipated making errors and therefore she stopped speaking.

**Movement patterns**

Figure 3 visualizes the highly variable movements of the tongue tip for the male speakers with cluttering. As the upper right-hand figure indicates, speaker CM2 produced complete deletions of the consonant articulation of /l/ in some cases. The upper left-hand figure clearly shows that CM1 reduced movements of the second and third gesture. In the lower figures the articulatory movements of the same items are shown for the male control speakers. Their movement patterns seem to be more symmetrical and, in comparison to the people who clutter, the four gestures did not vary as much in the spatial and temporal domains.

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Figure 3: Tangential velocities of the tongue tip movement during ten repetitions of /nali/ in “emotionalisieren”, above CM1 (left) and CM2 (right), below NM1 (left) and NM2 (right)
Intergestural timing

The time elapsed from the peak velocity of the first gesture (the closing gesture for /n/) to the peak velocity of the fourth gesture (the opening gesture for /i/) was shorter when movements were reduced (for example CM1: p1 = 195 ms for 4 gestures and 146 ms for 2 gestures). As can be seen in figure 3, the timing for the onsets and peaks of the reduced second and third gestures seems to vary in CM1 and CM2. However, in speaker CM2 the complete deletion of these two gestures resulted in an earlier onset of the fourth gesture. There is no evidence, however, that accelerated speech rate causes the produced target undershoot of the tongue movements. Interestingly, when seven qualified speech and language pathologists rated the intelligibility of ten repetitions of the word “emotionalisieren” (p2) of speaker CM2, six out of seven listeners judged these repetitions as ‘very intelligible’ to ‘quite intelligible’. Only one listener perceived the two repetitions with deleted gestures as not being intelligible. This indicates that even radical gestural reduction only slightly affects the intelligibility ratings of professional therapists.

Variation in durations and displacements

For the opening gesture to /a/ in /nali/ the coefficient of variation (CV) was calculated for the duration as well as for the displacements. It has the advantage over the standard deviation of being independent of the magnitude of the mean value that is influenced by the high number of excluded data. With the exception of the p2-context in speaker CF3, the values of the speakers with cluttering showed higher coefficients of variation (see Figure 4).
A two-way analysis of variance, repeated over one, was calculated in order to evaluate whether the coefficients of variation differed significantly between the two groups. (between-subject factor = controls – PWC; within-subject factor = p1/p2-context). The ANOVA showed significant differences between controls and speakers with cluttering (F-value for duration = 8.101, p = .047*: F-value for displacement = 8.090, p = .047*).

Compared to the results for the loan words, the simpler task of repeating simple CV syllables was performed in a similar manner by PWC and controls without any significant differences in terms of their durations, displacements, and variability.
Discussion

The results regarding the higher variability in durations and displacements for the three people who clutter, compared to those for people who do not are consistent with the similar findings on stuttering (Caruso, Abbs, & Gracco, 1988; van Lieshout, Hulstijn, & Peters, 2004). The increased articulatory variability in the fluent speech of stutterers in those studies was interpreted, for example, as a consequence of different articulatory strategies in order to avoid dysfluencies (Ward, 1997), as well as an instability in the critical spatial-temporal relationship in the command execution in the central nervous system (Zimmermann, 1980). Since no significant articulatory differences between controls and speakers with cluttering were found for syllable repetitions, the effects of the linguistic complexity have to be taken into account as well.

Conclusion

In general, the study could not confirm that persons who clutter use the slowed and impaired tongue movements suggested by Lees et al. (1996) and by Daly and Burnett (1996). The most important findings for the speakers with cluttering were: (1) the reduction of tongue tip movements that could not be segmented due to missing movement in the onsets and offsets; (2) the complete deletion of movements by one speaker; and (3) a significantly higher variation in the durations and displacements of articulatory movements.

From a clinical perspective, an instruction that is based on increasing movement amplitudes would seem to have the automatic consequence of reducing rate, which would result in more intelligible speech. Therefore visual feedback which shows the produced target undershoot could be effective and should be examined.

References


This paper presentation is based on the accepted manuscript “Articulatory variability in cluttering” for publication in *Folia Phoniatica et Logopaedica.*
Spectrographic Characteristics of Cluttered Speech Rate

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*Adelphi University
**Missouri State University
***West Virginia University

Introduction and Methodology

In previous studies of the articulatory syllable rates of clutterers and matched controls executing diadochokinetic (DDK) tasks (Raphael, Bakker, Myers, St. Louis, & Mac Roy, 2001; Raphael, Bakker, Myers, St. Louis, & Macroy, 2004; Raphael, Bakker, Myers, St. Louis, & Fichtner, 2005), we have found that clutterers produce syllables: (1) slightly more slowly than controls at self-selected, comfortable rates; (2) more rapidly than controls at very fast rates; (3) at the same rate as controls at slow, modeled rates, and (4) less accurately when trying to match the slow rates of experimenters.

We were aware that the DDK tasks were largely devoid of linguistic content (although we did have subjects repeat real words modeled after the DDKs, for example, the word “topical,” modeled on the syllabic triad [təpəkə]). In order to provide more linguistic content to our corpus, we designed the experimental protocol to include a variety of tasks in addition to the DDKs, including conversation, a reading passage, recitation of nursery rhymes (from memory) and a sentence repetition task. In this report we will discuss the data derived from the reading, recitation and sentence repetition tasks.

Subjects were recorded in a quiet environment, most often the speech science laboratory at Adelphi University. Recordings were made on a Sony Portable DAT
The participants in the study read the first paragraph of the "The Rainbow Passage," a selection frequently used by speech scientists and clinicians in the United States to obtain speech samples. Participants were asked first to read the paragraph at a self-selected "comfortable" rate and then at an unspecified "faster" rate. In this study, we report rate data, in terms of syllables per second, for analyses of the second and fifth sentences of the paragraph. Those sentences, respectively, were "The rainbow is a division of white light into many beautiful colors," and "People look, but no one ever finds it".

At the self-selected comfortable rate, the average syllable per second (SPS) rates for the sentences are shown in Table 1.

Table 1: Articulatory Rates of Clutterers and Controls for 2 Sentences from the Rainbow Passage (Syllables/sec.)
Clearly, the SPS rates for the two groups of subjects show little difference at the comfortable rates which differ by no more than .21 SPS for sentence #5 and which are virtually identical for sentence #2. At the faster rates, there is only a .08 SPS difference for sentence #2, although the clutterers did, on average, produce .6 more SPS for sentence #5.

The ranges of values for both groups of subjects (Table 2) suggest one of the reasons for the absence of large differences in SPS rates:

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Rate Condition</th>
<th>Clutterers</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>Comfortable</td>
<td>6.15</td>
<td>6.14</td>
</tr>
<tr>
<td>#2</td>
<td>Faster</td>
<td>7.32</td>
<td>7.40</td>
</tr>
<tr>
<td>#5</td>
<td>Comfortable</td>
<td>5.59</td>
<td>5.38</td>
</tr>
<tr>
<td>#5</td>
<td>Faster</td>
<td>7.40</td>
<td>6.80</td>
</tr>
</tbody>
</table>

Table 2: Ranges of Articulatory Rates of Clutterers and Controls for 2 Sentences from the Rainbow Passage (Syllables/sec.)

At first glance, the greater variability in the clutterers' ranges, compared to the ranges of the controls, is striking: In every instance the range of values of the controls lies within the range of the clutterers. It should be pointed out, however, that two or
three outliers among the clutterers provided the most extreme values for the ranges of that subject group. Even with those values eliminated, however, the basic picture remains unchanged. There is greater variability in the range data of the clutterers. Perhaps more importantly, the overlap of the ranges indicates that there are many clutterers who produce syllables more slowly than the controls and vice-versa.

Finally, for the reading task, let us look at the differences between the slow and fast rates of each group, shown in Table 3:

Table 3: Differences Between Slow and Faster Rates for Clutterers and Controls for 2 Sentences from the Rainbow Passage (Syllables/sec.)

<table>
<thead>
<tr>
<th>Rates</th>
<th>Sentence #2</th>
<th>Sentence #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfortable</td>
<td>6.15</td>
<td>5.59</td>
</tr>
<tr>
<td>Faster</td>
<td>7.32</td>
<td>7.40</td>
</tr>
<tr>
<td>Difference</td>
<td>+1.17</td>
<td>+1.81</td>
</tr>
<tr>
<td>Comfortable</td>
<td>6.14</td>
<td>5.38</td>
</tr>
<tr>
<td>Faster</td>
<td>6.88</td>
<td>6.80</td>
</tr>
<tr>
<td>Difference</td>
<td>+0.74</td>
<td>+1.42</td>
</tr>
</tbody>
</table>

In general, the clutterers seem to have been able to increase their SPS rate somewhat more effectively than the controls, although, again, the differences are small: The clutterers, on average, were able to increase their rates of syllable production .43 more SPS than the controls for sentence #2, and .39 more SPS than the controls for sentence #5.

Recitation Task: Nursery Rhymes
As in the reading task, subjects were asked to recite a nursery rhyme of their choice from memory at a self-selected “comfortable” rate, and then to repeat it at an unspecified “faster” rate. Most subjects selected either “Jack and Jill,” or “Humpty-Dumpty,” although other nursery rhymes were also selected. The average SPS rates are shown below in Table 4:

Table 4: Articulatory Rates of Clutterers and Controls Reciting Nursery Rhymes (Syllables/sec.)

<table>
<thead>
<tr>
<th>Rate Condition ▼</th>
<th>Clutterers</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfortable</td>
<td>4.94</td>
<td>4.67</td>
</tr>
<tr>
<td>Faster</td>
<td>5.59</td>
<td>6.04</td>
</tr>
</tbody>
</table>

For this task we once again find only small differences between the groups. The control group, fact, displays a higher SPS rate than the cluttering group in the faster rate condition: .45 SPS greater. In contrast, the clutterers produced .27 SPS more than the controls at the comfortable rate.

The ranges of SPS values for the two groups are very much like those for the reading passage: With the exception of the comfortable rate, the controls’ ranges lie within those of the clutterers (Table 5):

Table 5: Ranges of Articulatory Rates of Clutterers and Controls Reciting Nursery Rhymes

<table>
<thead>
<tr>
<th>Rate Condition ▼</th>
<th>Clutterers</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfortable</td>
<td>3.53 —► 7.00</td>
<td>3.05 —► 5.85</td>
</tr>
<tr>
<td>Faster</td>
<td>4.29 —► 7.78</td>
<td>4.72 —► 7.50</td>
</tr>
</tbody>
</table>
The overlap of the ranges again indicates that there are clutterers producing syllables more slowly than controls at both rates, and vice-versa.

If we look again at a comparison of the averaged rate increases from the comfortable to the faster rate, we find that the increase in SPS from the comfortable to the faster rate was virtually identical for the two groups: The clutterers’ increase was 1.37 SPS; the controls’ increase was 1.39 SPS.

**Sentence Repetition Task**

For the sentence repetition task, the participants were asked to repeat 4 sentences spoken by the experimenter. Each sentence comprised 10 syllables. (For example, “Mary ran when she heard the school bell ring.”) No directions were given with regard to the rate of the repetition. Nonetheless, with one exception, the participants repeated the sentences at a rate that was identical to or faster than the experimenter’s rate. The exception was a clutterer whose average syllable rate for the four sentences was .31 SPS slower than that of the experimenter. The averaged syllable rates of the four sentences for the experimenters, clutterers and controls are shown in Table 6:
Table 6: Comparison of Experimenteers’ Mean Articulatory Rates with those of Clutterers and Controls for Sentence Repetition (Syllables/sec.)

<table>
<thead>
<tr>
<th>Clutterers’ Mean Rate</th>
<th>Experimenters’ Mean Rates</th>
<th>Controls’ Mean Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.98</td>
<td>4.04</td>
<td>4.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.74</td>
</tr>
</tbody>
</table>

The ranges of SPS rates reveal again that there is considerable overlap between experimenter, clutterers and controls, with the experimenters’ rates somewhat slower than those of either the clutterers or controls (Table 7):

Table 7: Comparison of Experimenteers’ Range of Articulatory Rates with those of Clutterers and Controls for Sentence Repetition (Syllables/sec.)

<table>
<thead>
<tr>
<th>Range of Clutterers’ Repetition Rates</th>
<th>Range of Experimenters’ Repetition Rates</th>
<th>Range of Controls’ Repetition Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.73 ▬► 5.75</td>
<td>3.62 ▬► 4.36</td>
<td>3.40 ▬► 5.45</td>
</tr>
<tr>
<td>3.34 ▬► 4.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

The data reported here indicate that clutterers do not produce syllables at rates that are significantly higher than those of non-clutterers. To be sure, some clutterers’
SPS rates exceed those of some non-clutterers, but the same can be said for the non-clutterers vis-a-vis the clutterers.

This leaves open the question of what causes clutterers to be perceived as speaking rapidly. The answer to this question may lie in further analysis, particularly of the conversational speech in our corpus. It is important to remember that the parts of the corpus thus far analyzed involve little cognitive challenge for the talkers, and in the case of the DDKs, little linguistic content. In preliminary analyses of the conversational speech of clutterers (Bakker, Raphael, Myers & St. Louis, 2000), we observed that the subjects tended to omit syllables while maintaining a syllable production rate that was not noticeably excessive. It is quite possible that deleted/elided syllables contribute to the perception of rapid speech. Further, the data presented here are not based on spoken material in which the rate of syllable production is irregular. The irregularities of rate that may be found in the discourse of clutterers are also likely to cause the perception of rapidity in those portions of utterances that are more quickly articulated than others. We thus plan to extend our analyses to the conversational speech of clutterers and non-clutterers.

References


A survey of cluttering instruction in fluency courses

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Abstract

This study examined the way in which university faculty cover cluttering in fluency disorder courses. Faculty teaching undergraduate and/or graduate fluency disorder courses in the United States, Canada, and Europe were surveyed. The survey examined the amount of time devoted to cluttering, materials used to educate students about cluttering, and rationales behind these decisions. Results indicated that the majority of faculty surveyed includes a cluttering section in their course, with an average of 100 minutes devoted to the topic. Implications for clinician confidence and competence in evaluating and treating cluttering are discussed.

Background

Research reports have repeatedly shown that speech-language pathologists (SLPs) have a low level of confidence when working with fluency clients (Brisk, Healey, & Hux, 1997; Kelly et al., 1997; Mallard, Garner & Downey, 1988; Sommers & Caruso, 1995; St. Louis & Durrenberger, 1993; Yaruss & Quesal, 2002). In spite of these findings, the clinical and educational requirements in fluency disorders for speech-language pathology students have been lowered over the years (ASHA, 1993; ASHA, 2000). Although the most recently available survey has shown a slight increase in the confidence of SLPs working with individuals who stutter (Brisk, Healey, & Hux, 1997),
the confidence of slps in the area of fluency disorders is still insufficient (Yaruss & Quesal, 2002). Lack of sufficient inservice opportunities (Sommers and Carusso, 1995), lack of knowledge about newly devised, successful training programs (Crichton-Smith, Wright, & Stackhouse, 2003) and lack of sufficient coursework and academic training (Yaruss & Quesal, 2002) are among the potential causes of this lowered confidence.

Purpose

The studies conducted thus far addressed the skills and confidence levels of SLPs in the area of stuttering, specifically; the skills and confidence levels of clinicians working with persons who clutter has yet to be surveyed. Moreover, the data in prior studies were only from programs in the United States (U. S.). While research regarding clinician confidence in working with stuttering has come from within the U. S., it is only in recent years that there has been more interest in cluttering research within the U. S.. Much of the research regarding cluttering began in countries outside of the U. S. (Myers, 1996). Consequently, it would be interesting to examine how this topic is handled in training programs outside of the U. S. The purpose of this study is therefore to investigate the amount and type of training that clinicians receive in the area of cluttering in Communication Sciences and Disorders programs within and outside of the U. S.

Methods

Participants
Participants were university faculty members teaching undergraduate and/or graduate courses in fluency disorders within the past two years in Communication Sciences and Disorders programs in the United States, Europe and Canada.

Data Collection

A survey was compiled and sent to fluency instructors in university programs throughout the United States, Europe, and Canada. The list of names of universities in the United States was compiled from the directory of the Council of Academic Programs in Communication Sciences and Disorders. The list of European and Canadian universities was compiled by an internet search of speech-pathology training programs. The survey was distributed by e-mail to 40 participants, and contained 5 questions related to instruction concerning cluttering. Approximately three months after the initial email was sent out, a second request was sent to non-respondents.

Data Analysis

The Initial response rate was 33%. After the second email, the response rate increased to 55%. As some respondents taught more than one course, a total of 27 courses was analyzed. Data were analyzed and percentages were calculated for the following variables: graduate vs. undergraduate course; required vs. elective course; semester, trimester, quarter, or other system. The mean number and range of minutes spent on cluttering were calculated. Materials used were categorized as follows, and the appropriate percentages were calculated for each category: textbooks, specific textbook chapters, peer-reviewed journal articles, audio and/or video samples, lecture notes, student projects/tests, writing samples, other resources, and ambiguous responses. Rationales for choosing to cover or not cover the topic of cluttering, as well as additional comments about teaching cluttering, were analyzed qualitatively for any thematic content.
Results

Course data

Results indicate that 67% (18) of fluency disorder courses were graduate, 30% (8) undergraduate and 4% (1) included both undergraduate and graduate students in the same class. Of these courses, 81% (22) were required, while 15% (4) were elective, and 4% (1) of the instructors did not respond to this question. The great majority (93%, or 25) of the courses were taken in a semester system, while 4% (1) were taken in a trimester system, and for 4% (1) there was no response to this question. Cluttering was taught at least to some extent in 96% (26) of fluency courses, and not taught in 4% (1) of fluency courses.

Time spent on instruction

Findings document that cluttering is included in 96% (26) of the fluency courses identified by this study, with an average of 100 minutes total and a range from 0 to 240 minutes devoted to the topic. The mode of the distribution was 60 minutes.

Materials used in instruction

The most frequently cited materials for teaching this topic (cited by 50% of respondents) were textbook chapters devoted specifically to cluttering or to the topic of “other fluency disorders” (i.e. other than stuttering) in general.

Rationales for inclusion (or lack of inclusion) of the topic of cluttering

The three most frequently cited rationales (29%, 21%, and 21% of responses, respectively) for inclusion of cluttering within fluency courses were: 1) to teach students
differential diagnosis and treatment for stuttering vs. cluttering; 2) to provide a comprehensive discussion of all fluency disorders, of which cluttering is considered a part; 3) to increase student awareness of other fluency disorders. The two most frequently cited rationales (33% and 22% of responses, respectively) for not spending more time on this topic were: 1) the low incidence of cluttering; and 2) time constraints for coverage of fluency disorders in general and cluttering specifically.

Discussion

Small but important

Implications for these data are that among the majority of faculty surveyed, cluttering is considered a small but important aspect of student training in the U. S. Respondent 14 acknowledged both that the disorder has a low incidence of occurrence, and that coverage of the disorder is important, given the fact that students tend to be less familiar with cluttering than with stuttering. Respondent 18 noted that because of its low incidence, cluttering is often not seen in the clinic; therefore, without course training, students will receive no training in the content area at all. Lack of training is likely to result in less competent and confident SLPs, and, given student unfamiliarity with the topic, perhaps even more than is the case with stuttering. Two respondents (2,10) illustrated this possibility, stating that they receive phone calls from former students seeking advice on how to treat cluttering. Respondent 21 indicated that cluttering is often misdiagnosed, and that therefore content material regarding cluttering should be presented at different times throughout a student’s coursework to facilitate increased familiarity with and recall of its symptoms. In sum, the U. S. faculty surveyed certainly felt strongly that even if only a small section of a fluency course is devoted to cluttering, teaching such a section is a priority.
International differences

There were international variations in how cluttering was addressed. For example, Respondent 5 reported that while in the United States, academic programs must “fight” to keep fluency coursework in their curriculums, in Europe an entire course might be devoted to cluttering. In fact, the title of one fluency course taught in Europe was “Stuttering and Cluttering,” suggesting the importance of this topic within this course. Yet even in this course, only one two-hour lecture is devoted to cluttering. By contrast, zero minutes are devoted to the topic of cluttering in Canada, with time constraints cited as the reason. It seems that although the term cluttering may be more widely used in Europe, faculty in all geographic locations experience the same time constraints for adequate coverage of the topic within fluency disorder courses.

Reasons for low levels of coverage

Given the qualitative and quantitative responses regarding time constraints, the data suggest that more time would be spent on cluttering if more time were available. Several respondents indicated that there was not enough time in a semester to address stuttering, and therefore felt that they could not justify spending more time on cluttering. Thus, the lack of sufficient time to cover stuttering apparently negatively affects the coverage of cluttering.

A number of additional reasons were given why cluttering can not receive more attention in fluency disorders course work. One theme that was expressed by more than one participant was the paucity of research on the topic, and inconsistent findings within the existing research. This supports the need for a consistent definition of cluttering and more research following this definition.
Caveats

It should be noted that potential response bias exists in that those most interested in the topic of cluttering may have been those most likely to respond to the survey. In fact, 75% of respondents hold the title Board Recognized Specialist in Fluency Disorders (BRS-FD). Although there is currently no known research to indicate what percentage of faculty who teach a course in fluency disorders holds the title BRS-FD, the percentage is likely to be lower than the percentage of respondents to this survey, given the shortage of faculty in Communicative Disorders in general (Gallagher, 2006). In addition, 100% of respondents have presented and/or published on fluency-related topics within the past two years. Those specializing in fluency disorders in one way or another may have a greater interest in the topic of cluttering than non-specialist SLPs. To the extent this bias occurred, the degree to which cluttering is covered in coursework could be lower than the present data reflect. A second limitation of this study is that the relatively small sample size limits generalizability of the results. These limitations call for further investigation within a larger population of instructors, including non-specialists. Also, the impact of time spent in cluttering training upon practicing clinicians is in need of further investigation.

Conclusion

Faculty in the United States, Canada, and Europe acknowledge the importance of including information on cluttering in fluency coursework. Despite this acknowledgment, time constraints and limited research on cluttering seem to especially prevent increased time spent on this topic. To be certain such hindrances make covering cluttering a challenge, and are perhaps creating a vicious cycle. More research on cluttering is needed. Current students form part of the pool of future researchers. Yet an interest in engaging in cluttering research cannot be generated among one’s students if those students cannot differentially diagnose cluttering from stuttering. It is hoped that the results of this study will encourage work on continuing to devote
classroom time to the topic of cluttering, while continuing to engage in sound research on the topic to drive this classroom education.

References


Introduction

There is little empirical information on cluttering prevalence, although there is speculation that cluttering is less prevalent than stuttering (Daly & Burnett, 1999; St. Louis Raphael, Myers, Bakker, 2003). Becker and Grundmann (1971) reported 1.8% of 7 and 8 year-olds in a German school manifested cluttering. Among groups of stutterers, Freund (1952) reported 22% who also cluttered. Also, 51% of his pure stutterers had relatives with fluency disorders compared to 93% for the stuttering-cluttering group. Preus (1981) reported 32% of 100 adolescent stutterers also cluttered. Pure clutterers appear to be rare (Dalton & Hardcastle, 1977; St. Louis & Myers, 1997). Daly (1996) speculated that about 5% of all those presenting with fluency disorders are pure clutterers. Surveys of the awareness of speech-language pathologists, replicated in several countries, suggest that cluttering is known, but not well-known (Georgieva, 2001; St. Louis & Hinzman, 1986; St. Louis & Rustin, 1992), indicating uncertainty and lack of confidence in therapy.

Public awareness is not the same as prevalence but is related to it. If many people are aware of a disorder, then we can assume that either it: (a) exists within the population in sufficient numbers to demand awareness; (b) has been the subject of considerable media, cultural, or historical focus; or (c) both. When confronted with the term, “cluttering,” most people think of “messiness,” which is the term’s dictionary meaning. Both “clutterer” and “person who clutters” were included in a study on person-
first versus direct labeling (St. Louis, 1999). Both were found generally to be slightly less negative terms than “stutterer” or “person who stutters.” If used by professionals, family members, victims of discrimination, or individuals with disabilities, cluttering and stuttering terms had similar connotations.

The purposes of this study were: (a) to determine the extent to which the public (i.e., adults with little or no knowledge of speech-language pathology) are aware of persons manifesting the fluency disorder of cluttering, (b) to identify differences, if any, in persons identified as cluttering versus those identified as stuttering, and (c) to identify differences in awareness of cluttering in different countries and with different languages.

**Method**

Authors and/or trained assistants distributed questionnaires to convenience samples of adults over 18 years of age in four countries: USA, Bulgaria, Turkey, and Russia in this and the following companion study (St. Louis, Coskun, Ozdemir, Topbas, Goranova, & Filatova, 2007). Distributors gave questionnaires to friends, acquaintances, relatives, or others who were available. Distributors were instructed to avoid giving questionnaires to speech-language pathology students or practitioners, and none of the respondents identified themselves as such. The questionnaires provided the following lay-oriented definitions of cluttering and stuttering:

“Cluttering is a speech problem in which a person’s speech is either too fast, too jerky, or both. Most people who clutter seem to run their words or sentences together, and they often have many more fillers, hesitations, revisions, or other breaks in their speech than normal speakers do. Their speech sounds “cluttered” as though they do not have a clear idea of what they want to say, and they are often not aware that they have a speech problem.”
“Stuttering is a speech problem in which a speaker typically repeats or prolongs (draws out) parts of words, or gets stuck or blocked on words. Sometimes stuttering consists of strategies that try to reduce or avoid repeating, prolonging, or blocking. Stuttering is often associated with psychological stress or unpleasant feelings. Finally, the person who stutters often experiences a loss of voluntary control in saying certain words.”

For this study, the questionnaire asked respondents to identify up to seven children and/or seven adults who either cluttered or stuttered. For each person identified, respondents were asked to provide information on the individual’s age, sex, relation (blood or marriage), severity, and “other problems” that the person might have. It was suggested that a person might both clutter and stutter.¹

Next, the questionnaire asked for respondents’ beliefs about, feelings toward, and reactions to both disorders (see St. Louis, et al., 2007). Finally the questionnaire requested demographic information about each respondent. The original English questionnaire (St. Louis & McCaffrey, 2005) was translated to Bulgarian, Turkish, and Russian. These, then, were distributed, respectively, in Bulgaria, Turkey, and Russia.

**Results**

Table 1 provides a summary of selected demographic characteristics of the four samples. Due to the omission of the demographic section, the Bulgarian respondents did not provide all of the standard demographic information. In some cases, estimates are provided on a minority of respondents for whom some of the information was available.

Table 1. *Demographic data.*
<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>Turkey</th>
<th>Russia</th>
<th>Bulgaria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of respondents</td>
<td>60</td>
<td>90</td>
<td>85</td>
<td>67</td>
</tr>
<tr>
<td>Sex (%M / %F)</td>
<td>17% / 83%</td>
<td>48% / 52%</td>
<td>15% / 85%</td>
<td>21% / 79%*</td>
</tr>
<tr>
<td>Mean age (Years)</td>
<td>26.4</td>
<td>31.2</td>
<td>30.8</td>
<td>33.4 yr*</td>
</tr>
<tr>
<td>Education (Total years)</td>
<td>13.5</td>
<td>12.4</td>
<td>15.4</td>
<td>Unavailable</td>
</tr>
<tr>
<td>Marital status (%)</td>
<td></td>
<td></td>
<td></td>
<td>Unavailable</td>
</tr>
<tr>
<td>Single</td>
<td>77%</td>
<td>37%</td>
<td>73%</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>18%</td>
<td>56%</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Native language (%)</td>
<td>100% English</td>
<td>100% Turkish</td>
<td>98% Russian</td>
<td>Unavailable</td>
</tr>
<tr>
<td>Occupation (%)</td>
<td></td>
<td></td>
<td></td>
<td>Unavailable</td>
</tr>
<tr>
<td>Professional</td>
<td>30%</td>
<td>32%</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>20%</td>
<td>15%</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Self-identified clutterer (%)</td>
<td>1.7%</td>
<td>8.9%</td>
<td>1.2%</td>
<td>0%*</td>
</tr>
<tr>
<td>Self-identified stutterer (%)</td>
<td>3.5%</td>
<td>5.6%</td>
<td>0%</td>
<td>3.0%*</td>
</tr>
<tr>
<td>Self-identified clutterer-stutterer (%)</td>
<td>1.72%</td>
<td>2.2%</td>
<td>0%</td>
<td>0%*</td>
</tr>
<tr>
<td>Speech-language clinician (%)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Past speech therapy (%)</td>
<td>3.3%</td>
<td>1.1%</td>
<td>1.2%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Past self help (%)</td>
<td>0%</td>
<td>1.1%</td>
<td>1.2%</td>
<td>0%</td>
</tr>
<tr>
<td>Identified ≥ 1 clutterer or stutterer (%)</td>
<td>51.7%</td>
<td>61.1%</td>
<td>64.7%</td>
<td>55.2%</td>
</tr>
</tbody>
</table>

*Estimates from limited data available

Table 2 lists selected results for the four sample groups and for all the individuals identified with fluency disorders as a whole. A total of 335 individuals with cluttering, stuttering, or cluttering and stuttering were identified in the four samples.
Table 2. *Selected awareness results.*

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>Turkey</th>
<th>Russia</th>
<th>Bulgaria</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total clutterers and stutterers identified (number)</td>
<td>51</td>
<td>119</td>
<td>102</td>
<td>63</td>
<td>335</td>
</tr>
</tbody>
</table>

Fluency conditions identified (number per respondent)

<table>
<thead>
<tr>
<th></th>
<th>Clutterer</th>
<th>Stutterer</th>
<th>Clutterer-Stutterer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.28</td>
<td>.50</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>.54</td>
<td>.62</td>
<td>.16</td>
</tr>
<tr>
<td></td>
<td>.39</td>
<td>.81</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>.18</td>
<td>.70</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>.33</td>
<td>.60</td>
<td>.07</td>
</tr>
</tbody>
</table>

Fluency conditions by age and disorder (%)

<table>
<thead>
<tr>
<th></th>
<th>Clutterer—Child</th>
<th>Clutterer—Adult</th>
<th>Stutterer—Child</th>
<th>Stutterer—Adult</th>
<th>Clutterer-Stutterer—Child</th>
<th>Clutterer-Stutterer—Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11.8</td>
<td>19.6</td>
<td>13.7</td>
<td>3.2</td>
<td>2.0</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>19.3</td>
<td>21.9</td>
<td>18.6</td>
<td>15.9</td>
<td>4.2</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td>13.7</td>
<td>16.0</td>
<td>16.7</td>
<td>20.6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>3.2</td>
<td>15.9</td>
<td>16.7</td>
<td>54.0</td>
<td>1.6</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>13.4</td>
<td>19.4</td>
<td>16.7</td>
<td>43.3</td>
<td>2.1</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Sex ratio by age and disorder (%M / %F)

<table>
<thead>
<tr>
<th></th>
<th>Clutterer—Child</th>
<th>Clutterer—Adult</th>
<th>Stutterer—Child</th>
<th>Stutterer—Adult</th>
<th>Clutterer-Stutterer—Child</th>
<th>Clutterer-Stutterer—Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>67 / 33</td>
<td>40 / 60</td>
<td>71 / 29</td>
<td>91 / 9</td>
<td>100 / 0</td>
<td>60 / 40</td>
</tr>
<tr>
<td></td>
<td>48 / 52</td>
<td>77 / 23</td>
<td>68 / 32</td>
<td>86 / 14</td>
<td>80 / 20</td>
<td>78 / 22</td>
</tr>
<tr>
<td></td>
<td>57 / 43</td>
<td>44 / 56</td>
<td>82 / 18</td>
<td>78 / 22</td>
<td>—</td>
<td>86 / 14</td>
</tr>
<tr>
<td></td>
<td>100 / 0</td>
<td>78 / 22</td>
<td></td>
<td>90 / 10</td>
<td>100 / 0</td>
<td>67 / 33</td>
</tr>
<tr>
<td></td>
<td>56 / 44</td>
<td>62 / 38</td>
<td>69 / 31</td>
<td>85 / 15</td>
<td>86 / 14</td>
<td>71 / 29</td>
</tr>
</tbody>
</table>

Severity by age and disorder (Mild / Moderate / Severe) (% each disorder)
Cluttering may be more well known than the literature suggests (e.g., St. Louis et al., 2003), with combined categories of cluttering and stuttering-cluttering accounting for 40% of the total fluency disorders identified compared to 60% for stuttering. For all groups, the most commonly identified fluency disorders were stutterers, followed by pure clutterers, and then by clutterer-stutterers. In addition, more adults than children were identified in the cluttering, stuttering, and mixed groups, and, except for the Bulgarian sample, the ratio of adults to children typically was higher for stuttering and cluttering-stuttering than for cluttering alone.

Approximately one-half to one-third of the respondents identified at least one person who cluttered, stuttered, or both. The most anyone identified was seven. [Based on these samples, on average, a young adult can identify one person who either stutters (0.6), clutters (0.3), or both (0.1). Another way to conceptualize the overall data is to determine the average number of fluency disorders identified by respondents in each sample. Dividing the number of fluency disorders in each sample by the number of respondents, the averages are as follows: cluttering—.33, stuttering—.60, and cluttering and stuttering combined—.07, for a total of 1.00. Overall, these proportions are virtually identical to the overall proportions for the three fluency disorder groups indicated in Table 2. This need not necessarily be the case, i.e., absolute numbers could change,
yet the proportions could be the same. In other words, the average respondent is aware of exactly one person with a fluency disorder, who most likely stutters but could clutter, and more rarely, could clutter and stutter. It should be noted that the Russian respondents did not identify anyone in the dual category. The Russian sample, incidentally, had the lowest self-reports for fluency disorders, 1.2% clutterers and no stutterers or clutterer-stutterers.

Lay persons reported knowing far more males than females who stutter but, as seen in Table 2, the sex ratio for cluttering appears to be different. In three of eight sample comparisons, more females than males were reported to clutter (i.e., USA and Russian adults and Turkish children).

There is no way to verify that respondents interpreted severity levels equivalently; however, when descriptors were provided, “moderate” was the most common descriptor, followed by “mild,” and then by “severe.” Considering the total group, the relative percentage profiles are strikingly similar for cluttering and stuttering, but quite different for mixed disorders. This was noteworthy given that we assumed that stuttering would be viewed as more serious than cluttering. In the USA, Turkey, and Bulgaria, where clutterer-stutterers were identified, although the number of such individuals was low, they had the highest relative likelihood of having other coexisting disorders.

Profiles for the relationship between respondents and the persons with fluency disorders identified (not shown in Table 2) were different for each sample. Nevertheless, there was an overall trend of identifying the greatest number among nonrelatives, followed by blood relatives, and then by relatives by marriage for both children and adults for cluttering and stuttering.

We were intrigued that, given the definitions provided, people can and do differentiate cluttering from stuttering in themselves and others. The literature might have predicted familiarity with stuttering but not with cluttering; however, the results of this study do not support that assumption. Of course, the questionnaire indicated that cluttering and stuttering are not the same. Nevertheless, the fact that respondents, on
their own, indicated that some individuals both clutter and stutter adds strong support for the fact that the two disorders either are seen—or can be seen—as separate conditions. Moreover, the fact that few of the respondents were familiar with treatment or self-help for cluttering or stuttering, or few of them had any personal experience with either disorder, adds further support for the notion that cluttering might not be as unfamiliar as we had assumed it would be.

The lack of any identified clutterer-stutterers in Russia might suggest that translations to Bulgarian, Turkish, and Russian affected the results. However, the data on attitudes (St. Louis, et al., 2007) indicates that both cluttering and stuttering are viewed by Russians in much the same way as they were by the other three country groups, and that the Russian view was especially similar in many ways to that of the Americans. If translations made a big difference in the interpretation of cluttering and stuttering, one would expect those differences to be manifest in attitudes as well.

Caution must be exercised in interpreting these results, since differences in samples as noted in Table 1 could affect the results. Nevertheless, there were striking similarities observed in some attitudes for cluttering and stuttering from all four groups in the companion study (St. Louis, et al., 2007), suggesting that demographic differences did not dramatically affect the results.

This study supports some professional opinions about cluttering, e.g., that cluttering and stuttering are different fluency disorders and that cluttering and stuttering often coexist. On the other hand, the study provides little support for the notion that stuttering is very well known while cluttering is hardly known at all. Neither does it provide evidence that the sex ratios for cluttering and stuttering are similar. In summary, while views of lay people cannot be taken as valid indicators of the epidemiology of cluttering, the authors submit that public perceptions and knowledge can provide useful information and hypotheses about the distribution of cluttering as it relates to stuttering.

Footnote
In the oral presentation, the authors incorrectly asserted that the questionnaire did not suggest to respondents that a person could be identified as both cluttering and stuttering.

References


Public Attitudes Toward Cluttering and Stuttering: USA, Turkey, Bulgaria, and Russia

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**Anadolu University, Eskisehir, Turkey
***SouthWest University, Blagoevgrad, Bulgaria
****Moscow State Pedagogical University, Moscow, Russia

Introduction

There are no published studies of public attitudes toward cluttering. In one study of public opinions about terminology, the terms, “clutterer” and “person who clutters,” were rated less negatively than opinions of “stutterer” and “person who stutters” (St. Louis, 1999). In that study, no definition of cluttering was provided; it appeared from some comments written that many respondents interpreted “cluttering” as being messy or untidy rather than as a communication disorder. By contrast, numerous studies have documented that the public has predictable and somewhat negative attitudes toward people who stutter (e.g., Blood, 1999; Cooper & Cooper, 1996; Craig, Tran, & Craig, 2003; Doody, Kalinowsky, & Armson, 1993; Klassen, 2002; St. Louis, 2005; St. Louis, Andrade, Georgieva, & Troudt, 2005). These and other studies have demonstrated that a “stuttering stereotype” exists which, among other characteristics, assumes that stutterers are shy, nervous, and experience psychological problems.

Purposes of this study were: (a) to generate preliminary data on attitudes (perceptions, beliefs, knowledge and reactions) of the general public toward cluttering, (b) to compare public attitudes toward cluttering with attitudes toward stuttering and other human attributes, and (c) to determine international differences in these attitudes.

Method
The current study is related to a series of pilot studies designed to develop a measure of public attitudes (opinions) toward stuttering internationally (St. Louis, 2005). Using an experimental version of the *Public Opinion Survey of Human Attributes* (POSHA-E), parallel versions of questionnaire items for cluttering and stuttering were prepared. Lay definitions for stuttering and cluttering were provided, and the questionnaire requested information about children and adults known by the respondents for either fluency disorder, or self-diagnoses thereof (see the previous companion article by St. Louis, Goranova, Georgieva, Coskun, Filatova, and McCaffrey [2007]). Thereafter, similar to previous POSHA-E pilot studies on stuttering (St. Louis, 2005), respondents were asked questions relating to their attitudes about cluttering and stuttering as well as a few questions wherein views about stuttering and cluttering could be compared with those of other human attributes that are typically perceived as positive (e.g., multilingual), neutral (e.g., left-handed), or negative (e.g., mentally ill). Finally, respondents filled out a section requesting biographical information.

The original English version of the questionnaire, distributed in the USA to 60 respondents (St. Louis & McCaffrey, 2005), was translated to Bulgarian, Turkish, and Russian and then distributed to convenience samples of 67, 85, and 90 young adults, respectively, in Bulgaria, Turkey, and Russia. St. Louis, et al. (2007) provides a summary of selected demographic data for the four samples, showing mean ages from 26 to 33 years and education beyond high school. For three of the samples wherein information was available, no speech-language pathologists were respondents, 18-56% were married, and 15-48% were students.

For most *POSHA-E* items, respondents circled numbers from 1-9, or “?” (for no opinion or unsure). After tabulating the data, a formula converted mean 1 - 9 scores to a -100 to +100 scale, where -100 = 1 (lowest rating), 0 = 5 (neutral rating), and +100 = 9 (highest rating).

**Results and Implications**
Table 1 shows the mean ratings for the four subject groups, and for all 302 respondents. T tests using the Bonferroni correction were run between for a multitude of pair-wise comparisons.

Table 1. Ratings for stuttering and eight other human attributes (converted from 1-9 scale to a scale from $-100$ to $+100$ with $0 =$ neutral).

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>Turkey</th>
<th>Russia</th>
<th>Bulgaria</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>My overall impression of a person who...</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>is intelligent</td>
<td>67</td>
<td>75</td>
<td>75</td>
<td>88</td>
<td>76</td>
</tr>
<tr>
<td>is multilingual</td>
<td>69</td>
<td>79</td>
<td>86</td>
<td>91</td>
<td>81</td>
</tr>
<tr>
<td>is a good talker</td>
<td>61</td>
<td>71</td>
<td>64</td>
<td>77</td>
<td>68</td>
</tr>
<tr>
<td>is left handed</td>
<td>17</td>
<td>13</td>
<td>21</td>
<td>32</td>
<td>21</td>
</tr>
<tr>
<td>is old</td>
<td>29</td>
<td>27</td>
<td>20</td>
<td>35</td>
<td>26</td>
</tr>
<tr>
<td>is overweight</td>
<td>-14</td>
<td>-39</td>
<td>-25</td>
<td>-20</td>
<td>-27</td>
</tr>
<tr>
<td>uses a wheelchair</td>
<td>3</td>
<td>20</td>
<td>6</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>is mentally ill</td>
<td>-5</td>
<td>-16</td>
<td>-44</td>
<td>-10</td>
<td>-20</td>
</tr>
<tr>
<td>has a stuttering disorder</td>
<td>-13</td>
<td>-13</td>
<td>-7</td>
<td>13</td>
<td>-4</td>
</tr>
<tr>
<td>has a cluttering disorder</td>
<td>-21</td>
<td>-15</td>
<td>-2</td>
<td>13</td>
<td>-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
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<th>Russia</th>
<th>Bulgaria</th>
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<td><strong>I would want to be a person who...</strong></td>
<td></td>
<td></td>
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<tr>
<td>is intelligent</td>
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</tr>
<tr>
<td>is multilingual</td>
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<td>95</td>
<td>86</td>
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<tr>
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<td>5</td>
<td>-16</td>
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<td>-12</td>
</tr>
<tr>
<td>is old</td>
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<td>-30</td>
<td>-71</td>
<td>-64</td>
<td>-53</td>
</tr>
<tr>
<td>is overweight</td>
<td>-89</td>
<td>-75</td>
<td>-94</td>
<td>-91</td>
<td>-86</td>
</tr>
<tr>
<td>uses a wheelchair</td>
<td>-86</td>
<td>-67</td>
<td>-95</td>
<td>-92</td>
<td>-84</td>
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</table>
is mentally ill  
has a stuttering disorder  
has a cluttering disorder  

The amount I know about people who…

<table>
<thead>
<tr>
<th></th>
<th>Clut</th>
<th>Stut</th>
<th>Clut</th>
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<th>Clut</th>
<th>Stut</th>
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<tbody>
<tr>
<td>are intelligent</td>
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<td>67</td>
<td>75</td>
<td>79</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>are multilingual</td>
<td>63</td>
<td>54</td>
<td>67</td>
<td>76</td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>are good talkers</td>
<td>67</td>
<td>56</td>
<td>64</td>
<td>79</td>
<td>66</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>are left handed</td>
<td>63</td>
<td>44</td>
<td>60</td>
<td>58</td>
<td>55</td>
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<tr>
<td>are old</td>
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<tr>
<td>use wheelchairs</td>
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<td></td>
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</tr>
<tr>
<td>are mentally ill</td>
<td>45</td>
<td>28</td>
<td>46</td>
<td>37</td>
<td>39</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>have stuttering disorders</td>
<td>34</td>
<td>34</td>
<td></td>
<td></td>
<td>29&quot;</td>
<td>42</td>
<td>34</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>have cluttering disorders</td>
<td>24</td>
<td>35</td>
<td>51</td>
<td>38</td>
<td>38</td>
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<td></td>
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</tbody>
</table>

My knowledge of cluttering/stuttering comes from...

<table>
<thead>
<tr>
<th></th>
<th>Clut</th>
<th>Stut</th>
<th>Clut</th>
<th>Stut</th>
<th>Clut</th>
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<th>Stut</th>
<th>Clut</th>
<th>Stut</th>
<th>Clut</th>
<th>Stut</th>
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<td>-80</td>
<td>-59</td>
<td>-83</td>
<td>-98</td>
<td>-95</td>
<td>-85</td>
<td>-91</td>
<td>-82</td>
<td>-88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>others' experience/s?</td>
<td>-62</td>
<td>-23</td>
<td>-6</td>
<td>-16</td>
<td>-87</td>
<td>-22</td>
<td>-22</td>
<td>-20</td>
<td>-45</td>
<td>-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV, radio, films</td>
<td>-67</td>
<td>-8</td>
<td>-6</td>
<td>0</td>
<td>-78</td>
<td>-36</td>
<td>-11</td>
<td>-11</td>
<td>-41</td>
<td>-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>newspapers and books</td>
<td>-76</td>
<td>-39</td>
<td>-9</td>
<td>-10</td>
<td>-58</td>
<td>-4</td>
<td>-14</td>
<td>-3</td>
<td>-39</td>
<td>-13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>internet</td>
<td>-86</td>
<td>-69</td>
<td>-41</td>
<td>-48</td>
<td>-79</td>
<td>-60</td>
<td>-51</td>
<td>-64</td>
<td>-64</td>
<td>-60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>teachers</td>
<td>-75</td>
<td>-51</td>
<td>-44</td>
<td>-40</td>
<td>-87</td>
<td>-70</td>
<td>-45</td>
<td>-46</td>
<td>-64</td>
<td>-53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I believe cluttering/stuttering is caused by...
<table>
<thead>
<tr>
<th>Factors</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>genetic inheritance</td>
<td>-49 -17</td>
</tr>
<tr>
<td>psychological factors</td>
<td>18 28 52 52 31 74 58 65 40 56</td>
</tr>
<tr>
<td>learning or habits</td>
<td>4 9 17 9 -40 -35 -31 -25 -12 -12</td>
</tr>
<tr>
<td>trying to talk or think too fast</td>
<td>28 18 32 5 -5 -50 12 27 16 -4</td>
</tr>
<tr>
<td>a virus or disease</td>
<td>-67 -56 -22 -23 -76 -68 -34 -43 -50 -49</td>
</tr>
<tr>
<td>ghosts, demons, or spirits</td>
<td>-88 -92 -56 -56 -53 -54 -68 -65 -64 -66</td>
</tr>
</tbody>
</table>

**People who clutter/stutter...**

- can lead normal lives          | 75 78 76 75 74 80 83 89 76 80 |
- can interact with people       | 52 58 73 73 47 59 70 64 60 64 |
- can make friends               | 69 76 74 77 87 90 80 84 78 82 |
- can do well in school          | 67 79 76 75 78 81 75 75 74 78 |
- can get a job                  | 72 72 73 72 77 81 63 68 72 74 |
- can do any job they want       | 48 49 57 64 42 54 33 28 46 50 |
- can do well at work            | 74 81 75 76 82 76 75 77 80 80 |
- can raise a family             | 81 84 80 78 84 87 88 90 83 84 |
- are pleasant to be around      | 55 63 50 49 28 31 38 39 43 45 |
- are like everyone else         | 25 42 64 80 20 16 56 54 42 48 |
- can communicate effectively    | 13 27 49 43 33 34 62 74 39 43 |
- should work in jobs that require lots of talking | -67 -45 -1 5 39 -50 -36 -50 -34 -33 |
- are nervous or excitable       | 7 6 13 -7 -1 -11 -30 -27 0 9 |
- are shy or fearful             | -10 2 10 12 10 22 -8 20 2 15 |
- have lower-than-average intelligence | -80 -75 -67 -69 -80 -83 -80 -79 -76 -77 |

**If I were talking with a person who clutters/stutters, I would...**

- wait patiently during his/her cluttering/stuttering | 45 55 43 55 37 43 60 71 45 55 |
- ignore the cluttering/stuttering                      | 22 44 12 38 14 28 18 20 16 33 |
- tell the person to "slow down" or                     | -32 -27 33 40 -23 -35 -12 -23 -5 -9 |
"relax" 

make a joke about cluttering /stuttering  

If I were talking with a person who clutters/stutters, I would feel…

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>comfortable or relaxed</td>
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<td>-92</td>
<td>-54</td>
<td>-56</td>
<td>-88</td>
<td>-93</td>
<td>-74</td>
</tr>
<tr>
<td>curious to know more about cluttering/stuttering</td>
<td>-21</td>
<td>-6</td>
<td>31</td>
<td>42</td>
<td>-29</td>
<td>-30</td>
<td>-14</td>
</tr>
<tr>
<td>pity for the person</td>
<td>-21</td>
<td>-6</td>
<td>11</td>
<td>19</td>
<td>1</td>
<td>4</td>
<td>-29</td>
</tr>
<tr>
<td>embarrassed</td>
<td>-55</td>
<td>-47</td>
<td>-56</td>
<td>-53</td>
<td>-40</td>
<td>-52</td>
<td>-67</td>
</tr>
<tr>
<td>annoyed or angry</td>
<td>-62</td>
<td>-59</td>
<td>-66</td>
<td>-75</td>
<td>-56</td>
<td>-64</td>
<td>-87</td>
</tr>
<tr>
<td>afraid the cluttering/stuttering might affect or hurt me</td>
<td>-85</td>
<td>-93</td>
<td>-57</td>
<td>-59</td>
<td>-80</td>
<td>-79</td>
<td>-82</td>
</tr>
</tbody>
</table>

If the following people cluttered/stuttered, I would be concerned.

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>my neighbor</td>
<td>-61</td>
<td>-54</td>
<td>1</td>
<td>1</td>
<td>-66</td>
<td>-68</td>
<td>-21</td>
</tr>
<tr>
<td>my religious leader</td>
<td>-31</td>
<td>-34</td>
<td>7</td>
<td>-10</td>
<td>-30</td>
<td>-30</td>
<td>-48</td>
</tr>
<tr>
<td>my child's teacher</td>
<td>24</td>
<td>35</td>
<td>30</td>
<td>44</td>
<td>56</td>
<td>60</td>
<td>55</td>
</tr>
<tr>
<td>my husband or wife</td>
<td>28</td>
<td>39</td>
<td>58</td>
<td>56</td>
<td>61</td>
<td>71</td>
<td>59</td>
</tr>
<tr>
<td>my son or daughter</td>
<td>63</td>
<td>69</td>
<td>68</td>
<td>72</td>
<td>84</td>
<td>95</td>
<td>88</td>
</tr>
<tr>
<td>me</td>
<td>69</td>
<td>77</td>
<td>70</td>
<td>70</td>
<td>84</td>
<td>96</td>
<td>89</td>
</tr>
</tbody>
</table>

I believe cluttering/stuttering should be helped by…

<table>
<thead>
<tr>
<th></th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
<th>g</th>
</tr>
</thead>
<tbody>
<tr>
<td>a speech therapist or clinician</td>
<td>75</td>
<td>88</td>
<td>82</td>
<td>86</td>
<td>85</td>
<td>93</td>
<td>92</td>
</tr>
<tr>
<td>a psychologist, psychiatrist, or counselor</td>
<td>38</td>
<td>44</td>
<td>64</td>
<td>69</td>
<td>74</td>
<td>86</td>
<td>67</td>
</tr>
<tr>
<td>a medical doctor or pediatrician</td>
<td>10</td>
<td>42</td>
<td>19</td>
<td>29</td>
<td>20</td>
<td>17</td>
<td>39</td>
</tr>
<tr>
<td>the person who clutters /stutters himself/herself</td>
<td>6</td>
<td>17</td>
<td>-35</td>
<td>-8</td>
<td>25</td>
<td>35</td>
<td>-3</td>
</tr>
<tr>
<td>others who clutter/stutter</td>
<td>-4</td>
<td>8</td>
<td>-52</td>
<td>-38</td>
<td>-43</td>
<td>-41</td>
<td>-47</td>
</tr>
</tbody>
</table>

Statistically different comparisons for cluttering between countries (t tests using the Bonferroni correction): a–USA vs. Turkey; b–USA vs. Russia; c–USA vs. Bulgaria; d–Turkey vs. Russia; e–Turkey vs. Bulgaria; f–Russia vs. Bulgaria

Data for “amount I know about…” were transformed from 1-9 scales to 0-100.

Statistically significant comparison between cluttering vs. stuttering results (t tests using the Bonferroni correction), shown by boxes.
For the large majority of comparisons, similarities between mean values for cluttering and stuttering were more salient than differences. However, there were exceptions. In the context of the ten different attributes at the top of Table 1, cluttering differed statistically significantly from stuttering only for Russians, who indicated knowing much less about cluttering. Compared to stuttering in the rest of Table 1, Americans, Russians, and all respondents total indicated lower ratings for sources of knowledge for cluttering, significantly so for experience with other clutterers; TV, radio, and films; newspapers and books; and teachers. Turks’ ratings were lower for cluttering than stuttering for their own personal experience and from family or friends. Comparing cluttering to stuttering causes, Russians and all subjects combined rated psychological causes lower, trying to talk or think too fast higher, and “an act of God” lower. Turks, too, rated talking or thinking too fast higher for cluttering. American rated genetic causes lower for cluttering. Otherwise the only other overall significant differences were for a lower likelihood for ignoring cluttering compared to stuttering for Americans and all respondents and recommending a speech-language clinician (overall), mental health professional (Russians), or the affected person himself/herself to treat a stutterer versus a clutterer (overall).

Results for stuttering were similar to those in previous research (St. Louis 2005). Considering attitudes for cluttering, respondents’ overall impressions of cluttering in all four countries were relatively neutral. By contrast, respondents rated “wanting to” clutter even lower than “wanting to” have mental illness, use a wheelchair, or be overweight. Most respondents accepted the idea that cluttering has a psychological cause but rejected the idea that its cause is genetic. Failure to completely reject that cluttering is caused by a virus or disease; an “act of God”; or ghosts, demons, and spirits suggests similar stigmatizing attitudes for cluttering and stuttering in these samples. Similarly, negative ratings for beliefs that clutterers should work in jobs that require considerable talking (or other responsible positions) and views that clutterers might well be nervous or excitable, or shy and fearful, together reinforce a “cluttering stereotype” that is very similar to the well-known “stuttering stereotype.”
The study indicates that a cluttering definition can be translated to different languages with acceptably similar results. Although similarities far outweighed differences, some nationality comparisons are noteworthy. Russian and American respondents in this study were more similar in many attitudes than the other group comparisons. Turkish respondents appeared to be the most “open” and most comfortable around clutterers, but also the most pitying, most afraid and most concerned about cluttering neighbors than other three groups. Bulgarian respondents varied considerably, depending on specific questionnaire items.

In summary, attitudes toward cluttering may best be explained by a concept of “fluency disorders” that includes almost identical views of cluttering and stuttering. Nevertheless, the public appears to recognize these as two distinct disorders.

Footnote

1 A number of minor errors were uncovered in the original poster and have been corrected in this paper. One correction, i.e., using paired t-tests for cluttering vs. stuttering comparisons resulted a few more significant differences.

References


Articulatory rate and accuracy in stuttering and cluttering

Yvonne van Zaalen – op ’t Hof, Ph.D.
Centre for Speech Language and Fluency Therapy, Amersfoort, the Netherlands and Fontys University of Applied Sciences, Eindhoven, the Netherlands.

Introduction

In the last century a plethora of research has been conducted on the subject of stuttering, but research on cluttering has been limited in scope. One problem in cluttering research is the lack of a generally accepted definition of cluttering. In the last decade of the previous century, research on cluttering emphasized identification of cluttering symptoms. St. Louis (1992) defined cluttering as a speech-language disorder with abnormal speech dysfluency, unlike stuttering, and with a fast and/or irregular speech rate. Myers & Bradley (1992) indicated that clutterers may be differentiated from normal speakers by a higher frequency of dysfluencies. In 1996, Myers and St.Louis, in a study with two participants, found that both clutterers had a high frequency (92-97%) of normal disfluencies (revisions, interjections, phrase- and word repetitions but only 8% and 3% stuttering dysfluencies such as sound repetitions. Myers and St. Louis also indicated, based on the results, that cluttering is a heterogeneous problem. Persons who clutter share certain characteristics but can also differ in other respects.

Most speech language pathologists around the world would agree that cluttering, like stuttering, exists as a speech fluency problem. But how should stuttering and cluttering be differentiated? Are they both clinical conditions with the same pathogenesis or do they exist as unique, separate clinical entities? Preus (1992), a protégé of Van Riper from Norway, pondered this question as he used factor analysis to seek distinctive vs. related attributes of stuttering and cluttering. He entitled his chapter “Cluttering and Stuttering: Related, Different or Antagonistic Disorders?” Preus suggested that cluttering may consist of two main components: a motor and a language component and Preus’ research indicated that about one third of the stutterers also
showed signs of cluttering. In a 2003 issue of the ASHA Leader, St. Louis, Raphael, Myers & Bakker updated their definition of cluttering as follows: “Cluttering is a syndrome characterized by a speech delivery rate which is either abnormally fast, irregular, or both. In cluttered speech, the person’s speech is affected by one or more of the following: (1) failure to maintain normally expected sound, syllable, phrase, and pausing patterns; (2) evidence of greater than expected incidence of disfluency, the majority of which is unlike those typical of people who stutter. We do not currently include language difficulties in the definition because there appear to be at least a few clutterers for whom language problems are not evident.” However, it is a clinical fact, that many clients (who are not pure clutterers) may have both stuttering and cluttering type disfluencies. The purpose of this study was to identify the unique and differentiating characteristics of the articulatory skills of people who clutter or/and stutter.

Method

Participants

All subjects who participated in this study sought treatment (due to concerns about their speech fluency) at a centre of fluency therapy in the centre of Holland, in the period from January 2006 to January 2007. Subjects were 41 males and 12 females, ranging in age from 6.6 to 47 years). They were separated into three age groups. The adolescent group was considered separately from the young children and the adults due to the known increase in speaking rate around 11.7 years and the slowing down of speech rate after 18.0 years (Boey, 2000, p.23). Group 1 consisted of 3 females and 21 males who ranged in age from 6.6 to 12.0 (mean = 10.3 years). Group 2 consisted of 5 females and 8 males who ranged from 12 to 18 years of age (mean= 15.3 years). Group 3 consisted of 5 females and 10 males who ranged from 18 to 47 years of age (mean=26.9 years). None of the participants reported any neurological or hearing disorders. All were Dutch speaking mono- or bilinguals. Subjects were tested during the first assessment session prior to therapy.
**Diagnostic decision making**

Participants were diagnosed based on subjective clinical judgement on audio recordings of three different speech tasks: spontaneous speech, reading and retelling a story. Diagnostic decisions were separately determined by two speech language pathologists specialized in fluency disorders (both in cluttering and stuttering). Data was blinded and labelled in code. An independent researcher was in control of the coding system. Both SLPs were aware of the age and gender of the participants. SLPs could choose between three diagnostic codes: cluttering (C), stuttering (S) and cluttering-stuttering (CS). A participant was attributed to a diagnostic group based on the diagnoses of both SLPs. When SLPs both diagnosed a person as cluttering, the participant was placed in the PWC group. When SLPs both diagnosed a person as stuttering, the participant was placed in the PWS group. When a participant was diagnosed as both cluttering and stuttering, he was placed in the PWCS group. When speech therapists disagreed the person was placed in the undecided group.

**Data collection and analysis**

Recordings were made by a speech-language pathologist in a sound-protected room. Digital audio- and video-tape recordings were made of all speaking tasks using a Sony digital video camera, a Trust digital computer microphone, and a GoldWave Digital Audio Editor v5.18 (Goldwave, 2007). Articulatory rate was determined using a speech analysis program, PRAAT (Boersma & Weenink, 2007). All of the fluent speech utterances produced by the individual subjects were recorded digitally (sampling rate 22.050Hz; 16 bit depth) through a Trust head microphone into a sound card using a HP Pavilion zv6000 laptop. Audiotakes were edited, replayed and analyzed with PRAAT. The duration of each utterance was calculated by subtracting the offset time from the onset time. Finally, the number of syllables for each utterance was divided by the duration of the utterance (excluding intra- and inter-utterance pause times ≥ 250ms) to provide a measure of articulation rate: syllables per second (SPS).
Articulatory rate was defined as the mean of five rate measures in at least 10 consecutive syllables perceived to be fluent, without pauses (Hall, Amir, & Yairi, 1999; Pindzola et al., 1989). In scientific research by specialists on cluttering, no consensus was reached on the definition of “fast articulatory rate” (van Zaalen, 2007). In this study the criteria for fast articulatory rate were set as follows: “Fast articulatory rate” *in spontaneous speech is defined as a mean rate ≥ 1.5 SD above the mean articulatory rate of disfluent subjects.*

Individual subject means for articulatory rate could not be derived from two participants who were not able to produce at least 10 fluent consecutive syllables. The fact that a person is not able to produce at least ten consecutive syllables without pauses and without disfluencies is a strong indication that there is a speech fluency problem. Data were also gathered on: articulatory rate variation, which was determined by subtracting the slowest from the fastest articulatory rate and oral motor control, measured with the Oral Motor Assessment Scale (Riley & Riley, 1985). Following the OMAS protocol a stable production of ten repetitions of ten repetitions of /pah/, /tahkah/ and /pahtahkah/ was obtained. These repetitions are judged on articulatory accuracy, smooth-flow (presence of co-articulation, good flow and sequencing) and rate. The test sequence for all participants was: monologue, reading and oral motor control.

Note: The disfluent people are chosen as a reference group because it is known that there are differences in Mean Articulatory Rate (MAR) between fluent and disfluent individuals. Fluent speakers are faster than age- and gender- matched people who stutter.

**Results**

**Diagnosis:**

The participants were differentially diagnosed (clutterer, stutterer, or clutterer-stutterer) based on the St.Louis, 2003 characteristics. 27% of the participants were diagnosed as persons who clutter (PWC); 25% as persons who stutter (PWS), and 33% as persons who clutter and stutter (PWCS), 15% were undecided.
Articulatory rate:

The mean articulatory rate of the participants was 4.55 SPS (SD .98) with a maximum of 6.4 and a minimum articulatory rate of 2.1 SPS. At a descriptive level of analysis the mean articulatory rate in the PWC group was higher compared to the PWCS group during the monologue but not during oral reading (PWC monologue: 5.22 SPS; reading: 4.53 SPS; PWCS monologue: 4.79 SPS; reading 4.56 SPS). PWCS had a higher MAR compared to PWS (PWS, monologue 3.94 SPS; reading 4.11 SPS). An analysis of variance revealed a significant difference in mean articulatory rate in spontaneous speech between the cluttering, the cluttering-stuttering group and the stuttering group (F(2,54)=18.136, p<.0001). Based on the empirical data, a fast articulatory rate (≥ 1.5 SD above the mean articulatory rate) of non-fluent speakers was ≥ 5.2 SPS for young children, ≥ 5.6 SPS for adolescents and ≥ 5.4 for adult non fluent speakers. In the PWC group 55.6 % matched this description on fast MAR for spontaneous speech and 33% in reading. In the PWS group 0 % matched the description of fast articulatory rate in spontaneous speech and reading. In the PWCS group 19.4% fit the description of fast articulatory rate in spontaneous speech and 0% in reading.

An analysis of variance on range of articulatory rate variation showed no significant difference between the PWS, PWCS and PWC group on (F(2,54)=.294, p=.747).

Oral Motor Skills:

OMAS scores were not statistically significantly different between groups on accuracy (F(2,54)= .175, p=.84); smooth flow (F(2,54)=.704, p=.523; rate (F(2,54)=.659, p=.523) and total score (F(2,54)=.25, p=.78), (Riley and Riley, 1985).
Discussion and conclusions

The purpose of this study was to identify the unique and differentiating characteristics in articulatory skills of people who clutter and / or stutter. Although mean articulatory rate appeared to be significantly different between the cluttering and cluttering-stuttering group compared to the stuttering group, the mean articulatory rate variation and oral motor skills appeared to be of no differential value in this study.

In choosing the range in articulatory rate variation important information about the variation of different syllable strings can be lost. In further research on speech rate variability studying the variability around the mean can probably provide more detailed information, in order to describe the ‘spurts’ known in cluttering. The perception of “spurts” may be revealed from analyzes of how/where disruptions (such as interjections, incomplete phrases, revisions) intersect with the informational content of the message.

Although persons who clutter experience speech planning problems in running speech, they do not differentiate themselves from persons who stutter or those who clutter-stutter on simple oral motor coordination tasks. Further research on speech motor control at the word level, articulatory rate and speech disfluency on the one side and language production on the other side can help to reveal the underlying processes of cluttering.

Fast mean articulatory rate can be used as a differential characteristic between cluttering and stuttering, but not all clutterers experience a fast mean articulatory rate. Indeed, measurement of articulatory rate variation should be added to the rate measurements. An effective determination method of articulatory rate variation as a diagnostic tool needs to be developed in the near future.
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THEORETICAL AND HISTORICAL PAPERS
The Dual Premotor Model of Cluttering and Stuttering: A Neurological Framework
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Abstract

An explanatory model is proposed: the dual premotor model of cluttering and stuttering. Initiation of speech segments may be cued by either of two parallel premotor systems, the lateral and the medial. Stuttering and cluttering are suggested to be the two opposite disturbances of the same function: insufficient vs. premature release of speech motor segments by the medial premotor system. Both disorders may be temporarily improved by shifting speech timing to the lateral system.

Summary

Cluttering is characterized by abnormally fast and/or irregular speech rate, often with omission of syllables and slurred articulation. A typical trait is that these symptoms tend to temporarily improve or disappear if attention is given to speech. Persons with cluttering have been reported to frequently display other symptoms such as poor handwriting, dysregulated movements, motor restlessness, and attention deficits (Seeman, 1970; Daly, 1993; St.Louis, Raphael, Myers, & Bakker, 2003). Seeman (1970) argued that cluttering is the result of disturbances of the basal ganglia motor system causing dysregulation of cerebral cortex regions. This view was shared by Lebrun (1996), based on the observation that cluttering after brain damage appears primarily, if not exclusively, after lesions of the basal ganglia system. He suggested that this system may contain the timer that sets the pace for articulation.
In Alm (2004) a model of stuttering as a motor initiation disorder was suggested, based on the tenet that speech is a sequential motor behavior, in which each segment (e.g. syllable) requires a "go-signal" for its initiation (Deecke, Kornhuber, Lang, Lang, & Schreiber, 1985). It was suggested that stuttering is related to an impairment of the go-signals. For well-learned automatic sequences the basal ganglia seem to play a key role, supporting the supplementary motor area (SMA) with timing information. For example, the basal ganglia may provide cues indicating that the previous segment has been executed and it is time to release the next segment (Brotchie, Ianced, & Horne, 1991).

As a further theoretical development, the "dual premotor model of stuttering" was suggested in Alm (2005; 2006), based on the motor control model of Goldberg (1985) and (Passingham, 1987). The dual premotor model states that the brain has two parallel systems for initiation of movements: the medial system (the basal ganglia and the SMA) and the lateral system (the lateral premotor cortex and the cerebellum). The medial system is assumed to be active in automatized speech, while the lateral systems tend to be dominant in speech which is performed with increased attention, for example in the form of attention to auditory or sensory perceptions. This means that dysfunction of the medial system may be temporarily by-passed by shifting the dominance for speech timing to the lateral system, during speech-modes with reduced automaticity.

In this presentation it is proposed that the dual premotor model of stuttering can be expanded to also include cluttering. Cluttering is proposed to be a disorder of the automaticity of speech motor sequencing, in which speech motor segments (e.g. syllables) are released prematurely, before the execution of the previous syllable has been confirmed. This results in shortening or omission of the segments. Increased attention may temporarily shift speech timing to the lateral premotor system, thereby normalizing speech. Further, it is suggested that the frequently accompanying non-speech symptoms of cluttering are the result of a non-specific basal ganglia disturbance causing impaired inhibition of cortical regions. In this model stuttering and cluttering are the two opposite disturbances of the same function: insufficient vs. premature release of
speech motor segments by the medial premotor system. However, in some cases the
dysregulated state may result in a varying mix of both disturbances in the same person,
i.e., cluttering in combination with stuttering.

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Biographical sketch

Dr. Per Alm is a researcher in neuropsychology at Lund University, Sweden, also working at the Stuttering Information Center of Denmark. His research has focused the causal mechanisms of stuttering, involving brain imaging at the University of Oxford and theoretical work regarding the role of the basal ganglia system.
The Measurement of Cluttering Severity

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Abstract

There is no one universally agreed-on procedure for determining cluttering severity. Options for capturing quantifiable aspects of cluttering severity were reviewed. A software tool for the assessment of cluttering severity was demonstrated and made available to the audience. It captures cluttering severity as the percentage of talking time cluttered. Data regarding intra-, inter-rater reliability, and concurrent validity of the talking time measure of this program were discussed with ramifications for future developments and clinical usage.

Introduction

Cluttering severity has not been addressed in the scientific literature on cluttering. Yet, a cluttering severity measure would appear to be a pivotal concept for use in research (for example to study the relationship of cluttering to other variables of interest), as well as in clinical practice (to determine baseline performance, treatment progress, and to evaluate possible termination of treatment). In its broadest sense it represents the degree to which a cluttering problem is present and is considered a problem by the client and significant others. Cluttering severity would also reflect how intensive the required therapy should be. A comprehensive severity measure should indicate the extent to which a problem affects the quality of daily life and the client’s ability to participate effectively in most daily living situations.

Attempts to develop a procedure for measuring cluttering severity run into several limitations. Cluttering severity assumes that we have a common understanding of what cluttering essentially is. Yet, there is no single definition of cluttering that is agreed upon by
most specialists as describing the essence of cluttering. Only one definition (St. Louis Bakker, Myers, & Raphael, 2007) provides opportunities for making cluttering severity a measurable concept, by referring to aspects of speech rate, disfluency unlike stuttering, and certain forms of supra-segmental disorganization in speech production. Another limitation is that the quantifiable aspects suggested by this definition do not currently have published norms for comparison. Without such norms cluttering severity assessment is a rather meaningless procedure.

Most clinicians who have worked with persons who clutter find that they can determine when their client begins to clutter, or switches back to speech that sounds normally fluent. It is this ability and experience of the clinician that is used in the following proposed cluttering severity measure.

**Percentage Talking Time Cluttered**

The _percentage talking time cluttered_ measure was proposed (Bakker, St. Louis, Myers & Raphael, 2005) as a feasible measure for capturing cluttering severity. All that is needed for this measure is to determine (1) the amount of time during which there is speech (=talking time), and (2) how much of talking time is characterized by cluttering (as judged by the clinician). As no generally agreed upon behavioral descriptions of cluttering exist, it is the clinician’s judgment of when cluttering occurs that is used for the measure. It is assumed that this situation will change when a generally agreed upon and evidence-based description of cluttering is available. Despite the subjective character of this aspect of the measure, the procedure does lead to a quantified result. It indicates the prevalence of speech characterized by cluttering with reference to talking time.

Percentage talking time cluttered may be determined using a freeware downloadable software product (CLASP 2.02; see Figure 1). For research purposes a version is available with reportable timing specifications (see Note 2).
Figure 1. Typical results screen of the Cluttering Assessment Program

The program is used in real time when observing the client’s speech. The leftmost timer is a stopwatch. It is started and left running until a speech sample is completed. During this sample the clinician controls two timers in real time. The left button of the computer mouse is held down when the client speaks (this timer accumulates talking time). The right mouse button is held down as well when cluttering is perceived. The calculation of % talking time cluttered is calculated afterwards when the timer is stopped.

So far, research aimed at the cluttering assessment programs has targeted the talking time portion of the program only. Bakker and Lawson (2006) conducted a head-to-head comparison of real time determination of manual talking time, and talking times obtained through using an acoustic workstation. They reported that both measures demonstrated high levels of intra- and inter-rater reliability. Also, the correlation between the two methods was high, suggesting strong concurrent validity for the real-time manual talking time determination procedure. As real-time scoring is significantly faster, and can occur while the client speaks...
(which will be necessary when adding the cluttering time determination procedure), this method seemed preferable for clinical usage. However, the method is also cumbersome even when using the talking time timer by itself.

Concerns about timing accuracy of the first cluttering assessment program, and the ability of clinicians to control two timers in real-time while judging if the client is speaking fluently, or cluttering, led to the development of a technology that could at least measure talking time automatically from an acoustic signal. This development has the advantage of freeing the clinician from having to measure talking time by hand.

**Progress of the development of an automatic talking time timer**

A procedure was developed that calculates talking time after recording a speech sample digitally on a computer. The best results can be expected when speech is recorded through a professional grade digital recording system. Recording speech through the computer soundboard, for the purpose of determining talking time, should lead to acceptable results but defies testing as there are many different types and qualities of soundboards. Digital recording of speech effectively reduced the need for any other equipment than a matching microphone, but moved the burden of processing talking time to the computer program, which is why it has taken so long to come up with a feasible solution.

What has not been evaluated is if automated talking time measures demonstrate levels of reliability and accuracy similar to those obtained by hand, or alternately through a rigorous acoustic workstation-based procedure. The **purposes** of the following study then were (1) to replicate the Bakker and Lawson study (2006), and (2) to evaluate aspects of validity, accuracy and reliability of a custom made talking time analysis system.

**Method**
Eleven adult normal speakers were asked to produce monologues of at least 2 minutes in duration, while their speech was digitally recorded in a sound treated audiology booth (using a KayPentax Visipitch IV; 22,050Hz sampling rate; 16 bits; saved as *.wav files). The participants were instructed to speak about topics suggested to them in their own natural way. Several topic cards were available with neutral subjects for the participants so they could continue to talk for at least the minimum amount of time.

Talking times were determined following three protocols. One protocol involved the use of an acoustic workstation (PRAAT, see Note 1). Pauses (silences >=200ms), leading and trailing silences, and non-speech sounds (e.g., sounds associated with speech breathing) were manually removed from the recordings by visually inspecting the associated intensity envelopes. The examiners then looked for representative pauses to determine average background noise in dB SPL, and set the “floor” of the intensity envelope at that value. A 2-second window was scrolled through the entire sample to identify pauses and non-speech sounds (nearly always these were sounds caused by breathing). The duration of the remaining signal after pause removal, was considered acoustic talking time.

Talking time was determined also through the use of a manual real-time procedure (CLASP 3.0; see note 2). In this software one presses down the left mouse button of the computer when speech is perceived. Although the program was designed to help determine % talking time cluttered, only the talking time button was used in this case.

Finally, a software program made by the author was used to determine talking time nearly automatically. That is, the program, after the user’s selection of three representative intervals of silence (assumed to be representative for background noise), calculated a cutoff level (1.4* average selected background noise) for determining the presence of speech from a rectified, smoothed, and logarithmically converted intensity envelope. The accumulative duration of time during which the signal exceeded the cutoff criterion was used as the semi-automatic talking time measure. In our experience, this measure, from start to end, took somewhere between 10 and 20 seconds to obtain.

Results and conclusions
Each procedure for measuring talking time duration was accomplished with very high levels of intra- and inter-rate reliability. Table 1 shows reliability coefficients that were obtained:

<table>
<thead>
<tr>
<th></th>
<th>Intra-rater</th>
<th>Inter-rater</th>
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<tbody>
<tr>
<td>Workstation manual:</td>
<td>.973</td>
<td>.976</td>
</tr>
<tr>
<td>Manual real-time:</td>
<td>.985</td>
<td>.963</td>
</tr>
<tr>
<td>Computer:</td>
<td>.991</td>
<td>.977</td>
</tr>
</tbody>
</table>

While reliability coefficients reveal trends, they may not reveal possible absolute differences between the talking time measures. Table 2 shows the mean talking time scores that were obtained through the aforementioned procedures.

<table>
<thead>
<tr>
<th></th>
<th>Experimenter 1</th>
<th>Experimenter 1</th>
<th>Experimenter 2</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>First time</td>
<td>Second time</td>
<td>First time only</td>
</tr>
<tr>
<td>Workstation man.:</td>
<td>99.4</td>
<td>98.4</td>
<td>99.5</td>
</tr>
<tr>
<td>Manual real-time:</td>
<td>99.1</td>
<td>98.7</td>
<td>97.0</td>
</tr>
<tr>
<td>Computer:</td>
<td>99.4</td>
<td>99.7</td>
<td>99.0</td>
</tr>
</tbody>
</table>
These means illustrate that the workstation manual and computer-automatic procedures predictably produced the closest approximations. If the workstation based procedure (about 20-25 minutes per sample!) can be considered the “gold standard,” the computer-automatic procedure (about 20 seconds) promises to be a highly desirable clinical procedure. Also, manual online scoring emerges as an attractive, though somewhat cumbersome, alternative to the workstation-based procedure.

Aside from needing to be reliable, new assessment procedures also need to demonstrate sufficient concurrent validity for representing a measure of interest. Therefore, concurrent validity of both the manual online and computer generated automatic talking time measures were evaluated with reference to the rigorous workstation-based talking time estimates. They are displayed in the Table 3:

Table 3. Correlation coefficients between the acoustic workstation-based talking times and those obtained with a manual real time procedure, and a computer generated talking time result.

<table>
<thead>
<tr>
<th></th>
<th>Concurrent validity:</th>
</tr>
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<tbody>
<tr>
<td>Workstation * Manual online:</td>
<td>.960</td>
</tr>
<tr>
<td>Workstation * Computer automated:</td>
<td>.951</td>
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</tbody>
</table>

Obviously, concurrent validity of both the PRAAT and the computer automated measures is very strong. Conclusion: as computer generated talking time is such an easy and quick procedure, its apparent validity and intra-/inter-rater reliability makes it very attractive for use in applications such as the cluttering assessment programs (CLASP2.02 and CLASP 3.0). It is
expected to facilitate and improve this much needed aspect of cluttering assessment. Of course, these data need to be independently replicated by others.

Notes

Note 1. Praat: Doing phonetics by computer (Boersma and Weenink). Freeware software program available through www.praat.org

Note 2. CLASP 3.0: Cluttering Assessment Program custom made by first author. It contains a procedure for determining talking time through manually, employing a highly accurate and reliable timing strategy.

References


The importance of conducting controlled clinical trials in the fluency disorders with emphasis on cluttering

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Abstract

Given the psychological and social difficulties that may be associated with cluttering, there is an urgent need for best evidence regarding its epidemiology and treatment. We know that stuttering, also a fluency disorder, can result in substantial maladaptive social and psychological upset and that it can be effectively treated. Unfortunately, there is scarce available evidence that can provide detailed information on the consequences of cluttering. Furthermore, there is a lack of controlled clinical research that has investigated treatment outcomes. This paper will explore pertinent issues crucial to generating best evidence concerning the treatment of cluttering. Levels of evidence and types of designs that can generate best evidence will be discussed and the status quo of treatment benefits for cluttering will be presented. It is hoped this paper will contribute to the eventual improvement of strategies for treating and managing cluttering.

Introduction

Cluttering can be defined as a fluency or speech disorder characterized by rapid speaking rate, erratic rhythm and an unorganized and perhaps unintelligible speech (Daly & Burnett, 1996; Myers, 1996). Traditionally, therapy for people who clutter addresses the contributing problems first before focusing directly on fluency. One of the
first goals is to reduce their speaking rate. Often they are taught to pause deliberately when speaking, while some have been known to obtain benefits from delayed auditory feedback (DAF) devices, although others do not (St Louis et al., 1996). Pronunciation, articulation and language problems are also addressed, quite often through achieving a slower speech rate. Many people who clutter also stutter and their cluttering can be ameliorated by administering fluency shaping stuttering therapy (Craig, 1996). Self-monitoring and other self-control skills are clearly important in treatment, as it is important that people who clutter learn to become aware of their speech.

Clinicians have an obligation to provide services that have been shown to have an evidence base in achieving therapeutic goals. This emphasis on demonstrating treatment efficacy in a scientific and rigorous manner is a major goal of evidence based medicine or health care (EBHC) described elsewhere (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). EBHC is believed to be a necessary approach when determining the efficacy of therapies for persons with particular diseases, such as spinal cord injury (Craig, 2000), psychological disorders such as depression (Lett, H. S., Davidson, J., & Blumenthal, J. A., 2005), cardiovascular disease (Cook, Guyatt, Laupacis, Sackett, & Goldberg, 1995; Truswell, 2001), and stuttering (Craig, 2003). However, if one is to determine which treatments are efficacious for any particular disease or disorder, then the problem of what criteria should be applied to identify these treatments arises. This has led to the development of specific and standardized criteria that can be applied to treatment outcome studies in order to determine the quality of the data (Lett et al., 2005).

This issue is currently being debated. For instance, when I conducted a Google Scholar search on "levels of evidence" in May, 2007, 3,370,000 hits for levels of evidence were found. The central issue being debated is, given the findings of a treatment study, how confident can we be that the treatment is really beneficial? By way of example, Lett et al., (2005) used the American Psychological Association taskforce levels of evidence for psychological treatments. They applied this level of evidence criteria to various non-pharmacological treatments of depression for people with coronary heart disease (CHD). The criteria used consisted of three categories, where Category 1 consisted of the strongest evidence, that is, treatments have been shown to
be superior to a placebo or to another plausible treatment in at least two studies. Category 2 consisted of treatments supported by at least one controlled study. Category 3 consisted of treatments that have less rigorous support such as case-control studies (e.g., correlational or cross-sectional studies), and non-controlled studies (e.g., pre- and-post treatment of one group only, case study data, and widely practised traditional methods not yet investigated in a controlled trial). They found that treatments with the best evidence for depression consisted of cognitive behavior therapy (CBT) and interpersonal therapies. These types of treatments had numerous robust controlled trials showing efficacy and so were believed to be beneficial treatments of depression for people with CHD. Based on the quality of the evidence, they also concluded that exercise programs were beneficial as was treatment involving medicating with the herb St John’s Wort. However, they found little evidence that therapies like acupuncture, fatty acids therapy, and other complimentary therapies were beneficial for people with CHD who were also depressed.

Truswell (2001) described levels of evidence criteria developed by the National Health and Medical Research Committee (NHMRC) in Australia and applied this system to treatment research in the nutrition area for diseases like CHD. The system consists of seven grades where Grade 1 is the highest level of evidence and Grade 7 the lowest.

(1) Grade 1 consisted of evidence that arises from a systematic review (SR) of randomized controlled trials (RCT).
(2) Grade 2 consisted of evidence arising from a well designed RCT study.
(3) Grade 3 consisted of evidence arising from a well controlled cohort study (e.g., non-randomized controlled longitudinal treatment study).
(4) Grade 4 consisted of evidence arising from case-control studies (e.g., cross sectional data) or single-case experimental studies.
(5) Grade 5 consisted of evidence arising from studies with an historical control (e.g., retrospective data).
(6) Grade 6 consisted of evidence arising from case study outcomes (e.g., uncontrolled description of a treatment with a single person).
(7) Grade 7 evidence consisted of data from reports say from an expert committee or clinical and traditional opinion.

Levels of evidence similar to those developed by the NHMRC have been applied to determine efficacious therapies in surgery (Meakins, 2002), nutrition and dietary related disorders such as CHD (Truswell, 2001), back pain (Ferreira et al., 2002), and anti-thromobotic therapy (Cook et al., 1995). However, it must be understood that there are problems with the use of levels of evidence. Criteria used to judge evidence has not been standardized, that is, for instance, different weights may be used to describe the quality of studies. This problem can lead to different conclusions to be drawn from the same set of studies (Ferreira et al., 2002). For instance, Ferreira et al., (2002) found low agreement in levels of evidence conclusions using four different criteria for low back pain. Levels can also be too stringent for the area being studied, for example, in health nutrition and dietary research (Truswell, 2001) Using the NHMRC levels of evidence he concluded that due to difficulties in running RCTs in dietary research (e.g., the problem of controlling people’s diets), evidence of treatment efficacy is often based on data arising from lower levels of evidence such as cohort studies (Grade 3 evidence). This point is crucial as most of the health claims allowed by the USFDA have not been supported by evidence from RCTs (Truswell, 2001). Similarly, evidence in surgery is just as likely to come from a surgeon performing new procedures in a case study approach (Meakins, 2002). In an effort to overcome some of these standardization problems between levels of evidence criteria, a system called the Strength of Recommendation Taxonomy (SORT), has been developed in order to be applied in family practice medicine (Ebell, et al., 2004). SORT is a system that addresses the quality, quantity and consistency of evidence (Ebell, et al., 2004). The strength of recommendation consists of three levels. These are:

(a) Level A evidence is based on consistent and good quality data and a conclusion on this level strongly suggests that a particular treatment is beneficial.
(b) Level B evidence is based on inconsistent or limited quality evidence, and Level B can only offer weak support that a treatment may be effective.
(c) Level C evidence is based on data arising from clinical consensus, traditional practice, case study evidence and so on. Level C evidence can offer no confidence that a treatment is beneficial.

SORT then offers criteria to determine the quality of the data. To achieve this, it provides three grades of quality.

(i) Level 1 consists of high quality data and evidence arising from sources such as systematic review or meta analyses, or from a high quality RCT. A treatment will be considered beneficial if a systematic review/meta analysis provides consistent findings of efficacy, or if high quality RCT evidence demonstrates beneficial outcomes.

(ii) Level 2 consists of data with limited quality: Level 2 evidence is concluded based on data from lower quality clinical trials (e.g., nonstandardized) with inconsistent findings, or on evidence from cohort studies, or weaker still, from case-control studies.

(iii) Level 3 consists of data from traditional opinion, case studies, etc.

Consistency is then defined. A conclusion of “consistent” assumes that most studies conducted arrived at similar findings. “Inconsistent” assumes considerable variation among study findings or that the conclusions of systematic reviews/meta analyses do not find consistent evidence of efficacy.

Components of an RCT

Before we apply the levels of evidence criteria to treatment outcome studies in cluttering, a brief description of an RCT is warranted. The following are the major components of an RCT that are believed to result in high quality evidence for the efficacy of a particular treatment.
1. Participants are targeted and then randomized into groups in order to equally distribute selection bias between the experimental and control groups.

2. The RCT design consists of at least a treatment group and a control group, which can be either a passive control (time control only) or an active placebo (time and therapy input). The RCT should have sufficient subject numbers to ensure 80% power to produce a finding. Power is defined as the probability of correctly rejecting the null hypothesis. This means that subject numbers should be calculated before the trial is conducted.

3. Objective measurement of outcome should be conducted across a variety of contexts.

4. Both groups are followed up over time, for at least two years after treatment in order to monitor relapse.

5. A gold standard RCT requires a double blind procedure, that is, neither subjects nor the clinicians know which group receives the control. However, in many treatments involving psychological treatments such as in cluttering or stuttering therapy, a double blind technique will not be possible. To help control bias, a single blind procedure can be used. This involves the researcher/clinician who assesses outcome not being aware of which group the subjects being assessed were from, or at what time the subjects were measured (eg. pre- or post-treatment).

6. Treatment protocols are standardized for the treatment group with manuals written and used, and the clinicians trained in the treatment protocol.

7. The Control group should be offered treatment as soon as their participation in the control is complete.

**Stuttering Treatment Efficacy**

High quality evidence now exists for the benefits of treatment of stuttering, though a negative is that there are few high quality controlled studies that provide this evidence. For instance, Grade 2 or Level 1 evidence exists for the treatment of children
who stutter (Jones et al, 2005). Using the SORT criteria, one would conclude that a Level A recommendation should occur, though this conclusion is tempered by the fact that only one RCT has so far been conducted. However, Franken et al., (2005) has provided Grade 3 and Level 2 evidence (controlled cohort study) for the beneficial effects of treatment for children who stutter. Good quality longitudinal cohort clinical trial evidence exists for the benefits of adolescents who stutter (Boberg & Kully, 1994; Craig et al., 1996; Hancock et al., 1998). These data allow a Grade 3 and Level 2 evidence conclusion, and a Level B SORT conclusion. Unfortunately, the majority of research with people who stutter is uncontrolled, and this only allows Grade 4 to 7/ Level 3 evidence conclusions leading to a Level C recommendation.

**Cluttering Research Efficacy**

Examining the literature, it becomes clear that no RCT evidence exists for cluttering treatment efficacy. Furthermore, there is no cohort clinical trial evidence either. Only Grade 4 to 7 or Level 3 evidence exists. These include evidence from the following studies:

(i) Langevin and Boberg (1996) in which four people who cluttered and stuttered, showed improvements following stuttering therapy.

(ii) St Louis et al., (1996) showed that DAF treatment was somewhat beneficial for two people who cluttered, though transfer of skills was less impressive.

(iii) Craig (1996) showed that a person who both stuttered and cluttered was improved in the short and long term with fluency shaping and CBT.

(iv) Williams and Wener (1996) showed that a mixture of treatment containing slowed rate and breath control resulted in improvement in one person who cluttered.

Based on the levels of evidence criteria of SORT, at best we have only a Level C recommendation for treatment efficacy for cluttering.

**Conclusions and Barriers to determining treatment efficacy in cluttering**
A number of barriers exist that will need careful consideration and attention if we are to mount good quality treatment studies and thus provide strong recommendations for treatment efficacy in cluttering. First, there is no single definition of cluttering that has been finally agreed upon. A definition will need to be agreed upon and adhered to if high quality studies are to be conducted and results compared. Second, difficulties in diagnosing cluttering can occur, given that it can coexist with disorders such as stuttering, attention deficit disorder and language learning disorders. For instance, it has been estimated that people who only clutter comprise a minority (estimated 5%) while the majority exhibit cluttering and stuttering (Daly, 1986). The development of a thorough and comprehensive diagnostic criterion will be essential if high quality treatment studies are to be mounted. Third, the assumed low prevalence of cluttering, if this is true, will require collaborative treatment studies to be carried out if high quality RCT studies are to be conducted. Fourth, researchers will need to become familiar with the levels of evidence criteria and then form working groups that attempt to standardize criteria specific to cluttering therapy, and therefore eventually allowing the presentation of strong cluttering treatment recommendations.

References


Understanding Cluttering: East European Traditions vs. West European and North American Traditions

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South-West University “Neofit Rilski,” Bulgaria

This paper contrasts the understanding of cluttering in East European traditions with that of West European and North American traditions. A historical timeline will be followed in describing the opinions and observations as they pertain to the following subjects: cluttering as a unique clinical entity, definition, etiology, symptomatology, assessment, differential diagnostics, therapy, and public or professional awareness.

The East European school

The East European school is represented by research conducted by Russians (Hvatzev, 1959; Liapidevski, 1967; Kochergina, 1969; Seliverstov, 1972; Stenkova, 1985; Volkova, 1989; Shklovsky, 1994; Filatova & Beljakova, 2000); Czechs (Seeman, 1962; Seeman & Novak, 1963; Langova & Moravek, 1966, 1970; Sedlackova, 1970), East Germans (Becker, 1970; Becker and Grundmann, 1970); as well as Bulgarians (Georgieva & Miliev, 1996; Georgieva, 1996, 2000).

The Soviet Union, Czechoslovakia, and the German Democratic Republic

In the late nineteenth century, tachylalia was included in the group of disorders called dysphrasia under the influence of Kussmaul (1879). Later, the Russian Florenskaya (1934) considered dysphrasia an independent disorder, with excessively fast rate as its main element. The pathologically fast rate is often connected with other
speech disorders which are of a lexico-grammatical and phonetic nature. In this time period the usual terms used for the disorder are the following: *battarismus poltern, angophrasia, paraphrasia, glittering, tumultos sermonis, bruddeln, balbutiement, praeecep, tachiphemia.*

Sometimes in the Russian literature the word “poltern” was used as a general term for this kind of disorder. “Poltern” is basically a form of tachilalia and involves pathologically fast speech without repetitions. During the twentieth century (spanning the decades 1930-1950) there was a common European tendency toward studies in that focused on distinctions between stuttering and cluttering, an approach which found a warm reception in Russia and Czechoslovakia During and after this period the primary researchers were Shtenkova (1955), Kochergina (1969) and Seliverstov (1979).

Kochergina (1969) believed that *battarismus* and poltern are actually varieties of tachylalia. According to her, “pure tachylalia” is a disorder with a pure rate character, but battarismus and poltern include characteristics of a morphological, lexical and syntactical nature. This researcher considered the primary focus of a differential diagnosis as distinguishing tachylalia from stuttering. However, Seeman (1962) considered the primary focus of a differential diagnosis as distinguishing stuttering from cluttering (as cited by Ljapidevski, 1969).

The Czech phoniatrician Seeman (1962) viewed cluttering and stuttering as one nosological unit. According to him, pure tachylalia is a disorder with only rate characteristics. Poltern is a disorder without spasmodic characteristics. During this period, the Czechoslovakian literature written by phoniatricians such as Langova & Moravek, Seeman, and Sedlatchkova was very popular. Their research focused on:

1. The relationship between cluttering and stuttering: Seeman (1974) wrote that about half of stuttering cases had their etiology in cluttering

2. The organic origin of both disorders: (1) Seeman (1974) thought that disturbances in identical cortical centers are responsible for the disorders; (2) Seeman & Novak (1963) hypothesized a basal ganglia and motor deficit as
fundamental in the etiology of cluttering; (3) Langova & Moravek (1964) documented the organic nature of cluttering; (4) Sedlackova (1970) suggested that the favorable effect of neuroleptic drugs on the symptoms of cluttering could be attributed to their nonspecific effect on the inhibition of the reticular formation, which intensifies motor activity, to the nonspecific inhibitory effect on the vegetative centers, and to the specific influence on the integration of thinking processes (Thacker & DeNil, 1996, p. 235-236).

3. The role of heredity: (1) a genetic factor common to all individuals who clutter has been hypothesized (Seeman, 1974); (2) Moravek & Langova (1962) as well as Langova & Moravek (1964) tried to find if cluttering is the result of underlying organic/genetic factors. They reported that clutterers had a much higher incidence of electro-encephalographic EEG abnormalities than pure stutterers.

4. The differences between cluttering and stuttering: cluttering is a separate clinical entity (Langova & Moravek, 1966). The authors identify differentiating criteria among 3 types of disorders: stuttering, cluttering and combined cases (according to Myers & St. Louis, 1992, p.58).

Much of the 20th century Russian literature through the 1980’s, similar to the literature from other East European countries, focused on stuttering (Bouyanov, 1979; Seliverstov, 1979, 2001; Missoulovin, 1988; Shklovski, 1994; Belyakova & Dyakova, 1998; Volkova, 1999). To the group of rate and rhythm disorders was added a new one: cluttering.

As mentioned in Filatova’s (2002) dissertation, in the clinical practice of Russian logopedists in the twenty-first century, there was no consideration of cluttering as a separate disorder. Specifically, few translated manuscripts from the Czechs (e.g., Langova and Moravek) were available to Russian speech therapists. Cluttering, therefore, was not well studied, diagnostics standards were not well developed, and a therapeutic model was missing. The approach to cluttering studies instead focused on clinical differentiation of people with stuttering problems (neurosis-like stuttering or
organic stuttering). We can presume that these kinds of stuttering could appear as cluttering.

**Bulgaria**

In Bulgaria three models of cluttering interpretation are dominant:

1. *The traditional Weiss* (1964) concept: cluttering is regarded as a central language imbalance that affects all communication modalities.

2. *St. Louis* (1992): cluttering is a speech-language disorder characterized by an abnormal fluency that is not stuttering, and a rapid and/or irregular speech rate.


Regarding the clinical management of cluttering, Myers’ Synergistic Approach (subsequently discussed and elaborated in St. Louis & Myers, 1995, 1997, 2007) is most popular in Bulgaria.

Cluttering was thus put on the map of communication disorders in Bulgaria.

In 1996 the first investigation on cluttering occurred – 15 stutterers, primarily children, were evaluated at South West University’s Logopedics Center. Varieties of criteria (respiratory disrhythmia, disturbed voice modulation, excessive word and phrase repetitions, vowel prolongations, rapid speech rate, misarticulations, writing and reading problems, reduced motor coordination) used for stuttering and cluttering in Bulgaria
were applied to differentiate cluttering, stuttering and mixed cases. Based on these criteria five subjects were diagnosed as pure clutterers (Georgieva & Miliev, 1996). Daly’s Checklist for Possible Cluttering was applied for the first time in this study, which came about as a result of the International Fluency Association’s first congress held in Munich in 1994. It was based on papers by Daly (1995) and St. Louis (1995). The congress played an important role and has had a major influence on the study and clinical management of fluency disorders, especially cluttering, in Bulgaria.

After 1994 a strong North American Influence (St. Louis, 1995; Myers, 2002; Daly, 1995; Bennett, 2006; St. Louis, Raphael, Myers, & Bakker, 2003) shaped a new model of thinking regarding cluttering.

**Conclusion: The East European school**

While cluttering is well known in the East European tradition, it is not a well-studied fluency disorder. The term “cluttering” is not new. This disorder was considered a type of tachylalia (through 60-70 years of the twentieth century) and assumed to be a direct cause of stuttering, a thought strongly influenced by Deso Weiss (1964). During the last decade cluttering was still not well studied due to unclear pathogenesis. The clinicians in Eastern Europe are not yet concerned with the implementation of the principles of evidence-based practice. They are not addressing the results of clinical practice through research yet. Most of the attention of the researchers has focused on differentiating stuttering from cluttering.

Unfortunately, as is the case with stuttering, there is no universally agreed-upon definition for cluttering in the East European School. The empirical evidence that cluttering exists apart from stuttering is not well researched. One of the main reasons for our delayed development in this area is that the cluttering problem has been treated only from a pedagogical point of view. We totally agree with Myers’ (1996) conclusions that “as professionals in the allied educational and health professions become more
attuned to the symptoms of cluttering, it is very likely that collaborative interactions will increase between the speech-language pathologists and others...” Unfortunately, in Bulgaria, we cannot confirm that metacommunication regarding cluttering is currently going on.

**The West European School**

Investigations on cluttering in Western Europe have a strong tradition in countries and areas such as the:


**Conclusion: The West European School**
Regarding the influence of the West European school on the disorder of cluttering we agree with Sick (2006) that: there is still a relatively limited knowledge base regarding the causes and symptoms of cluttering; there is no commonly accepted definition of cluttering; there is still insufficient public and professional awareness of cluttering (St. Louis, Raphael, Myers, & Bakker, 2003); there is a continued tendency to view stuttering and cluttering as similar disorders.

We strongly support increasing the world’s research potential into cluttering. In addition to the need for worldwide research initiatives, we also support the need to develop evidence-based therapy approaches.

Acknowledgement of the possible coexistence of different speech and language disorders has been a trend in West Europe, where establishing discrete diagnostic boundaries has not been a priority. In the USA a more specialized disorder system was developed (Preus, 1996). We can confirm that for many years, in Eastern and Western European countries, cluttering was commonly viewed as more or less the same phenomenon as stuttering (Van Riper, 1972). The different researchers’ points of view were analyzed and repeated. Traditions were established, opinions were formed and suppositions were made based on the assumption that cluttering exists as a unique fluency disorder, although there is a paucity of research supporting this assumption. Whereas European speech therapists led the discussion and clinical observations of cluttering during much of the twentieth century, it would appear that scientific and clinical understanding of cluttering is currently led by speech-language pathologists in North America.

**North America**

After World War II, Europe lost its leading role in development of Logopedics, specifically in the investigation of fluency disorders. In the classic research of Weiss (1964) and then of Van Riper (1972) we find the first thorough investigations on
cluttering. They were the starting point for the scholars in the field of cluttering. We can identify several periods in the North American school that can be presented in the following historical survey:

1. The first period of classic research on cluttering: The ‘60-‘80s of 20th Century (Weiss, 1964;
   Weiss, 1968; Van Riper, 1982)

2. The second period of thorough scientific research: The ‘90s of the 20th Century until now (Daly,
   1992; Myers and St. Louis, 1997; Bennett, 2006; St. Louis, Myers, Bakker & Raphael, 2007).

These are the researchers who put cluttering on the map of fluency disorders and who have produced the majority of recent research into the disorder.

References

References in the Cyrillic Alphabet (All references are in Russian unless otherwise indicated.)


References in the Roman Alphabet


Finally, a Film on Cluttering!

Florence L. Myers*, Kenneth O. St. Louis**, and Jane Fraser***

*Adelphi University, Garden City, New York, USA, **West Virginia University, Morgantown, West Virginia, USA, ***The Stuttering Foundation, Memphis, Tennessee, USA

A new DVD, entitled Cluttering, filmed and narrated by Florence Myers and Ken St. Louis, was premiered at the conference. Sponsored by Jane Fraser of the Stuttering Foundation, the DVD features people who clutter and illustrates the essence of cluttering as well as the problems that often accompany it. Strategies and suggestions for diagnosis and the treatment of cluttering are provided for speech-language pathologists. The DVD contains helpful audio clips and transcriptions of cluttered speech. It is a valuable resource for graduate students, clinicians, as well as for people who clutter and their families. The film concludes with some inspirational words from individuals who have benefited from therapy. This is the first-ever film on the topic of cluttering, and consists of the following sections:

1. Cluttering: Some illustrative samples
2. The most common symptoms of cluttering
3. Problems that coexist with cluttering
4. The evaluation of cluttering
5. The treatment of cluttering

Approximate running time is 41 minutes. Information about ordering Cluttering in DVD format may be obtained from the Stuttering Foundation at www.stutteringhelp.org (1-800-992-9392 if calling from the USA).
A plan for examining a sample of German-speaking people who clutter

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University of Dortmund

Introduction

How to define cluttering? In case of cluttering, this is a key question and the answer is not known at the moment. It is not easy to describe what cluttering is. There are different opinions as to which features or symptoms are crucial to its diagnosis. At the moment, a specific, commonly accepted, and empirically supported definition of cluttering is missing. Therefore, the process of diagnosis is difficult and complicated further by the common presence of co-occurring speech and language disorders and other problems or disorders.

To collect empirical data for the ongoing discussion of how to define cluttering, we plan to assess the St. Louis, Myers, Bakker, & Raphael (2007) working definition of cluttering using a German-speaking sample of people who clutter. The St. Louis et al. (2007) working definition of cluttering states that:

“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 manifested 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.”

This working definition is basic and does not include a language component, an awareness component or co-occurring disorders.

**Research Question**

Is it possible to find a sample of 15 to 20 German-speaking people who clutter (ages 9 to 65), that meets St. Louis et al.’s (2007) working definition of cluttering? If no subjects without co-existing symptoms can be found, the examination will provides new empiric evidence of those symptoms that are most frequently associated with cluttering.

**Methods and Materials**

**Test battery**

A wide range of disorders and problems may coexist with cluttering. Therefore the assessment of cluttering should cover all potential areas wherein problems or symptoms have been consistently reported. There are special considerations for compiling the test battery: the battery of tests should be applicable to people from age 9 to 65 who clutter. To make data comparable, it is important to employ tests that can be used for the entire range of ages represented in the group or, if that is not possible, to use no more than two different tests. Furthermore, the test battery will have to be portable because the examinations will take place at each subject's home at various places in Germany. The time for each assessment should be limited to 90 minutes to avoid placing too much on the subjects.
Table 1 shows an overview of the test battery. In Germany, there is no standardized assessment for attention-deficit/hyperactivity disorders (ADHD) and central auditory processing disorder (CAPD). Therefore only non-standardized check-lists are part of the test battery. Diagnosing ADHD or CAPD requires many different tests and examinations. In the case of cluttering, it will be acceptable to use a check-list only, because the goal is to exclude the possibility of ADHD or CAPD. If a subject shows an indication of any coexisting disorder or problem, he or she will be excluded from the sample.

<table>
<thead>
<tr>
<th>Test Battery Components</th>
<th>Assessment Procedures</th>
</tr>
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<tbody>
<tr>
<td>Case history data</td>
<td>History of speech or language disorders in family; medical history; previous treatment; development from infancy to school age (motor and language)</td>
</tr>
<tr>
<td>Language components</td>
<td>Retell a story; retell a simple cartoon strip; spontaneous speech (conversation)</td>
</tr>
<tr>
<td>Speech motor components</td>
<td>Spontaneous speech; reading word lists, sentences and a short story with increasing complexity</td>
</tr>
<tr>
<td>Automatic speech capability</td>
<td>Counting days of the week, months of the year</td>
</tr>
<tr>
<td>Stuttering</td>
<td>Spontaneous speech</td>
</tr>
<tr>
<td>Reading and writing disorder</td>
<td>Rechtschreibungstest (RT) (Kersting &amp; Althoff, 2004)</td>
</tr>
</tbody>
</table>
| Central auditory processing disorder | Screening by DGPP (German Foundation of Phoniatrics and Pediatric Audiology)  
Mottier-Test (Part of the Züricher Lesetest by Linder & Grissemann, 1996) |
| Attention-deficit/hyperactivity | Screening Kinder-Diagnostik-System I (KIDS I) |
disorders (ADHD)  
(Döpfner et al, 2006)-Frankfurter Aufmerksamkeitsinventar (FAIR)  
(Moosbrugger & Oehlschlägel, 1996)

<table>
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<tr>
<th>Language disorders/linguistic development</th>
<th>Spontaneous speech</th>
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<td></td>
<td>Case history</td>
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</table>

| Learning disability                      | Case history       |

Subjects

We propose to locate and examine a sample of 15 to 20 German-speaking people who clutter and who meet St. Louis et al.’s (2007) working definition. The subjects will be monolingual speakers of German who do not show any of the following symptoms: stuttering, learning disabilities, peripheral hearing loss, neurological diseases (e.g. epilepsy), attention-deficit/hyperactivity disorders (ADHD), central auditory processing disorder (CAPD), intellectual problems or consistent articulation errors.

The subjects will be monolingual speakers of the German. The subjects’ ages will range from 9 to 65 years. People over 65 will be excluded to avoid the possible influence of changing brain structure in older people. Subjects younger than 9 years of age will be excluded because a different set of age-adequate material would be needed to examine their reading and writing ability. Furthermore, the examination of young children by an unknown examiner is often difficult. In order to make data comparable, it will be necessary to use a maximum of two different tests for each part of the assessment procedure (see test battery, above).
Examination

The examination, which should take no more than 90 minutes, will take place in a quiet room at each subject’s home. When children are examined, their parents will be in attendance. The assessment procedure will start with the collection of case history data and will be videotaped.

Data Analysis

First, subjects with indications of any coexisting disorder or problem will be excluded from sample. Next, spontaneous speech samples of every subject will be rated by 3 to 4 experts (speech and language therapists with experience in treating cluttering and stuttering). The experts will have to decide if a subject shows only the symptoms of a person who clutters or if the subject shows coexisting stuttering. Only subjects who are clearly identified as people who clutter can be part of the sample. Other participants will be excluded from the sample. After the examination, the spontaneous speech samples will be transcribed and analyzed with regard to rate, disfluency, pauses, prosodic pattern, and coarticulation. If no subjects can be found who are free of any coexisting disorder or problems, the coexisting disorders and problems will be documented and analyzed.

Outlook

This study will collect new empiric data on cluttering. These new empiric data will be useful in the ongoing discussion of how to define cluttering. The examination will collect empiric data concerning St. Louis et al’s (2007) definition on cluttering. The working definition will be modified if the data indicate the need to do so.
References


Cluttering and Concomitant Disorders

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Introduction

Most definitions of cluttering indicate that it is a disorder of fluency, often confused with stuttering, that in many cases, co-occurs with stuttering. The more formal and widely cited definitions of cluttering generally follow two different lines of thought. One of the more current definitions of cluttering states that cluttering is a fluency disorder that is characterized by rates that are either perceived to be too rapid for the speaker’s articulatory abilities or too irregular (St. Louis, Raphael, Myers, & Bakker, 2003). That is, the rate may not be above standard norms, but may be “too rapid” for that individual’s physical capacity. This abnormal speech is also marked by an excessive number of disfluencies that are not stuttering-like in nature (e.g., interjections, pauses, phrase repetitions, rather than the part-word repetitions, prolongations, or blocks associated with stuttering). In addition, speech of a clutterer is marked by atypical prosody, frequent pauses, and excessive degrees of coarticulation among sounds (St. Louis, Myers, Faragasso, Townsend, & Gallaher, 2004). Following this definition, cluttering is primarily a disorder of speech.

Alternative definitions share the commonality of the speech disorder, however, other disorders and differences are included within each definition. Examples of these definitions include those by Weiss (1968) which refers to cluttering as the “verbal manifestation of central language imbalance.” Luchsinger and Arnold (1965) define cluttering as an inability to formulate language that results in confused, hurried speech (i.e., tachyphemia) and slurred speech. These speech and language errors may be perceived as “dysphasia-like.” Froeschels (1946) has gone as far as saying that cluttering is an incongruity between speaking and thinking. The commonality of these definitions is in their reference to cluttering as a speech disorder, plus associated
disorders in either language, thought, or other high-functioning activities (Daly & Burnett, 1999).

These definitional differences do not exist only among researchers. In order to assist practicing clinicians, the American Speech-Language-Hearing Association established a definition for cluttering that includes the characteristics of a fluency disorder with abnormal and/or irregular rate that can be accompanied by a language, phonological, and attentional deficits (ASHA, 1999). This definition includes the speech component of the disorder as established by St. Louis et al. (2003), the language and/or central processing components described by Weiss (1968), and the cognitive and neurogenic dysfunction defined by others (Luchsinger & Arnold, 1965; Froeschels, 1946), to which was added the overlying component of attention. Clearly, there are many researchers and theoreticians who believe a definition of cluttering must expand beyond the realm of being simply a speech disorder. Since cluttering is often confused with stuttering, the definitional issue is made even more complicated by the fact that approximately 2/3 of the individuals who stutter also possess some other type of speech, language, or learning disorder (St. Louis & Hinzman, 1988). In light of these disparate definitions of cluttering, it is no wonder that this disorder is so poorly understood.

In summary, it is apparent that the field of speech-language pathology does not lack for definitions of cluttering. However, these definitions can clearly be divided into two schools of thought. One considers cluttering to be primarily a speech disorder, while the opposing view considers cluttering to be a more complex language disorder or cognitive disorder that manifests itself through the speech modality, and may include associated symptoms such as attentional difficulties. As a result of these controversies, it is difficult to reliably describe the symptoms of cluttering for either clinical or research purposes.

One further issue that complicates the identification of cluttering for therapeutic or research purposes, is the belief that cluttering often exists as a concomitant to many different disorders. Therefore, the purpose of this review will be to briefly describe
disorders that can run concomitant to cluttering and how they impact the currently used definitions of cluttering.

Concomitant Conditions

Many skilled clinicians and researchers debate the accuracy and validity of any of the current definitions of cluttering, while other less skilled clinicians may simply lack the knowledge to make accurate clinical decisions about cluttering. This can lead to confusion in the diagnosis and labeling of cluttering. This may be due to cluttering’s relatively low incidence in the general population. Most specialists believe the incidence of cluttering to be lower than stuttering (which is 1% in the general population). The one exception to this rule is Becker and Grundman (1970) who identified the prevalence of cluttering in second grade students as being about 1.5%. On the other hand, in a survey of speech-language pathologists, many do not believe that cluttering even exists (Scaler Scott, Grossman, & Tetnowski, 2007). Adding to the difficulties are the findings that show most graduates of speech-language pathology programs in the United States, Canada, and Western Europe will have only one or two lectures on stuttering as they begin their professional career (Scaler Scott, Grossman, & Tetnowski, 2007). This lack of preparation is of grave concern when clinicians are treating a person who clutters. It is unlikely that a clinician who has never seen a client who clutters, or one who has doubts about the symptoms associated with cluttering, will be successful in its differential diagnosis and treatment efficacy. The issue is further complicated by the multitude of concomitant disorders that are often associated with cluttering.

The following brief review will outline deficits that have been cited in the literature as being concomitant with cluttering (Daly, 1993; DeFusco & Menken, 1979; Freund, 1970; Lebrun, 1996; Heitman, Asbjørnsen and Helland, 2004; Lebrun, 1996; Molt, 1996; Seeman, 1970; St Louis & Hinzman, 1988; St Louis, Hinzman, & Hull, 1985; Tetnowski, Scaler Scott, Grossman, Abendroth, & Damico, 2007; Thacker & De Nil, 1996; Teigland, 1996; Thacker & DeNil, 1996; Van Borsel & Tetnowski, 2007). These areas include:
• Language and learning issues
• Motoric issues
• Central auditory processing disorders (CAPD)
• Severe social issues (ASD, or Autism Spectrum Disorders)
• Neurological issues
• Appearance in congenital disorders
• Combinations of the above

Since cluttering does seem to be associated with such a large variety of conditions, we might ask: Can cluttering exist in isolation or is it usually part of a cluster of symptoms? Even experts note how few “pure clutterers” they have seen in their careers (St. Louis, 2006, personal communication). This lack of “pure clutterers” may cause some to believe that cluttering is either a complex disorder or that it almost always exists with concomitant disorders. The lack of “pure clutterers,” or the large number of people who show cluttering symptoms concomitant to other disorders are both potential reasons for the different definitions of cluttering that exist in the literature and thus the inconsistent and confusing research findings in the area of cluttering.

Cluttering and language

Several of the key findings in language disorders running concomitant to cluttering were developed in a review of a large speech and language data base collected in the United States (St. Louis & Hinzman 1988; St. Louis, Hinzman & Hull, 1985). These studies indicated that a significant number of children who clutter appear to have language disorders and phonological disorders and were classified as “possible clutterers.” At the same time, not all “possible clutterers” had language disorders. These studies were completed from a survey of records and unfortunately the exact means of identifying and describing disfluent behaviors were not defined. A more recent study by Teigland (1996) explored the pragmatic language errors in three cluttering teenagers. A checklist (Daly, 1993), associated with a language-based theory
of cluttering, was used to identify clutterers. Thus, the results were as expected; that is, since the criteria for inclusion in this study were based upon a belief that language is affected in cluttering, indeed language disorders were noted in the cluttering subjects. Specifically, Teigland found pragmatic errors in the communication of her subjects that included run-on sentences, disorganized thinking, language delay, academic difficulties, verbal mazes, and insufficient turn-taking. Therefore, none of these studies can indicate whether language disorders are part of cluttering, or whether language disorders were concomitant to cluttering in the selected cases studied.

**Cluttering and motor skills**

Freund (1970) studied the records of 50 patients who had shown signs of rapid speech. The subjects in this study came from clients who exhibited brain damage, hyperactivity, anxiety, schizophrenia, affect disorders, or convulsive disorders. The results of this study indicated that approximately 10% of the subjects showed “cluttering” (rapid, and disordered speech), while other subjects showed rapid speech that was more orderly (pure tachylalia). The cluttered speech was marked by reduplications, omissions of sounds and syllables, paraphrasias, or vowel stops. Unfortunately, the accompanying neurological conditions noted in these clients could be responsible for these unusual speech patterns.

Seeman (1970) studied a group of 30 potential clutterers. Unfortunately, the diagnostic criteria for inclusion in this study were not clearly defined. Seeman studied motor tasks that did not involve speech, such as tapping tasks and a plate touching task. The subjects identified as clutterers in this study were slower at the tapping tasks and made more errors on the plate touching task. The lack of a definition by which clutterers were diagnosed does not allow us to have confidence in the findings that show clutterers to have non-speech motor deficits concomitant to cluttered speech.

In summary, many individuals who clutter show evidence of motor disorders (speech and others), however, these studies are marred by clients who have a variety of neurological conditions or by the inclusion of data from subjects who lack a clear diagnosis of cluttering. At this point it is clear that some clients who clutter are likely to
have motor disorders, however, these disorders do not appear in all cases and there are no common movement disorders that exist in all clutterers.

**Cluttering and the relation to attentional, social, and auditory processing disorders**

The remaining conditions that may coexist or be part of cluttering, attentional deficits, CAPD, and social disorders, will be grouped together because the studies all have similar weaknesses. Heitman, Asbjørnsen and Helland (2004), for example, found that their group of clutterers showed breakdowns in executive function, but did not show attentional deficits across the board. Therefore, although some definitions of cluttering include attention problems as a deficit area associated with cluttering, the data do not support that all clutterers have attentional deficits.

Molt (1996) studied three clutterers (aged from 9.7 to 12.6) and three matched controls. The clutterers were also identified as demonstrating clinical signs of Attention Deficit Disorder (ADD), and two were identified as having a learning disability (LD). The subjects were given a standard auditory processing battery and participated in auditory evoked potential (AEP) studies. Although some of the clients failed various aspects of the auditory processing battery, the results were not consistent across all subjects. All three subjects did show marked differences during AEP studies (marked absence of response at 100 and 200 msec; and decreased amplitude at 300 msec). Unfortunately, all of the differences noted in the clutterers could have been caused by either the ADD or the learning disability. Therefore, CAPD testing does not provide enough evidence to support that all clutterers have auditory processing disorders. At least one study has indicated that cluttering may be seen in children diagnosed with Asperger syndrome (Tetnowski et al., 2007). In one of the cases presented in that paper, a child was noted to have cluttering-like speech (bursts of rapid speech accompanied by disfluencies). Although cluttering was noted in one sample, it was not pervasive throughout all Asperger cases presented in this study.
In summary although cluttering has been shown to exist in attentional disorders, social disorders, and central auditory processing disorders, the evidence is not conclusive enough to indicate that cluttering is a standard feature of any of these disorders, and the evidence certainly does not indicate that cluttering is present in all subjects diagnosed with these conditions.

**Cluttering associated with congenital neurogenic disorders**

Recently, Van Borsel and Tetnowski (2007) reviewed genetic syndromes that were associated with fluency breakdowns. They found that cluttering was reported by researchers in at least two genetic syndromes: Down syndrome and Fragile X syndrome. Once again, inconsistent use of cluttering diagnostic criteria limited these studies.

Studies by DeFusco & Menken (1979), Lebrun (1996), and Thacker & De Nil (1996) independently examined the relationship between cluttering and neurogenic disorders (CVA, brain injury). As a group the individuals studied showed many symptoms typical of brain injury (not surprisingly!), but several also produced cluttered speech. Unfortunately, these authors did not provide a clear definition of cluttering and did include perceptual criteria for identifying cluttering.

In summary, cluttering is demonstrated in both acquired neurogenic and genetic syndromes. However, there is no evidence that cluttering is the key feature associated with any of these conditions. Simply put, cluttering can co-exist in neurogenic or congenital disorders, but does not exist in all cases.

**Summary and Future Directions**

Many conditions ranging from language disorders to motor disorders to genetic differences appear as a concomitant to cluttering. In no concomitant area does
cluttering exist in all cases. Several areas did show that a particular test or procedure may create consistent reactions in most clutterers. This was most evident in test batteries for pragmatic disorders and AEP. However, both of these studies used definitions of cluttering that included language difficulties as part of their philosophy. Thus we do not know if pragmatic errors and AEP differences are part of cluttering, or whether the definition of cluttering used in these studies was simply not valid.

Based upon this review, it appears that it is difficult to link cluttering with any of the concomitant disorders in a direct way. The most likely reason for this difficulty is the lack of a consistent, agreed-upon, and valid definition of cluttering. Clearly, the research shows that many different conditions run concomitant to cluttering. However, we will never be able to determine whether conditions are concomitant to cluttering, or whether the conditions are part of cluttering itself until we reach agreement on the most basic issue of cluttering, the definition.

References


**Stuttering and normal nonfluency: Cluttering spectrum behaviour as a functional descriptor of abnormal nonfluency**

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**Introduction**

It has been suggested (Ward 2006) that the relationship between the speech-language disorders of clumping and stuttering is one that can to some extent be differentiated by their differing relationships with the phenomenon of normal nonfluency. Specifically, stuttering, when established, has very little to do with the type of speech errors that normal speakers may regularly make; the major relationship being when normal nonfluencies are used as a tactic to avoid making stuttering disfluencies. Many of the features of cluttering, on the other hand, may “overlap” with those also seen in normal speech. Because of this, problems can arise when diagnosing cluttering in determining whether the errors are really cluttering or simply normal nonfluencies. A further complication lies in the fact that cluttering commonly coexists with other disorders which themselves result in disruptions to speech which can present similarly to those seen in cluttering. This paper briefly examines these issues. It also presents the concept of cluttering spectrum disorder as one way of dealing with a range of speech and language symptoms whose presence leads to cluttering like behaviour, but where a diagnosis of “cluttering” cannot be fully supported.

**Problems with a definition of cluttering**
Cluttering is a speech language disorder which thus far has evaded a succinct definition. This may largely be explained by two factors. First, while expert clinicians agree on a number of characteristics that are strongly associated with cluttering (Daly & Cantrell, 2006), disagreement still exists as to which of the various elements are core to a diagnosis, and those which may merely be associated with the disorder. Second, this problem is compounded when cluttering is diagnosed together with other disorders, such as stuttering, with which it commonly co-occurs.

The first point is illustrated by the varied definitions that have been proposed. St Louis (1992) regarded the chief characteristics of cluttering as ‘abnormal fluency which is not stuttering and a rapid and/or irregular speech rate.’ Later, St. Louis, Myers, Bakker, & Raphael (2007) offered a reworked definition: ‘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) degrees of co-articulation among sounds, especially in multisyllabic words.’ (pp. 299-300)

Others have commented on the linguistic deficits experienced by those who clutter ‘…cluttering tends to present as an output which is primarily disorganized (motorically, or linguistically) rather than disfluent. Any loss of fluency comes about primarily because of this disorganization, whether due to a loss of motor control or a lack of linguistic ability (Ward, 2006, p 142; also see Daly, 1996.)

Thus, those who clutter may experience a range of problems, encompassing motoric and linguistic problems. With regard to the former, speech rhythm may be affected: speech may be “staccato,” jerky, and filled with inappropriate pauses. Output may also contain “apraxic-like” errors and overcoarticulation, the latter leading to
phoneme distortions and syllable omissions (Dalton & Hardcastle, 1989) but cluttering can occur with normal rate of speech (Ward, 2004).

In addition, language may sound confused and incoherent. The language processing chain may be affected by difficulties at a lexical level (poor word finding difficulties, which may be associated with an excessive use of fillers), syntactic errors (which may lead to excessive number of phrase revisions), semantic errors (e.g. saying Saturday when meaning Sunday) and pragmatic errors (clutterers may be poor conversational partners, exhibiting, for example, poor turn taking and poor eye contact). Fluency may further be adversely affected by quick phoneme repetitions (commonly numbering no more than three repetitions per instance), part-word repetitions and short inappropriate pauses are also common. These features may sound somewhat like stuttering, with the pauses often bearing a strong resemblance to short stuttering blocks.

On top of this, there are certain non-speech traits which some believe to be associated with the disorder. These may include weak organizational skills, poor levels of attention and concentration, and a lack of awareness of the speech/language difficulty. Poor motor control may be seen outside the speech domain, particularly in handwriting, and there may be reduced awareness of this by the person who clutters. Children may be inattentive, fidgety and clumsy, and may get into trouble at school for bumping into other children, leading some to consider an overlap with attention deficit hyperactivity disorder (Myers & St Louis, 1997).

Given this breadth of symptoms, it is not surprising that there is overlap with other disorders – both those of speech or language origin, and those, such as autistic spectrum disorder, which are not speech language disorders per se but have implications for spoken output. Amongst the list of the former, investigators have associated cluttering with dysarthria, apraxia of speech (de Hirsch, 1961), high level aphasia (Luschinger & Landolt, 1951), tachilalia (Freund, 1952), and, of course, stuttering (Daly, 1993; Myers & St Louis, 1992; Preus, 1992). Cluttering symptoms may also be seen in those suffering from attention deficit hyperactivity disorder (Daly, 1992), autistic spectrum disorder, and dyslexia (Myers & St Louis, 1997).
The diagnosis of cluttering and cluttering spectrum behaviour

Clearly, there is likely to be little doubt surrounding a diagnosis of someone with a severe, pure clutter. For most, though, there is very unlikely to be a single diagnosis – pure and severe cluttering is rare, and with such heterogeneous signs and symptoms, diagnosis is likely to be problematic for a significant number of clients.

The term cluttering spectrum behaviour may be used to deal with such cases, and can be defined as a speech/language output that is disrupted in a manner consistent with cluttering, but where there is a) insufficient severity, b) insufficient breadth of symptoms, or c) both, to warrant a diagnosis of cluttering.

This model can be represented, thus:

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\text{<-Normal nonfluency -><Cluttering spectrum-><Severe cluttering->}}
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In this perspective, many of the cluttering behaviours can be seen as existing on a continuum with normal non-fluency, in a way in which stuttering behaviours cannot. Thus, at the left end of the continuum we have highly fluent individuals, but as we move further right, we would place individuals who experience more features that are consistent with cluttering (perhaps more than expected incidences of word finding difficulties and occasional faster bursts of speech). These speakers, then, may present with some cluttering symptoms, but fall short of being identified as a person who clutters. At the far right end of the continuum we find symptoms that clearly identify the speaker as having a clutter, such as fast bursts of under-articulated speech. An important feature of the cluttering spectrum behaviour representation is that it also
allows for the acknowledgment of cluttering elements within a single or multiple speech & language diagnosis, without making the assumption ‘...that all the cluttering signs are linked causally and exclusively to the disorder of cluttering’ (Ward, 2006, p 151).

We can see how this conceptualization might usefully be applied to two case examples assessed in my clinic in recent months, both of whom can be described as exhibiting cluttering spectrum behaviour:

**Example 1. - Female 36**

- History of depression - client prescribed lithium
- No pre-existing speech and language diagnosis
- Speech and language symptoms:
  - fast speech rate (260 syllables per minute)
  - monopitch, monoloudness,
  - overcoarticulation, some weak syllable deletion
  - excessive number of interjections
  - non-verbal features - poor eye contact, lack of awareness of speech/intelligibility issues

Here, both the fast speech rate, and overcoarticulation point toward a diagnosis of cluttering, as do non-speech traits such as poor eye contact and lack of awareness of speech related problems. Against this possible diagnosis, we might argue that the speech rate, while rapid, is not at the extreme speeds seen in some who clutter – also, there is no unevenness in speech rate. Finally, we cannot rule out the possibility that both the depression and the lithium played a part in the speech symptoms.
Example 2. - Male 19

- No Medical diagnosis
- No pre-existing speech and language diagnosis speech and language symptoms:
  - excessive maze behaviour - hard to follow
  - tangential speech
  - some phonemic errors/transpositions
  - fast speech rate, but normal intonation and rhythm

All four of the listed speech language symptoms are consistent with cluttering – two representing language components and two motoric. Again, though, speech rhythm is normal and there are no non speech difficulties consistent with cluttering.

As stated earlier, there are differences of opinion as to the whether some characteristics, for example, high level language difficulties, should be seen as diagnostic of cluttering (although most would agree that they very commonly appear in the speech of those who are diagnosed as cluttering). These are issues which ongoing research must seek to resolve. In the meantime, when individuals present with such features (as in our example 2, above) I suggest applying the term cluttering spectrum behaviour to acknowledge the existence of these attributes without necessarily having to make assertions as to their causal link to a complete diagnosis of cluttering itself.

References


