

Clinical Management of Cluttering From a Synergistic Framework

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Introduction

Systematic studies on the efficacy of therapy for clutterers are virtually nonexistent in the literature. Moreover, while most clinicians are aware that treatment for cluttering should differ from treatment for stuttering, there is little consensus regarding appropriate intervention techniques.

In an attempt to fill this void, the two purposes of this chapter are: 1) to present several working assumptions about the assessment and treatment of cluttering based on the constructs presented in Chapter 5; and 2) to offer specific assessment and therapy strategies from a synergistic perspective.

Possible Contrasts Between "Pure" Stuttering and Cluttering

Results of recent studies attempting to define cluttering appear to support the notion that cluttering is an identifiable clinical entity, which may or may not coexist with symptoms of stuttering (see Chapters 3 and 4). Although a universally agreed upon definition of either stuttering or cluttering is yet to be derived, there is nonetheless a degree of consensus among clinical speech-language pathologists regarding what are perceived to be essential characteristics of these disorders. The consensus is stronger for stuttering than for cluttering.

Essential features of stuttering have been characterized variously as:

1. within-word disfluencies such as part-word repetitions and sound prolongations (Conture & Caruso 1987);
2. "higher than normal frequency of part-word repetitions or prolongations or blockages, or the presence of some reported or observable avoidance behaviors which the

client says reduces or eliminates the repetitions, prolongations, or blockages" (Starkweather 1987, p. 122);

3. "involuntary repetitions, prolongations or cessations of sound...(when the)... individual knows what he wishes to say but is unable to..." (Andrews 1987, p. 17);

4. repetitions, prolongations and tense pauses (Van Riper 1982; Wall & Myers 1984);

5. involuntary repetitions of sounds or syllables and prolongations which may or may not be audible (Wingate 1964);

6. repeated stoppages more so than repeated utterances (Bloodstein 1987).

Based on the above sampling of authors, it appears that the essential features of "pure" stuttering consist of within-word fragmentation and blockages reflecting motoric disruptions (Van Riper 1982), a degree of loss of control (Perkins 1990), and awareness and apprehension. Finally, these disruptions often occur even though the stutterer knows what he wants to say (Andrews 1987).

The essential features of cluttering are less well defined. Chapter 3 arrived at a working definition whereby cluttering is considered to be a speech-language disorder characterized primarily by abnormal fluency which is distinguishable from stuttering, and a rapid/irregular speech rate. St. Louis' search for a "lowest common denominator" of cluttering does not necessarily preclude the possibility that cluttering as a syndrome can encompass anomalies of language, articulation and voice.

The prevailing consensus among practicing speech-language clinicians considers the following traits as obligatory to cluttering: fast/irregular rate of speech, disorganized thinking, repetitions of sounds/syllables or phrases, and unawareness of the problem. The "average" perceived optional symptoms include misarticulations, language delay, prosodic anomalies, motor coordination problems, and academic achievement difficulties (St. Louis & Hinzman 1986; St. Louis & Rustin, see Chapter 3).

Some Working Assumptions About the Clinical Management of Cluttering

As discussed by Myers (Chapter 5 of this volume; Myers, 1988), several assumptions are held to be basic to our thoughts about the clinical management of cluttering:

1. cluttering is a syndrome consisting of coexisting anomalies of speech and language;
2. these coexisting anomalies should be assessed from a systems approach such that aspects of the linguistic, articulatory and suprasegmental components (including rate and fluency) of the communication system not only coexist but have the potential to be functionally interrelated;
3. therapy should not only take into account the individual disordered components but also strive for synergism and synchrony among the various constituents of the system.

The latter is important for the remediation process inasmuch as improvement in one aspect of speech and language could enhance another part of the communication system and, in turn, have a favorable effect on the overall cohesiveness and coherence of discourse. The remaining sections of this chapter will be devoted to assessment and therapy approaches with the above considerations in mind.

Strategies for the Assessment of Cluttering

In the absence of a universally agreed upon definition of cluttering, a formidable task confronting the clinician is the differential diagnosis of stuttering and cluttering. In the context of this chapter, stuttering in its "purest" or most "elemental" form is characterized by within-word disfluencies consisting of part-word repetitions, sound prolongations, or blockages which reflect a degree of physiological effort/tension.

These characteristics would appear to be distinguished from clutterers who have fewer sound/syllable repetitions, prolongations and instances of

struggle than stutterers'; as well as lower performance on language measures such as utterance completeness and complexity, compared to "pure" stutterers (St. Louis et al 1985).

While it is useful to make these distinctions between the "essential" features of stuttering vs. cluttering for theoretical and research purposes, it is probably more the case that many of our disfluent clients exhibit symptoms both of cluttering and stuttering. These two fluency disorders are not necessarily mutually exclusive.

From a clinical perspective, therefore, it may be more fruitful to determine whether a client exhibits relatively more cluttering-like symptoms or relatively more stuttering-like symptoms. By examining the nature of the disfluencies and associated behaviors, we would be in a better position to pose therapy strategies.

Toward this end, we need to consider whether the individual's disfluencies:

1. reflect relatively more repeated stoppages (e.g., tense pauses) compared to repeated utterances (e.g., phrase repetitions);
2. are motivated relatively more by within-word motoric discoordinations compared to language formulation difficulties;
3. are typically associated with stuttering (i.e., sound/syllable repetitions, prolongations, tense pauses) compared to disfluencies which characterize nonstuttering disruptions (e.g., fillers, incomplete phrases, word repetitions, revisions);
4. reflect excessive muscular tension and effort;
5. reflect momentary "loss of control" of the speech production system;
6. reflect a degree of awareness and apprehension of the communication difficulties through such behaviors as struggle, secondaries, or other accompanying symptoms

(i.e., what the disfluent individual does in reaction to moments of disfluency or in reaction to the fear of disfluency).

The more the above disfluencies can be applied to the individual, the more likely one is to consider the individual to exhibit symptoms of stuttering. Conversely, the less the above behaviors describe the person's disfluencies, the more likely one is to consider these symptoms to be of cluttering.²

The above diagnostic characteristics are based on the prevailing research regarding the nature of disfluencies associated with pure stuttering (see the criteria listed above for the essential features of stuttering) and those associated with cluttering. Interestingly, individuals with normal nonfluencies appear to share many of the fluency characteristics associated with cluttering, but to a far lesser degree in quantity and severity. Future research will undoubtedly help us fine-tune these and other diagnostic issues.

Each of the above characteristics carries implications for therapy. For example, characteristic 2) above may be critical in regard to the direction chosen for therapy in that it poses the issue of knowing what to say vs. knowing how to say it (Perkins 1990). Knowing "what to say," in the present context, refers to fluency in the formulation of the underlying proposition of an utterance.

Therapy for the disfluent preschooler experiencing a great deal of linguistic and cognitive uncertainty ("That's a big, big, big, um, big fish - I mean, um, a a whale."), traditionally considered a borderline or incipient stutterer, may also benefit from assessment and therapy strategies proposed in the following sections.

Knowing **how** to say something can be examined at two levels. Following a top-down model, we propose that the speaker first needs to attain fluency at the linguistic level (knowing how best to encode the propositions in a syntactically, semantically, and pragmatically meaningful way), and then almost simultaneously at the speech production level (sequencing the physiological gestures in a timely fashion in order to carry out the linguistic

²Although disfluencies also characterize other disorders such as Parkinson's disease and developmental apraxia, the considerations at hand deal specifically with cluttering and stuttering.

commands). Facility in both realms is needed to encode a proposition fluently.

Clutterers may experience difficulty with the first level, perhaps the second level, as well as in the coordination between these two levels. Speaking at a rate faster than one can manage, the clutterer may actually transpose the neurological events of these two levels of activity by encoding the articulatory gestures prematurely. The worst-case scenario would be the instance in which the clutterer begins to sequence the speech production component before the pre-linguistic, propositional component is ready. The fluency, intelligibility, cohesion, and coherence of the clutterer's speech deteriorate further as s/he continues with this transposition using a rate faster than s/he can handle. Unlike the normal speaker who occasionally speaks faster than s/he can think and who usually recognizes the error, the clutterer shows no awareness of the defects.

In conclusion, the remaining sections on assessment and treatment are addressed to that subgroup of disfluent individuals who exhibit the following attributes primarily associated with cluttering:

1. less sound/syllable repetitions and prolongations;
2. fewer instances of struggle and muscular effort and tension;
3. more symptoms of language anomalies;
4. faster and/or erratic speech rate;
5. more misarticulations resulting in part from a rate faster than the client can manage effectively;
6. less awareness and apprehension about moments of disfluencies;
7. more "repeated utterances" compared to "repeated blockages"; and
8. more dissynergy involving the multiple components of the speech and language system.

Importantly, the above attributes are designated in relative rather than absolute terms as there are likely to be subgroups of disfluent individuals exhibiting varying degrees of stuttering and cluttering. Nonetheless, these behaviors indicate that cluttering may be the primary presenting disorder and therapy strategies should be based on remediating the types of disfluencies exhibited.

What follows are some strategies for the clinical management of individuals considered to have more cluttering-like than stuttering-like symptoms, according to the behaviors delineated above. It should be emphasized, however, that these strategies are offered not as part of a set "program," but reflect instead some considered principles from which specific techniques can evolve.

Assessment from a Synergistic Framework

Principles of Assessment

Several principles are held to be particularly helpful in the assessment of clutterers:

1. Given the concomitancy of speech and language symptoms, the potential clutterer should be assessed for aspects of the entire communication system including language, rate, articulation, and fluency.
2. Moreover, we need to assess the nature of interaction between the various components of the communication system. Rate, for example, needs to be considered in the context of degree of cognitive and linguistic complexity of the speaking task. Articulation, as another example, needs to be considered in the context of the rapidity of speech as well as the length of an utterance. Synergism occurs when two or more components interact well together. On the other hand, anomalies in one speech or language component can impair the functions of another area.
3. Since some clutterers may also exhibit perceptual-motor and learning difficulties, assessment should be

broadly-based to include neuropsychological testing.

Strategies for Assessment

i) Language Sample and Formal Testing

We propose a two-pronged approach to the assessment of cluttering, incorporating nonstandardized-naturalistic and standardized measures. The initial step in the assessment process is the elicitation of a spontaneous, naturalistic language sample. Analysis of the language sample should seek to answer a number of questions regarding aspects of the client's fluency, language, rate, and articulatory functions. Some basic diagnostic questions pertaining to each of these areas are outlined in the section below.

In addition, notations should be made during the elicitation of the language sample regarding the client's nonverbal speech behaviors (e.g., gaze aversion, anxiety) to assess the client's awareness or lack of awareness of the effect of his/her communication on the listener and any attempts to repair conversational breakdowns. Lack of awareness would indicate a breakdown in the individual's servosystem which has implications for therapy.

Based on information gathered from the language sample, the clinician selects assessment tools which provide a more structured and standardized means of evaluation. Standardized tests serve one or more of the following purposes:

1. to obtain objective, norm-referenced measures of the various aspects of speech/language which appear to be disordered;
2. to compare and contrast the fluency, articulation, rate, and language functions observed in naturalistic vs. formal test situations;
3. to examine in a more controlled and focused way the behaviors judged to be anomalous based on a naturalistic language sample.

Some commonly used tests in the United States include **Clinical Evaluation of Language Functions - Revised** (Semel et al 1987), **The Test of Language Development 2 - Primary** (Newcomer & Hammill 1988), **The Test of Language Development 2 - Intermediate** (Hammill & Newcomer 1988), **The Goldman-Fristoe Test of Articulation** (Goldman & Fristoe 1984), **The Compton Phonological Assessment of Children** (Compton 1986), and **The Khan-Lewis Phonological Assessment** (Khan & Lewis 1986). Space does not permit a critical review of the various formal tests available for the various domains of communication. However, helpful sources are available on assessment procedures for disorders of fluency (e.g., Wall & Myers 1984; Myers 1989a; Peters & Guitar 1991); language (Lund & Duchan 1982; Prutting & Kirchner 1983; Schiefelbusch 1986; Lahey 1988; Myers 1989b); language-learning disability (e.g., Wiig & Semel 1984); articulation/phonology (e.g., Ingram 1981; Newman et al 1985).

Some Diagnostic Questions to Consider

In keeping with the synergistic framework, selected diagnostic questions will be organized around the major components of the speech and language system. Some overlap exists between questions; nonetheless, each query attempts to tap a component from a slightly different vantage point to extract additional insight regarding therapy implications.

Questions reflecting an interplay between two or more components are marked by an asterisk (*). This is in keeping with the working hypothesis that different parts of the communication system have the potential to function interdependently. For example, as summarized in items 3b, 3c, 3d, and 3e in Chapter 5, rate and length/complexity of utterances can affect articulatory functions. This principle is translated into specific diagnostic questions (e.g., questions 1-4, 6-8) under the "Articulation" section below.

Fluency

1. Does the individual exhibit frequency and types of disfluencies which are distinguished from the essential features defining pure stuttering?

*2. Does the individual exhibit disfluent behaviors which may reflect language formulation problems (e.g., incomplete phrases, revisions, fillers, phrase repetitions) more so than physiological tension and motor

discoordination (particularly at the within-word level such as tense pauses and pitch glides during prolongations)?

*3. Does the individual exhibit more disfluencies on longer and linguistically/cognitively more complex utterances?

*4. Does the individual exhibit more disfluencies as the narrative or discourse becomes more complex and extensive?

Rate and Rhythm

1. Does the individual exhibit a rate (in syllables per second) which is faster than the norms established for others of similar age performing similar speaking tasks (Starkweather 1987)?

2. Does the individual exhibit an erratic and spurty rhythm?

*a. Are the client's pauses in synchrony with his/her linguistic and thought units?

b. Does the client exhibit festination (rate becoming increasingly fast)?

*c. Are the breath groups not in synchrony with linguistic units?

d. Does the client intersperse short spurts of fast speech with segments which are spoken more slowly?

*e. Do the loci of disfluencies contribute to the perception of an irregular cadence?

f. Does the individual have difficulty in placing stress on accented syllables?

*3. Is there a preponderance of disfluency types which add to the perception of a spurty and irregular rate, such as those associated with Van Riper's Track II clients (i.e., incomplete phrases, revisions, interjections, backups and retrials)?

*interplay between two or more parameters of speech and language.

Articulation

- *1. What proportion of the client's misarticulations are phoneme-specific and what proportion of them are contributed by other variables such as rate or inefficiency of the sensorimotor feedback system? ("Phoneme-specific misarticulations" refer to several specific sounds which are more consistently misarticulated, regardless of rate. If rate is a major contributing factor to the misarticulations, one is likely to see various sounds and syllables misproduced.)
- *2. Does the client exhibit such misarticulations as weak syllable deletion, cluster reduction, final consonant deletion, telescoping, and neutralization of vowels which might be suggestive of "overcoarticulation"? (Dalton & Hardcastle 1977)
- *3. Do the misarticulations improve with a slowing of rate?
- *4. Do the misarticulations improve by synchronizing propositions and linguistic units with pauses through appropriate phrasing?
5. Do the misarticulations improve with heightened conscious awareness of articulatory movements?
- *6. Does articulation become further impaired with multisyllabic words? Or with longer and more complex utterances?
- *7. Is there an overall deficit in speech intelligibility above and beyond that which would be expected based on the individual's misarticulations, contributed by an interaction between rate, language and disfluencies? A child with only one phoneme-specific misarticulation, for example, may nonetheless be difficult to understand because of his fast rate, linguistic irregularities, and disfluencies.
- *8. Is there a difference in articulatory performance during a structured reading task vs. conversational speech?

Language

*1. Does the individual's discourse show deficits in coherence and cohesion, effected by such variables as:

- a) word-finding difficulties;
- b) use of nonspecific words;
- c) maze behaviors such as revisions (see Loban 1976);
- d) difficulties in sequencing chunks of logically related information;
- e) aborted or incomplete phrases (related to maze behaviors, and backups and retrials noted for Van Riper's Track 2 clients)?

2. Does the individual exhibit difficulties with the syntactic and semantic formulation of longer and more complex utterances? Of longer and more complex narratives and discourse?

*3. Do aspects of the individual's language deteriorate as rate becomes faster or more erratic?

4. Does the individual have difficulty in maintaining a focused topic?

5. Does the individual violate aspects of pragmatics (see Prutting & Kirchner 1983), such as inappropriate turn-taking, not monitoring feedback from listener, inability or failure to repair communication breakdowns?

6. Does the individual violate basic conventions regarding the grammar or organization of narratives during longer discourse (see Westby 1984)?

Self-Awareness

1. Do the individual's nonverbal behaviors indicate awareness of speech and language difficulties (e.g., averting gaze)?

2. Based on the client's verbal and nonverbal behaviors, are there indications of awareness of the effect of miscommunications on the listener?

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3. Are there any attempts to repair communication breakdowns (e.g., slowing rate of speech, use of linguistic stress, clarifications, rephrasing of utterance)?
4. If so, what strategies, if any, does the speaker use to repair communication breakdowns at the:
 - a) articulatory level?
 - b) syntactic level?
 - c) semantic level?
 - d) pragmatic level?

Neuropsychological Testing

Since various academic and neuropsychological deficiencies have been associated with cluttering, it is strongly recommended that clinicians obtain neuropsychological testing for their client. It becomes readily apparent that the answering of the following diagnostic questions requires testing by professionals in allied fields. As with many of the disorders of communication, therefore, a team approach to the assessment of cluttering would be considered essential, wherever feasible.

1. Does the individual experience difficulties with reading?
2. Does the individual experience attentional deficits? Hyperactivity?
3. Does the individual exhibit weaknesses on perceptual-motor tasks?
4. Does the individual have difficulty with auditory processing and recall, particularly for complex and longer passages?
5. Does the individual have difficulty with spelling and writing?
6. Does the individual have difficulty with motor or vocal activities which require a sense of rhythm?

Case History and Interview

As with the clinical management of any communication disorder, some very important diagnostic information can be extracted from the case history and interview with client and family. The following highlights some of the more important areas to query:

1. Do other members of the family (immediate and extended) have speech and language difficulties similar to those exhibited by the client?
2. What is the nature of communicative interaction between client and family members?
3. Does the individual express an awareness of difficulties in communicating clearly and cohesively at home? At school? At work? In pragmatic situations of varying degrees of formality? If so, to what extent or in what speaking situations is s/he aware of these difficulties? How does s/he attempt to compensate for these difficulties?

Considerations for the Treatment of Cluttering

Introduction

Before discussing intervention strategies for cluttering, it is important to note that results of therapy with clutterers have thus far not been uniformly favorable. Some would consider prognosis to be guarded³, particularly if the diagnosis of cluttering is not made before adolescence (Diedrich 1984). The purpose of pointing this out is not so much to discourage the clinician, but to heighten awareness of the need to seek more effective solutions and perspectives.

Examining cluttering from a synergistic framework may provide a more effective means to remediate this difficult-to-treat disorder. The challenge to treatment is due to: 1) the coexistence of anomalies associated with

³ However, as implied in Chapter 1, prognostic outlook for a pathology is in part influenced by how much we know about the disorder.

cluttering; 2) a weak servosystem characteristic of many clutterers; and 3) the possibility of an organic basis for the disorder.

Strategies for Therapy

What follows are therapy strategies stemming from the above assumptions. These strategies have evolved from our own clinical work with clutterers as well as insights gained from the writings of others - including Weiss (1964), Seeman (1966), Dalton and Hardcastle (1977, 1989), Tiger et al (1980), Van Riper (1982), Wiig and Semel (1984), Daly (1986), and Preus (1987). As more is known about cluttering, the strategies discussed below will be elaborated and refined.

It should be noted that even though these strategies are grouped under the major components of the speech and language system, most of them in actuality involve an interaction between components. Therefore, in addition to techniques to help improve individual aspects of communication, Table 6.1 also lists therapy strategies to improve the interaction between various levels of the speech and language system. These therapy strategies are not meant to be an exhaustive listing of therapy techniques nor are they discussed in a fixed order of preference. Instead, a hierarchy of priority should be established by the clinician based on the particular behaviors observed during the evaluation and as therapy progresses.

Language and Fluency

Cluttering, as we are aware, has traditionally been classified as a fluency disorder, which indeed is a perceptible feature. However, as previously discussed both in this chapter as well as in the chapter by St. Louis, cluttering seems to be distinguished from stuttering by fluency disruptions involving units larger than the sound or syllable.

At this point, we are reminded of a recent statement posed by Peters and Starkweather (1990, p. 120), "Children for whom cluttering has been a source of stuttering are particularly interesting because in these children, limitations in language competence can directly influence speech production." While further research is needed to reinforce this position, the hypothesis is offered that disfluencies observed in many clutterers (such as those associated with revision and "maze" behaviors) are motivated in part by linguistic variables. As such, a strategy of therapy would be to strengthen

the client's language skills.

Table 6.1. Some suggested therapy strategies for the treatment of cluttering.

I. Therapy strategies to improve rate and articulation:

- slow overall rate
- use syllable-timed speech
- prolong vowels
- attend to word endings and unstressed vowels and syllables
- shadowing
- use more distinct articulatory gestures
- use phrasing and wider prosodic variations
- give added stress on accented syllables

II. Therapy strategies to improve language:

- increase semantic classification and categorization skills
- increase speed and accuracy of word retrieval (e.g., rapid naming drills)
- formulate ideas using appropriate syntactic structures
- heighten client's awareness of pragmatic variables (e.g., turn-taking, coherency and contingency of discourse)

III. Therapy strategies to increase awareness of feedback:

- use audio and video taped speech to monitor and correct errors
- use online monitoring and correcting of linguistic errors
- heighten client's sensory awareness of speech movements
- heighten client's awareness of feedback from listener (e.g., facial expressions, verbal indications of a communication breakdown)

The distinction between "knowing what to say" vs. "knowing how to say it" may be worthwhile to consider in determining therapy strategies. We often hear even from college students, when pressed to be more specific,

"I know what I want to say, but just can't say it for some reason. You know what I mean?" or sometimes simply "You know." If it is the case that our client knows what he or she wants to say but not how to say it, the client may need specific help with the formal properties of language, such as formulating the idea using appropriate semantic/syntactic structures. Numerous publications are available which provide clinical strategies for the improvement of semantics and syntax, including those by Wiig and Semel (1984), Fey (1986), and Lahey (1988).

For those clutterers who exhibit word-finding difficulties, some of the disfluencies may be used as placeholders and fillers in an attempt to "buy time," in order to retrieve appropriate words to express one's ideas. Intervention strategies recommended for word-finding difficulties (such as those discussed by Wiig and Semel 1984 for the language-learning disabled individual) may be used to facilitate fluency in the clutterer. For example, activities aimed at improving the client's semantic classification and categorization skills should be considered. These activities may also help the clutterer who experiences "proposition-finding" difficulties as well. Such activities include naming members of a category, analyzing features shared by members of a category, analyzing features by which members of different categories are contrasted. Activities aimed to increase speed and accuracy of word retrieval include rapid-naming drills and various sentence completion tasks.

Self-Awareness

Weiss (1964) early on pointed to the poor "interlocutor" and communicative skills of clutterers. For those clutterers who are not aware of their communication breakdowns or the effect that such breakdowns have on the listener, activities need to be used which "force" them to become aware that they have a responsibility during discourse to speak in a way that is intelligible and coherent to the listener, and that there is reciprocity and turn-taking between the listener and the speaker.

This means that the clutterer must be observant of the types of verbal and nonverbal feedback provided by the discourse partner. For example, the clutterer should be asked at least momentarily to be quiet to allow for the other person to speak and, if necessary, ask for clarification of the previous message. This kind of confrontational strategy, similar to those also advocated by Preus (1987), may be an efficacious means to teach the

clutterer how and what s/he needs to change in order to be a more effective communicator.

Therapy toward this end should begin by teaching or discussing the conventions of pragmatics. (The reader is reminded of one of the many "modern" foresights made by Weiss in 1964 regarding the poor communicative skills of clutterers; see Chapter 1.) Many of these conventions are outlined and discussed by Prutting and Gallagher (1983). Of these, we have found turn-taking to be particularly relevant. Any topic can be chosen by the client, but s/he is instructed to speak only one sentence at a time. At the end of an utterance, s/he is to pause and scan for any indication from the listener that the message has been understood or to allow the listener the opportunity to comment, request for clarification, or ask for repetition of the sentence if it was not easily understood. These techniques would also help to slow down the client's speech as well as improve phrasing.

Once the client is able to segment conversation into single sentences and pause to allow the listener to respond, the length and complexity of utterances should gradually be expanded. As length and complexity increases, the client is required to maintain a manageable rate and utilize his/her developing servosystem to monitor the clarity and completeness of his/her articulatory gestures. Moreover, the clutterer should continue to "read faces" and understand "body language" until s/he demonstrates familiarity with the techniques and can accurately apply them in a variety of communication settings (e.g., classroom, job).

Learning to watch the listener's face while speaking and pausing, noting and interpreting non-verbal behaviors such as head movements (up and down to indicate agreement, or side to side to indicate disagreement possibly accompanied by vocalization such as "ummm" or "OK") and facial expressions (smiles, frowns, angry looks, and so forth) will provide critical feedback to the client. Such feedback cues the clutterer regarding the effect of his/her message on the listener, further developing his servosystem and awareness of the effects of his/her communication on the listener.

The use of the tape recorder is of utmost importance in work with clutterers. Now that many clinics and schools have video equipment, use of the latter would also facilitate improvement of the self-monitoring skills of clutterers. Many clutterers remain quite unaware of their speech/language difficulties, even after several listenings to their recorded speech. The first few sessions on improving self-monitoring skills may have the client simply

make a categorical judgment; that is, discerning whether there was or whether there was not a problem with fluency, rate, language, or articulation. As the client becomes more attuned to problems in these areas, the clinician then helps the individual to be more specific (e.g., using a severity rating scale, identifying specific anomalies) during self-analysis. After the client becomes proficient in self-analysis with the use of the audio or video tapings, on-line monitoring during the communication act becomes the next phase of therapy.

On-line monitoring requires sensitivity to one's own perceptual and cognitive feedback during speaking, as well as the verbal and nonverbal feedback from one's listener. As indicated above, the client needs to pause in order to allow the listener a turn. Very likely, the content of this turn will provide the client an opportunity to determine if his/her previous message was formulated with sufficient clarity and coherency.

Rate and Rhythm

Structured exercises on rate and phrasing are also beneficial. The client might begin by first reading sets of complex or compound sentences and making a deliberate pause between the clauses. Some clutterers might need to pace themselves by means of a metronome, by shadowing after the clinician's modelling, or by accentuating individual syllables first. The nonreader might begin by commenting on the attributes and functions of objects, deliberately pausing between phrases and clauses. As therapy progresses, the client then attempts to impose appropriate rate and phrasing on narratives of increasing length and complexity.

As a means to increase the client's awareness of excessive or erratic rate, we have found the technique of negative practice to be very helpful. The client is asked to (deliberately) speak/read in an excessively fast or irregular manner, then to contrast this with a much slower and more regular cadence pattern. By reflecting on the differences and the effect of such differences on the clarity and coherence of the output, the client becomes more proficient in slowing his/her rate to a tempo that s/he can more easily manage.

Articulation

If the client's speech is lacking in intelligibility, see if the latter is reduced

due to misarticulations which are not phoneme-specific. We have found that it is often the case that reduced intelligibility is due to a rapid speaking rate or poor self-monitoring, rather than, or in addition to, problems with specific phonemes. A reduction in rate combined with pauses at appropriate linguistic junctures should lead to a reduction in misarticulations. However, if the client experiences misarticulations that are phoneme-specific, attention to those specific sounds would be warranted as well.

We have also found that deliberate use of linguistic stress, especially during production of multisyllabic words, is quite helpful in increasing speech intelligibility. This forces the client to attend to certain details of words, thereby heightening self-monitoring skills. Moreover, linguistic stress has the added advantage of increasing the duration of syllables, thereby reducing rate of production.

In addition to the therapy suggestions delineated above, the reader is encouraged to generate others following the principles of a synergistic approach. For example, many of the diagnostic questions posed in the preceding section (such as Question 2 under Rate, Questions 3, 4, 6, 7 and 8 under Articulation, and so forth) lend readily to the development of additional therapy strategies and activities.

Summary and Conclusion

This chapter has attempted to provide insight into the clinical management of cluttering from a synergistic perspective. Based on the currently available empirical and clinical literature, certain working assumptions were proposed regarding the nature (discussed in Chapter 5) and treatment of this disorder. Foremost of the working assumptions is the perspective that the various symptoms of cluttering not only coexist but can be functionally interrelated. That is, fluency is likely to increase as the linguistic, rate, and articulatory functions improve. Specific assessment and therapy strategies were offered following the tenets of this synergistic perspective.

Given the resurgence of interest in cluttering from a handful of individuals in America and Europe in the last few years, this disorder will hopefully no longer be just an "orphan" in our field (Weiss 1964; Daly 1986). Instead, it will be recognized as a disorder which while having features which are described as "stuttering" behaviors, are nonetheless different enough to warrant a qualitatively different and more effective

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approach to remediation than those traditionally used for the remediation of stuttering. What we are proposing is that a systems approach, whereby we focus on various speech and language components and their interactions, may be more appropriate to the treatment of this disorder.

Our knowledge about cluttering, however, is still in its infancy. We, therefore, additionally hope that this as well as the other chapters in this volume will serve to stimulate further interest in cluttering among clinicians and researchers alike.