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CLUTTERING: SPECIFIC COMMUNICATION DISORDER

Jolanta Góral-Półrola^{1(A,B,D,E,F)}, Jolanta Ziełńska^{2(A,B,D,E,F)},
Grażyna Jastrzebowska^{3(A,B,D,E)}, Zbigniew Tarkowski^{4(A,B,D,E)}

¹ Old Polish University, Kielce, Poland

² Department of Special Pedagogy, Pedagogical University of Kraków, Kraków, Poland

³ Institute of Polish Studies and Culture, University of Opole, Opole, Poland

⁴ Medical University of Lublin, Department of Speech Pathology and Rehabilitation, Lublin, Poland

SUMMARY

The article presents cluttering as understood as a specific communication disorder. Cluttering has received less coverage in the subject literature than stuttering and is comparatively poorly understood. Defining cluttering presents us with a problem due to differences of opinion as to which of the behaviours associated with the disorder are crucial to its diagnosis and which are rather peripheral. Modern approaches to the understanding of cluttering should be based on a neuro-developmental concept, which has pointed out the importance of understanding the whole symptom formation from genes to behavior. This model has microgenetic theory itself in the background. It includes distal interactive factors (genes, environment), main interactive factors (speech planning and speech production), modeling factors (cognitive processes and awareness), and behaviour itself (cluttering). The article discusses these factors against the basis of the global subject literature. Particular attention has been devoted to the development of the process of becoming aware of mistakes in utterances within the perspective of the state of the brain/ mind in time. The section ends with a discussion of the diagnostic criteria including that of differential diagnostics.

Key words: microgenetic theory, speech disfluency, language, thinking, syntax, grammar

INTRODUCTION

Although cluttering has been regarded as an entity distinguished from stuttering since the second half of the 19th century (Kussmaul, 1885), the issue of how cluttering might best be defined has been the subject of ongoing debate for over 55 years, since Weiss (1964) contentiously argued that the disorder could be seen as just one characteristic of what he termed a central language imbalance.

Different approaches to the definition of cluttering

Defining cluttering presents us with a problem due to the differences of opinion as to which of the behaviours associated with the disorder are crucial to its diagnosis and which are peripheral. In an early definition Weiss (1964:1) takes a holistic approach to its description:

Cluttering is a speech disorder characterized by the clutterer's unawareness of his disorder, by short attention span, by disturbances in perception, articulation and formulation of speech and often speed of delivery. It is a disorder of the thought processes preparatory to speech and based on a hereditary disposition. Cluttering is the verbal manifestation of central language imbalance, which affects all channels of communication (e.g., reading, writing, rhythm, and musicality) and behaviour in general.

Cluttering (also called tachyphemia or tachyphrasia) we understood as a specific communication disorder, characterized by a rapid rate making speech difficult to understand, erratic rhythm, poor syntax or grammar, and words or groups of words unrelated to the sentence (St. Louis 2010).

Many authors suggested that cluttering is a fluency disorder (Paçhalska, Kaczmarek, Kropotov 2014; Kearston et al. 2015) wherein segments of conversation in the speaker's native language typically are perceived as too fast overall, too irregular, or both. The segments of a rapid and/or irregular speech rate must further be accompanied by one or more of the following:

1. excessive "normal" disfluencies;
2. excessive collapsing or deletion of syllables;
3. abnormal pauses, syllable stress, or speech rhythm.

St Louis (1992:49) defines cluttering as: "a speech/language disorder," and cites its chief characteristics as

1. abnormal fluency which is not stuttering
2. a rapid and/or irregular speech rate".

Wohl (1970) on the other hand considered festinant speech (where speech becomes faster and faster) to be the outstanding feature. Although all these definitions cover similar areas, there are significant differences amongst them. Weiss does not mention accelerated speech rate. St Louis provides the only definition that directly implicates a loss of fluency. More recently, St Louis, Raphael,

Myers and Bakker (2003:4) have offered a reworked definition:

Cluttering is a syndrome characterized by a speech delivery 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 incidents of disfluency, the majority of which are unlike those typical of people who stutter.

This provides a comprehensive coverage of motoric and fluency aspects, although mention should be given to the language difficulties that are commonly seen in the disorder. This is something Daly (1992:107) addresses when describing cluttering as

a disorder of speech and language processing resulting in rapid, dysrhythmic, sporadic, unorganized and frequently unintelligible speech. Accelerated speech is not always present, but an impairment in formulating language almost always is

All these differences serve to highlight the multifaceted nature of the disorder, and they bring into focus the difficulties for diagnosis; a process often complicated further by the common presence of co-occurring speech and language disorders.

THE FORMATION PROCESS OF CLUTTERING: FROM GENES TO BEHAVIOUR

The forming of cluttering is linked to an array of factors (Ward 2007). In accordance with the neuro-development hypothesis this process may be formulated within a microgenetic model of cluttering: from genes to behaviour (Fig. 1). This involves distal and chiefly interactive factors, modelling factors as well as behaviour.

Distal interactive factors

Weiss (1964) went so far as stuttering and cluttering to claim that all cluttering occurred through genetic transmission and that cluttering underpinned all stuttering – an opinion which is not shared by authorities nowadays. EEG evidence for an organic explanation has found those who clutter to show more abnormal patterns than those who stutter (Langova & Moravek, 1964; Luschinger & Arnold, 1965; Moravek & Langova, 1962). Luschinger and Arnold (1965) found that while a group of people who stutter had essentially normal EEG patterns, 90 percent of those diagnosed with cluttering evidenced deviant EEG traces.

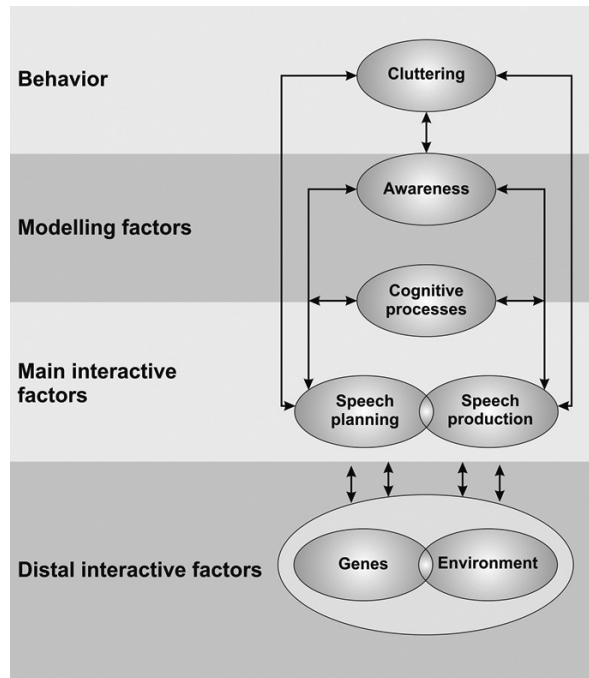


Fig. 1. A microgenetic model of cluttering: from genes to behaviour
 Source: Pačhalska, Kaczmarek and Kropotov (2014); in our own modification

Like stuttering, cluttering has been observed as a feature of Tourette’s syndrome (Van Borsel & Vanrykghem 2000; Van Borsel et al., 2004) and some have observed cluttering subsequent to neurological damage (Hashimoto et al., 1999; Lebrun, 1996; Thacker & De Nil, 1996). Cluttering occurs more frequently amongst males than females in a ratio of about 4:1 (Arnold, 1960; St Louis & Hinzman, 1988).

Abnormal brain development which appears during the early stages of a foetus’s life as well as during the period around the birth itself relates on the whole to the process of subdivision resulting from disturbances within speech fluency (Chen et al. 2015). Environmental factors influence the appearance of such changes: birth complications, viral infections during pregnancy, foetus malnutrition. These factors result in changes though only in those genetically predisposed to the occurrence of neuro-structural, neurochemical or neurofunctional changes to the brain (Kang and Drayna 2012). This hypothesis may equally explain the first symptoms of disfluency in speech already during the period of childhood.

Main interactive factors: the subcomponents of cluttering

We can now look at some of the subcomponents of cluttering which have been considered significant in a little more detail: (1) motor components; (2) language components; (3) neuropsychological and psychological components.

The motor components of cluttering are presented in Table 1.

Table 1. Motor components of cluttering

Source: Own research materials

No.	Motor components	
1.	Tachylalia	There are very many highly fluent speakers whose habitual speech rate approximates that of many tachylalic clutterers. Froeschels (1955), for example, found only 50 percent of a tachylalic group to be clutterers.
2.	Excessive coarticulation	This also known as overcoarticulation. This may include cluster reductions and weak syllable deletion. This is directly related to the fast speech rate, resulting in a reduced ability to maintain articulatory accuracy at higher speech rates (Dalton & Hardcastle, 1989).
3.	Articulation errors	Speech output can also be compromised by the types of articulatory errors seen in apraxia of speech (or verbal apraxia). Indeed, some commentators have likened cluttering to the disorder of apraxia itself (Ward 2006).
4.	Lack of speech rhythm	Whether accompanied by tachylalia or not, most experts would agree that this is a good diagnostic indicator of cluttering. Speech may be characterized by jerky bursts of fast speech, interspersed with inappropriate short pauses. These pauses, and the subsequent abrupt onset of speech, may give a staccato impression to speech delivery (St Louis et al., 2003).
5.	Monotonous speech	Difficulties with phrasing may lead to speech that is lacking in pitch range. When there are breaks to the natural flow of speech (as above) this can further reduce intelligibility (Van Zaalen 2009).
6.	Festinant speech	Speech may start at a normal pace but become increasingly quick. Coincident with this, speech may become mumbled or overcoarticulated (see above) and may tail off into inaudibility (Kearston et. al. 2015).
7.	Fluency disruptions	Many of the motoric features tend to affect intelligibility, rather than fluency. Clutterers typically neither block nor prolong, but part-word repetitions are quite common. Word and phrase repetitions are also common, but it may be that these are more related language-based difficulties (Ward 2007).

Cluttering is defined as a disorder of fluency characterized by two strands of breakdown:

1. *those relating to motor speech*: typically, speech is characterized by a fast burst of jerky speech which may also sound slurred and misarticulated (Ward 2006);
2. *those relating to linguistic variable*: language may be poorly organized with evidence of poor word finding together with an excessive number of revised sentences, restarts and filler word and phrases (Van Zaalen, Ward, Nederveen, Lameris, Wijnen, & Dejonckere, 2009).

Ward (2007) summarized language component of cluttering (Tab 2). He presented 3 language components: (1) grammar and syntax, (2) the lexical level, (3) the pragmatic level.

The clinical image of cluttering is also modified by psychological and neuropsychological factors (Cf. Table 3).

Ward (2006:140) suggested that there are advantages in taking a spectrum approach to the definition of cluttering; that is, cluttering-like symptoms can appear at a point on a spectrum between more normal and less normal examples. At one end there is a speech language output which would readily be regarded as „cluttering, „ but further along the spectrum lie behaviours which might be re-

Table 2. Language components of cluttering

Source: Own research materials

No.	Language components	
1.	Grammar and syntax	Excessive amount of phrase repetitions and revisions may occur due to language formulation difficulties. Problems with verb conjugation and incorrect pronoun and preposition usage. Sentences may be simplified and word order may be incorrect (Ward 2007).
2.	Lexical level	Problems with lexical access (word retrieval) may be evident. Frequent and overuse of fillers and interjections such as “um” and “er.” Unlike stuttering, where these are used as devices to postpone a difficult word or sound, they are used by the person who clutters to help give time to organize speech. They may also be used to mask word-finding difficulties, which are particularly prevalent amongst this population. There may be substitution of a semantically related item (semantic paraphasia). (Kearston et. al. 2015).
3.	Pragmatic level	The person who clutters may experience more generalized difficulties with expressive language, particularly in organizing linguistic information for discourse and topic maintenance (Teigland, 1996). Summarizing and correctly sequencing information can be problematic. Given a front-page newspaper story to recall, a person who clutters might spend time retelling comparatively unimportant details (Ward 2006).

Table 3. Neuropsychological and psychological components of cluttering

Source: Own research materials

No.	Neuropsychological and psychological components	
1.	Awareness of cluttering	Persons who clutter tend to be unaware of their speech/ language difficulties, but this notion requires further qualification. Adolescents and adults who clutter may often be aware of the fact that there is a problem, but be unable to do anything about it, or be unaware of the significance of the problem from the listener’s perspective. For example, there may be awareness of a fast speech rate and they might even volunteer that, for example, people are always telling them to slow down or to repeat. However, the individual usually has no sense that something is actually pathologically wrong in the way that speech is produced (Van Zaalen et al., 2009) .
2.	Attitudes/ Executive functions	For the most part, avoidance is rare, even amongst the minority of cluttering speakers who are aware of difficulties in controlling their speech or language. Persons who clutter do not experience word or sound specific anxieties. Even so, more motorically complex sequences, such as those found in consonant clusters and in longer words, are likely to give more difficulty (Ward 2007).
3.	Self-monitoring skills	Persons who clutter show poor self-monitoring skills that are not just confined to a lack of awareness of speech but are also present (Weiss1964). Typically, the poor self-monitoring can translate as poor listening skills and these, together with inattentiveness, may lead to misunderstandings and inappropriate comments and responses.

garded as cluttering-like, but where there is less certainty about these warranting a diagnosis of cluttering.

The term cluttering spectrum behavior 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 difficulties; or c) both, to warrant a diagnosis of cluttering. (Ward 2007).

The notion of a cluttering spectrum can also be applied to scenarios where it is not clear whether the symptoms are regarded as cluttering, or relate to another disorder with which cluttering might co-exist (Ward, 2006; 2007).

Modelling factors: limitation or tolerance of error awareness

Cluttering is characterised by a limitation or tolerance in the awareness of speech mistakes, with particular consideration of speech fluidity. It follows to note that this deficit is not tantamount to disturbances in awareness. Consciousness or awareness is a process comprising two main components: the level of consciousness (stimulation, awakesness, consciousness) as well as the content of consciousness (awareness of one's surroundings and self-awareness) (Pačalska, Kaczmarek and Kropotov 2014). An absence of awareness of mistakes in speech relates to the second speech component (cf. Fig. 2).

In a healthy mind in which there is preserved an awareness of the mistakes committed there is the necessity of cooperation between various brain systems (Pačalska, Kaczmarek and Kropotov 2014). The most important systems are long-term memory, working memory, perception and attention (cf. Fig 2). The attention system receives information flowing from the perception systems and directs the sense organs towards stimuli, including non-linguistic and linguistic stimuli which are the subject of consciousness belonging to both the internal and external world (Pačalska et al. 2015). They simultaneously transfer selected information to the working memory. The loops between the various psychic processes illustrate the course of data between the discussed cognitive systems. A significant impact on the course of the process under description is had by consciousness. For it is this that allows attention to be drawn, with which it cre-

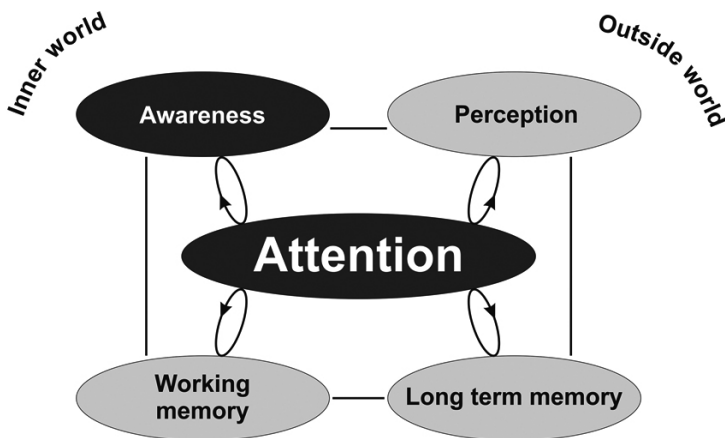


Fig. 2. Awareness in relation to other processes involved in the noting of errors in utterances. Source: Pačalska, Kaczmarek and Kropotov (2014)

ates a complex system, to the phenomenon of interest to us (e.g., to an error in one's utterance) and therefore it modifies the process of perception. In relation to this, thanks to the attention system, the initial data enters the consciousness, while at the same time this consciousness (awareness) is able to choose what it follows to pay attention to. This ability is disturbed in cluttering.

Error awareness in utterances and the intensity of cluttering symptoms

As with stuttering, some authors have speculated that cluttering is a disorder of time perception, that is, an auditory based disorder, rather than a speech/language production one (Van Riper, 1992). Molt (1996) found that, in contrast to matched control subjects, three school aged clutterers performed below normal test-established criteria on central auditory processing (CAP) measures and also showed abnormal auditory event potential (AEP) waveform patterns.

In developing this idea it follows to note that the development of the process of making oneself aware of mistakes in utterance in the speech of those with cluttering may be viewed in accordance with the microgenetic theory of a symptom (Brown and Paçhalska 2003; Paçhalska 2007) as a state of mind occurring in time. We recall that a mental state develops from the unconscious to the conscious:

1. *In the expanse of brain structures*, where there may be ascent from latent processes to the level of the consciousness threshold and decline (the admission) or passing over this threshold (the development) as well as ascending even higher to the appearance of full consciousness (awareness) and conscious cognition (the culmination);
2. *In time*, in the course of which the pulsation of individual mental states ensure a fuller awareness of reality. The time needed to make oneself aware of this reality may be shorter in healthy individuals, yet significantly longer in those with cluttering as a result of the slower reaction time and/or a desynchronization of psychic processes.

It follows to emphasise that in individuals with cluttering the process of error awareness (Daly, 1996) is disturbed because the mental state is unable to exceed the level conditioning the awareness of this error.

The mechanism for the development of the process of reality awareness is illustrated by Fig. 3.

Phases within working memory are in general reconstructed in the subsequent stages in the order in which they were recorded, i.e., in relation to their similarity to an approaching state, and therein to the possibility of resuming the mind state. In the actual mental state there appear notions closer to occurring perception i.e., notions from the working memory buffer, which almost have reached the state of restored perception. The state of the brain-mind in T1 is replaced by the state of T2 approaching it. The core of T1 (the shaded area) intrudes on T2, before T1 has finished in time, i.e., before the existence of the defined phase. This explains the repeated appearance of the earlier T1 phases, connected with the individualism of the given person (I), the character, disposi-

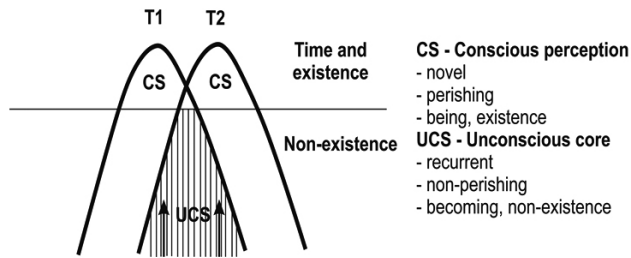


Fig. 3. The development of the process of error awareness (consciousness) in an utterance from the perspective of the state of the brain/ mind in time
Source: Pačalska, Kaczmarek and Kropotov (2014)

tion, working memory buffer capacity, long-term memory reserves and experience as well as the durability of fundamental convictions, values and personality. Later phases disappear when the moment the whole process of making oneself aware of reality ends, yet make room for new perceptions (Pačalska et al. 2012).

Destabilisation of neurological connectors in individuals with cluttering (Kolb and Wishaw 2003; Ward 2006) means that there does not develop the process of making oneself aware of error in utterance (speech) within the perspective of the state of the brain/mind in time. As a result of the absence of a pulsating mental state within time attention does not buffer the error to the working memory. Consequently, the process of error perception does not occur. This fact means that individuals with cluttering do not correct mistakes in their utterances.

A gradual stabilisation of the neurological connections is a measure of a patient's improvement within the therapy process. This fact means that slowly there is a return to error recognition in one's own utterances and speech. This results in a clinical reduction in the intensification of cluttering in a communication situation. We see this phenomenon:

1. in better speech fluency,
2. in a better organisation of speech (utterances) and a more coherent course to conversation,
3. in a more correct articulation of consonants,
4. in a smaller number of grammatical and syntactical errors,
5. in a more astute selection of words

The communicativeness of speech in those with cluttering increases as a measure of the return in metacognition.

Behaviour: cluttering as a complex disorder

In the approach described in this article, cluttering is treated much more broadly, as a complex disorder. This approach addresses all components of speech, such as the content, linguistic form and phonology, with the semantic

distortions being of primary significance, and the grammatical and phonetic ones being of secondary importance (Tarkowski, 2002).

The International Statistical Classification of Diseases and Related Health Problems (ICD-10) defines cluttering (F98.6) as a rapid rate of speech with breakdown in fluency, but not repetitions or hesitations, of a severity to give rise to reduced speech intelligibility. Speech is erratic and dysrhythmic, with rapid, jerky spurts that usually involve faulty phrasing patterns (e.g., alternating pauses and bursts of speech, producing groups of words unrelated to the grammatical structure of the sentence).

In the majority of cases, the speech disfluency symptoms are different from the symptoms of stuttering and consist mainly of non-spastic repetitions, interjected sounds, and the omission or replacing of sounds or syllables. These symptoms are accompanied by disturbed coarticulation.

Speech disfluency (Tarkowski 2002) is observed to co-occur with symptoms described:

- *at the linguistic level:* the symptoms include a reduced grammatical and semantic coherence of language.
- *at the cognitive level:* the symptoms include poor concentration, a reduced attention span, an impaired ability to listen to others, racing thoughts, hyperactivity and an unawareness of experienced difficulties
- *at the neurophysiological levels:* the symptoms include abnormalities in QEEG recordings of people who stutter were essentially normal, a much greater percentage of this cluttering group had anomalous alpha wave activity (Ward 2006).

DIFFERENTIAL DIAGNOSIS

Cluttering should not be mistaken for tachylalia

Tachylalia, which is an accelerated rate of speech, often accompanies cluttering, but does not account for abnormal speech and language skills (Tarkowski 2002). There are many groups of people who speak fast or even very fast but who are still coherent and comprehensible (e.g., some sports commentators or stock exchange reporters). The principal problem here is not tachylalia but disorganized thinking. The accelerated pace of speaking may even mask language errors. Such errors are difficult to recognize when the rate of speech is fast. This difficulty is related, to a great extent, to grammatical mistakes, the pronunciation errors being of the least importance. If a person is articulate and speaks quickly, a multitude of semantic errors can be covered up.

Cluttering should not be mistaken for poor language content

Associating cluttering with poor vocabulary is also wrong. PWC have appropriate lexical resources at their disposal. The problem is that they often use words incorrectly. They use inappropriate words to express their thoughts. They

have great difficulty with the transition from the general meaning of the word, emerging from the internal speech, to the specific use of the word in the external speech.

Cluttering should not be mistaken for low intelligence

PWC may be smart, and sometimes even brilliant. This is because intelligence should not be identified with thinking processes. An intelligent person can think in a disorganized way, and as a result may speak „without rhyme or reason.”

DIAGNOSTIC CRITERIA

Three criteria may be applied in order to recognize cluttering:

Linguistic criterion

According to Gajda (1999), a language error is an unjustified linguistic inventiveness which is evaluated according to the so-called language correctness criteria:

1. Structural, defining the compliance of the innovation with the language model;
2. Functional, permitting innovations, if they fill a gap in the language or optimize verbal communication;
3. Frequency criterion, which assumes that if the innovation is very common, it should be incorporated into the linguistic standard;
4. National criterion, which prefers native innovations over borrowing words or structures from foreign languages.

According to the author, linguistic inventions that cannot be justified by any of the four criteria should be considered linguistic errors (Gajda 1999).

In cluttering, the following error categories can be distinguished:

- Of primary significance (semantic), i.e., the text errors (in terms of composition, or of content consistency), lexical (incorrect word choice, inappropriate words combination) and stylistic (inadequate choice of linguistic structures within the whole utterance or context);
- Of secondary importance (grammatical), i.e., syntactic errors (grammatical mismatch of words, a violation of word order) and morphological errors (inflection and word formation);
- Of tertiary importance, i.e., errors in pronunciation (sound articulation, pace and fluency of speech).

It should be emphasized that the spoken language abounds in errors and that it is a difficult task to find a speaker who makes no mistakes. What is important, however, is the frequency of their occurrence.

Psychological criteria

Cluttering occurs in people who have attention deficits, reduced self-control over speech formulation, a disorganized thought process, and normal or above normal intelligence.

Some authors consider cluttering to be a mental disorder. This is a misunderstanding. Average or high intelligence does not automatically mean correct thinking, since one may be a very intelligent person but a poor thinker; therefore, in the diagnosis of this disorder, it is more important to define the process of thinking than to measure intelligence. While attention provides the basis for correct thinking that requires focus and discipline, cluttering may be accompanied by impaired concentration and reduced attention.

Impaired concentration lowers auditory self-monitoring. PWC have difficulty correcting their speech as they speak, and have a higher mental ability than a linguistic one. This is more obvious during speaking than when writing.

Development criteria

Many diagnostic errors may be avoided if children are evaluated for cluttering at the age of six, when the basic development of language is practically completed. Then we shall have no difficulty in differentiating the delayed speech development from cluttering.

CLUTTERING AND THE THINKING PROCESS

Cluttering and semantic disfluency

The roots of cluttering lie in the thinking process disorder that Zeigernik (1969) divides into:

1. The disorder of the generalization and abstraction processes (reduction or distortion of the generalization process);
2. A logical train of thought disorder (racing thoughts, viscosity, impermanent, unsteady thoughts, hyperactivity, „derailments”);
3. Orientation of thought disorder (the regulating function of thinking disorder, critical thinking disorder, „multilevel thinking” and thought distraction).

Cluttering is primarily characterized by the logical track of thinking and directed thinking disorders. Koziellecki (1966, p. 15) argues that „thinking is an internalized activity of producing and selecting information (content) that occurs generally in problem situations.” It may be disrupted both during a new content production, and during a selection of an appropriate piece of information from among many possible ones. Interfering with the production and selection may result in semantic disfluency, characterized by difficulty in a free transition from one content to another. This disfluency is the core reason for cluttering (Tarkowski 2002).

Cluttering and speech discourse

According to Paçhalska, Kaczmarek, Kropotov (2014), a good discourse is characterized by the following qualities: maintaining a topic; conciseness; the unequivocality of the reproduced information in relation to the exposition; lexicon selection (the choice of appropriate words for the communicated content); self-

control strategy (spontaneous correction of errors); reproduction accuracy (selecting the theme of the utterance in accordance with the intended objective); and the optimum amount of information needed to express the content (the amount of information sufficient to understand the narrative).

In cluttering, the discourse becomes significantly distorted. The discourse of PWC is lengthy, and they have difficulty in maintaining a topic. Sometimes they cannot find appropriate words to match the expressed content. They do not correct their own linguistic errors in spontaneous speech. They introduce a lot of redundant, unnecessary information (digressions, allusions); however, the information that is important for understanding the discourse is missing.

Cluttering and inner speech

Communication is characterized by the integration of thinking and language. According to L. Vygotsky (1989), this integration is performed on two levels, inner speech, which is the semantic aspect of language; and external speech, which is the phonetic aspect of language. The primary features of the internal speech include incomplete syntax (the subject and the subject-related words are omitted and the preposition remains); and the brief nature operating exclusively with semantics, i.e., using the “from the whole to the part” system, dividing a general idea (intention) into units of the utterance. According to Vygotsky (1989), the basic unit of verbal thinking is the meaning of a word that undergoes dynamic changes. It seems that cluttering occurs at the internal speech level, and manifests itself in external speech. In other words, discussing the speech disorder refers to the deep structure of an utterance, and not – as has been widely believed to date – to its surface structure. The essence of cluttering is the semantic disfluency, not the articulation disfluency.

CONCLUSION

Defining cluttering presents us with a problem due to differences of opinion as to which of the behaviours associated with the disorder are crucial to its diagnosis and which are peripheral. Such uncertainty in the understanding of cluttering is not conducive to an effective diagnosis and therapy of those who have it. The adoption of the assumption that cluttering is a specific communication disturbance allows one to direct the research perspective from an individual analysis of speech to an analysis of the nature of conversations with the participation of individuals with cluttering. This methodological novelty cognitively composes itself with the process paradigm of the brain, that is with microgenetic theory. This brings closer consequently the mechanisms lying at the basis of the formation of cluttering as a symptom through showing the interactive factors taking part in the process. Thanks to drawing attention to the developing process of making oneself aware (conscious) of speech error within the perspective of the state of the brain/ mind in time there is equally created a basis for a description of the diagnostic criteria including differential diagnostics.

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Address for correspondence:

Jolanta Góral-Pótróla
Old Polish University in Kielce
Ponurego Piwnika 49 str.
25-666 Kielce, Poland
e-mail: jgp@etins.edu.pl