



## STUTTERING-PSYCHOLINGUISTIC APPROACH

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**Abstract:** This research promotes psycholinguistic paradigm, it focusing in delimitating several specific particularities in stuttering pathology. Structural approach, on language sides proves both the recurrent aspects found within specialized national and international literature and the psycholinguistic approaches dependence on the features of the linguistic material. Thus, the conclusions of this research study offer the possibility of promoting cross-cultural and cross-linguistic researches, with the aim of obtaining data which can be generalized beyond national boundaries, in stuttering pathology.

**Key words:** stuttering, rhythm disorders, verbal disfluencies, psycholinguistic approach, cross-linguistic studies.

### 1. Psycholinguistic features in oral verbal language, in the case of stuttering

A psycholinguistic approach in stuttering develops according to the bottom-up model, it being a model which allows spotting the features of stuttering in comparison with verbal disfluencies, those two being distinct pathological contexts. In the case of oral disfluencies the person faces not the situation of uncertainties or unclarities regarding linguistic production, but the situation of using the pauses through which disfluencies are characterized in order to have more time for preparing the adequate answer.

The following psycholinguistic aspects characterize oral -verbal language, and reading/ writing verbal language.

#### 1.1. Phonetic aspects

From a phonetic point of view researches were focused on underlining the frequency of the difficulties, repetitions and of the stutters regarding linguistic structures composed from a larger number of phonemes. Establishing and counting the number of syllables or the number of the pronounceable segments was not the focus of these researches. Thus, it was concluded that stuttering is more often identified in the case of the longer words. This aspect is also explained by these words lexical atypical structures.

Another important aspect underlined by Wingate, (1988) is that initial phoneme is very hard to articulate phoneme, it allowing the most numerous stutters. On the contrary, from a statistically point of view it was proven the fact that the most frequent initial phonemes are the less difficult from an articulator point of view. Wingate, (1988) assumption was reported without having into consideration metalinguistic theory which claims that if a person is aware about the fact that he would face difficulties in producing a certain sound, then even if that certain sound is not part of the target word the person will stutter.

#### 1.2. Phonological aspects

La Salle and Carpenter, (1994 apud Curlee; Siegel, 1997) underlined the fact that phonological variety (it referring to the way phonemes are combined in meaningful units) can influence speech fluency. Thus, these researchers emphasized that persons face more difficulties in retelling a story that they have been told, using their own words, different from the words they listened. Throneberg, Yairi, Paden, (1994) could not establish a direct relation between phonological complexity of the words and

stuttering sequences, in the case of the adolescences with fluency disorders; the relation being put into light in the case of younger speakers.

Another underlined phonological aspect was that initial syllables are primarily memorized, their retrieving being easier, thus a stuttering person can quicker access the first syllable from a certain word than the following components. In this situation there is to be underlined a certain asynchrony between recalling and memorizing, this asynchrony being of phonological nature. This phonological aspect cannot explain the fluency disorders that are identifiable in the case of complex linguistic structures (Wingate, 1988).

### 1.3. Morpho-lexical aspects

Lexical retrieving is can be measured in the following area: 2-3 words per second-11 word per second. The most frequent used and the most familiar words are the less difficult for a person with fluency disorders. The frequency in producing words function on the same level with phonological coding, aspect which can explain the difficulties specific for stuttering pathology when syntactically complex linguistic structure are handled (Bock and Levelt, 1994).

Two different types of lexical classes can be distinguished, one class of the words that have lexical content and the other one of the words that has just grammatical meaning. The lexical words (nouns, verbs etc.) are an open class, it having a larger number of linguistic structures, they being used in speech not very frequent. The grammatical words class (prepositions, conjunctions, articles, auxiliary verbs etc.) is a closed class of words, more frequently used, based on phonetic principles. Speech fluency disorders are more often identified in the case of the lexical word class, this being in a continuous change, aspect that derives from the features belonging to the two types of words classes. This assumption is specific just for adults and for adolescence, and not for children with ages up to 6-8 years old who have greater difficulties in manipulating grammatical word class. This aspect has an explanation based on the developmental theory regarding grammatical abilities, theory which states that grammatical abilities are developed around the mentioned age (Curlee; Siegel, 1997).

Boșcaiu, (1983) proved through his research that children's stutters during a retelling a story activity are related to pronouncing pronouns, conjunctions and prepositions. The researcher recorded a significant volume of disfluencies both in the experimental group (the group of children with stuttering diagnosis) and the control group (the group of children without stuttering diagnosis) related with grammatical classes of pronouns, conjunctions and prepositions, aspect which emphasizes that morpho-lexical abilities are not to be considered diagnosis criteria for stuttering.

On the other hand, Watson; Byrd; Carlo (2011) underlined the fact that there can be proved a correlation between grammatical abilities development and the frequency of disfluencies identification, these researchers concluded that grammatical abilities development can be a predicting factor for stuttering pathology. Their assumption was tested just for Spanish speakers, its generalization over other languages requiring new researches.

### 1.4. Syntactic aspects

Researches tried to establish a relation among syntactic complexity, linguistic structures length and latency in producing linguistic structures, the stutters loci and frequency.

The latency in producing speech is easy to be counted, thus Lindsley, (1975), (1976); Cooper; Soares and Reagen, (1985) (apud Curlee; Siegel, 1997) established that in order to initiate the production of simple linguistic structures the average latency is of 0.79 seconds, this increasingly direct proportional with linguistic structure complexity, it extending up to 7-9 seconds.

The relation between linguistic complexity and the stutters loci, in the case of a linguistic structure was established through a series of researches (Curlee; Siegel, 1997). Stuttering episodes seem to more likely appear at the level of the first parts of a sentence, in nominal (Berstein, 1981) and verbal clauses (Bock and Levelt, 1994).

Despite all these, cross-cultural and cross-linguistic researches should be developed in order to depict other psycho-linguistic aspects related to stuttering pathology. This assumption is formulated based on the researches having as participants bilingual children that proved a wide range of differences among

all the above mentioned psycholinguistic aspects, regularities couldn't been established (Curlee; Siegel, 1997). The same recommendation of the cross-linguistic researches was made in order to establish the relation among linguistic structures length, syntactic complexity and stutters frequency. Curlee; Siegel, (1997) based on a series of studies developed by (Neilson, 1994; Gordon, 1991; Kadi-Hanifi and Howell, 1992), underlined stronger correlation between syntactic complexity (a bigger number of morphemes, not a bigger number of syllables at the level of a sentence) and stutters frequency.

### 1.5. Pragmatic aspects

Kent, (2004) summarizing Weiss, (1993) researches underline the fact that there were not registered differences between the children with and without fluency disorders considering the assumptions and the answers to the addressed questions, especially by parents regarding the stutters frequency. Referring to the frequency of stutters, when children answer to parents' questions they have a smaller number of disfluencies comparing with the situation when they are supposed to elaborate linguistic structures independent of a certain communicative context.

Having into consideration the above mentioned aspects, the focus at language pragmatic level is on studying dyadic contexts, parent-child, in order to underline stuttering persons' specific features. Summarizing the studies developed by Streim, Chapman, 1987; Bernstein, Ratner, Parker, Gardner, 1993; Snow, Perlmann, Nathan, 1987; Curlee and Siegel, (1997) underlined that parent's conversational tempo as well as his lexical and syntactical linguistic structures complexity, when he speaks with a child with ages in the range 4-8 years old, significantly influence the way stuttering pathology develops. These aspect can have a great importance in projecting the therapeutically intervention in the case of a child proving stuttering pathology, it having a great importance for early intervention approach when the parent or event parents can turn themselves in co-therapists.

## 2. Assessment and intervention approaches in stuttering pathology

Stuttering therapy established as final goal developing communicative competence characterized through fluent oral language, based on promoting a positive attitude both towards speech and speech therapy.

All therapeutic activities focus on developing fluent communication, a functional rhythm while speaking and reading, having into consideration stuttering person's needs corresponding to his lifestyle.

When designing a therapeutic program it is of extreme importance to bear in mind several principles through which therapy can be ensured successful outcomes. These main principles are: knowing stuttering person's relationships in his familiar, scholar and social environment; his lifestyle; the causes that lead to stuttering; the need to adapt all psycho-pedagogical resources to his needs and features; beginning therapy as early as possible.

Stuttering therapy is a complex procedure, this combining psychological with speech and language therapy, as just in this way the entire mechanism generating and sustaining stuttering symptomatology can be broken (negatively representing speech-failure fear-neuro-vegetative reactions; Anca, 2007).

From speech and language therapy, therapeutic approach in stuttering has to follow:

- developing phono-articulator system motricity by training tongue, lips and cheeks motricial abilities;
- developing co-articulator abilities;
- developing auditory-perceptive function by training intonation patterns, the abilities to manipulate speech intensity and tempo;
- ensuring a functional respiratory rhythm by developing a non-verbal respiration in order to ensure the ability to have a longer expiration rate, effortless, and to obtain the ability to establish an equilibrium between inspiration and expiration rates, developing a diaphragmatic respiration and a unitary respiratory rhythm, increasing respiratory capacity;

- developing verbal respiration for obtaining the possibility of prolonging expiration while speaking;
- obtaining verbal fluency;
- training verbal fluency.

Before establishing the individual therapeutic program, speech and language therapist has to know the way stutter episodes present, both in the familiar environment and in the kindergarten/school environment. Within speech and language characterization sheet are observed and put down several general examination aspects such as: somatic, psychological, speech, medical. These general establish person's background.

Focusing on speech and language examination (Boșcaiu, 1983; p.129):

- -respiration (respiratory movements, inspiration duration and loci, expiration duration while speaking);
- articulator movements (tongue, lips, facial mobility);
- speech fluency and general rhythm (words fluency, speech speed, phonetic features);
- disfluencies types, loci and duration (repetition, prolongation, hesitation, pauses, spasms), auxiliary movements while speaking. All these aspects are followed while speaking, in independent, repeated after model speech and in singing.

### 3. Design

#### 3.1. Objectives

- emphasizing symptomatology in stuttering both in oral and read language;
- establishing the relation between linguistic material nature (familiar, unfamiliar, phonetic, lexical, syntactic complexity) and the frequency and the stuttering loci.

#### 3.2. Hypothesis

- the degree of familiarity with the explored linguistic material influences disfluencies loci and frequency;
- linguistic complexity (both from a phonetic, phonological, lexical and morpho-syntactic point of view) increases disfluencies number;
- disfluencies in oral language are also transferred to written language (while reading).

#### 3.3. Participants in the research

This research will be based on case studies. Participants in the research are two pupils, one attending the second grade and the other one attending the third grade, both being included in a regular school. Selection criteria are: the presence of a fluency disorder; education level-primary education.

### 4. Case studies

Two longitudinal case studies will be presented focusing both on a short case history and on assessment and therapy intervention.

#### 4.1. Case study number 1

##### 4.1.1 Background of the case

Based on his teacher requirement due to his behavior characterized as “he hurries when trying to make a statement, thus he repeats the first part of the words; he hurries to answer as quickly as possible”, the pupil from the third grade attends the therapy program of an inter-schools speech and language therapy cabinet, after he passed through an assessment procedure based on which he was diagnosed as having clonical stuttering. This pupil has a family with a medium socio-economic status; a smaller

brother (attending kindergarten), partner in a frequent arguing starting from which he always gets punished by his parents.

Somatic and functional examination reveals nothing special for sustaining the diagnosis. Child's general behavior is similar with his colleagues, being also underlined his desire to make himself noticed, almost always answering to his teacher's questions even if he is not supposed to answer, claiming that he knows the answers.

Speech and language assessment emphasize a functional respiration during a conversation, but also the presence of a speech while inspiring; during classes he hurries to quickly answering to all questions repeating the first part from the first words in a sentence or making inadequate pauses. Fine motrical deficits in phonoarticulatory system were underlined, in this way being explained his asynchrony in oral speech, but also while reading (even if he struggles to say something, he faces articulator difficulties, repetitions and inadequate pauses); this aspect being also revealed in specialized literature (Curlee; Siegel, 1997).

Reading assessment underlined disfluency at this level, inadequate pauses after every word. This feature is diminished when reading a familiar text, but pauses are still present.

#### 4.1.2 Therapeutic program and experimental results

The therapy is based on: exercises for developing phonoarticulatory system; exercises for developing and adequate verbal and non-verbal respiration; exercises for establishing a functional respiratory rhythm and exercises for developing a fluent reading. For completing symptomatic therapy relaxation exercises were developed and specific discussions in order to reduce the conflicting situations within family life (especially child's relations with his little brother).

During the therapeutic program is implement the child has a favorable evolution, during classes he being able to proving self-control when he offers answers, reducing or even eliminating "rush speech" by controlling respiration rate, his reading abilities improving.

The above mentioned assumptions are based on a posttest assessment four aspects being addressed:

- reading a familiar text-number of read word/ minute;
- reading a unfamiliar text-number of read word/ minute;
- storytelling based on a picture-number of formulated phrases/minute (other aspects were investigated, such as: the length of the phrases, their syntactical complexity and their grammatical correctness, speech fluency, intonational patterns, disfluencies loci and number);
- retelling a familiar story-(the addressed aspects were such: the complexity of the sentences as the number of their components, their grammatical correctness, the loci and the frequency of the disfluencies, lexical complexity of the formulated structures).

The quantitative obtained results are presented in Figure 1.

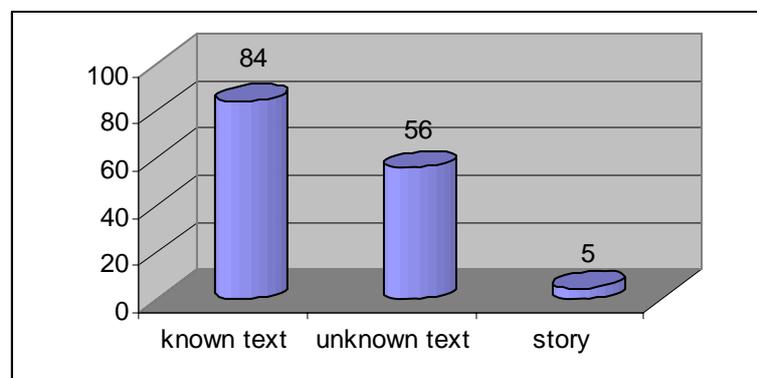


Figure 1. Quantitative results in assessing case study no. 1

Qualitative interpretation of the obtained results reveals aspects proving that research hypothesis are correct formulated, being opened new research perspective in order to be able to generalize these results.

The number of read words per one minute, in an unfamiliar text is much more reduced comparative with the number of the read words per one minute, in a familiar text. When reading an unfamiliar text the child makes larger pauses among words, phoneme-grapheme decoding being made with great difficulty, repetitions are numerous, both at words and syllable level. There was identified even child's tendency to repeat almost all the words in the unfamiliar text, after words were decoded with much difficulty.

In the case of the task when the child was asked to tell a story based on a picture, the child succeeded in formulating even complex phrases, correct from grammatical point of view, verbal agreement being easily used, but repetitions could be identified at the level of the first word in the phrase, aspect underlined by the researches developed in 1981, Bernstein and in 1994, Bock and Levelt. We will exemplify by giving the first two formulated phrases: "A girl, girl goes, goes to the fountain. One, one little dog is with her.

Retelling the story previously told by the teacher took 6 minutes. The target story was "Book of jungle". The pauses among words were numerous, the discourse grammatical structure was incorrect, verbal agreement was used with great difficulty; from syntactical point of view a lot of dysfunctional aspects could be underlined. Thus, the formulate phrases were shorten and when the child wants to formulate complex phrases or sentences, the connectors between coordinating phrases or words and the subordinating ones is improperly used. Disfluencies number is reduced, being identified both repetitions of words and even the impossibility to articulate. The repetitions mainly concerned the grammatical connectors, aspect that correlates with deficiency morpho-syntactical abilities (Curlee; Siegel, 1997). The plosives "b" and "t" lead to the impossibility in articulating words such as "Balu, "father" (in Romanian the words father is spelled "tata"). From a lexical point of view the active vocabulary can be appreciated as having limited development due to the retrieving difficulties and to the latency in pronouncing words.

Base on the above mentioned aspects, therapy has to be continued in this case, the stress being put on developing lexical, grammatical abilities in conversational situations, as well as in discursive ones

## **4.2. Case study number 2**

### **4.2.1 Case background**

A.P. attends second grade, she following a therapeutic program from kindergarten as she was diagnosed with clono-tonic stuttering pathology. The girl is a member of a well organized family, preoccupied for children's welfare, a family with five members: two parents, two little brothers and the girl. During the first years of life she lived with her family in Italy, where she attended two years of kindergarten. Her mother noticed the fluency disorder when the child was almost 5 years old, she considering that this disorder appeared due to an emotional shock the little girl lived in Italy, during kindergarten program. Mother could not be more specific, thus this is just a presupposed cause of child's disorder. When the child was 6 years old, her family came back home, and she begin attending Romanian kindergarten. Even if the child is in Romania and attends kindergarten in Romanian language in her family, Italian is still the very much used language. Starting from this point the child was offering the chance to get specialized treatment for her fluency disorder.

From a symptomatic point of view child's disorder is characterized by difficulties in pronouncing words, the repetition of the first part of a word, this mainly regarding the first word in the phrase uncoordinated respiration rate, speaking during inspiration, during speech the child often use either a word or a sound, like "ă" (a Romanian specific phoneme), „păi" (a Romanian interjection, its corresponding in English being "well" for facilitating speech production by taking more time. Child's behavior in kindergarten is adequate, she being able to socialize, having friends and establishing a good and functional communication relation with her teacher.

#### 4.2.2 Therapeutic program and experimental results

The therapeutic program was designed both with group and individual therapy. Group therapy was designed for developing speech system motility and or for improving self esteem. Individual therapy focused on developing non-verbal and verbal respiration in order to establish an adequate respiratory rhythm; exercises for obtaining a longer expiration rate comparatively with inspiration rate while pronouncing words; exercises for effortless, rhythmic speech coordinated with a prolonged expiration rate; exercises for developing speech fluency. Complementary, during individual therapeutic sessions, relaxation exercises and psychotherapeutic discussions took place for ensuring a positive attitude towards speech and for increasing self esteem.

In the end of the kindergarten period, the stuttering episodes decreased, aspect noticed both in the educational formal environment, by her preschool teacher and at home, by parents.

Therapy continues during the first grade, instrumental procedures being completed with reading technique. During first grade child makes progresses regarding respiration control, she being more careful in coordinating expiration rate and speech. When the child is relaxed repetitions are very few. Speech and language therapy proved to be successful only due to child's family and preschool teacher support; this aspect being of extreme importance in drawing a complete image about this case.

The speech therapy during second grade is focused on fluency. The child is now able to read a text with a proper intonation pattern, following punctuation signs. She is able to initiate and to continue a conversation without intelligibility difficulties, both in familiar and unfamiliar situations, aspect that proves that pragmatic language level is well structured. These facts are similar with those revealed by specialized literature (Curlee; Siegel, 1997). During classes she faces no difficulties in solving tasks, in regular situations, exception being those situations when she is tired or she has temporal constraints. In these two situations syllables repetitions are likely to appear, even words repetitions, aspect that offers us arguments in favor of the initial diagnosis, from a longitudinal perspective, it underlining the existence of a maintaining mechanism in fluency disorder pathology, very difficult to break (Anca, 2007; Moldovan, 2006).

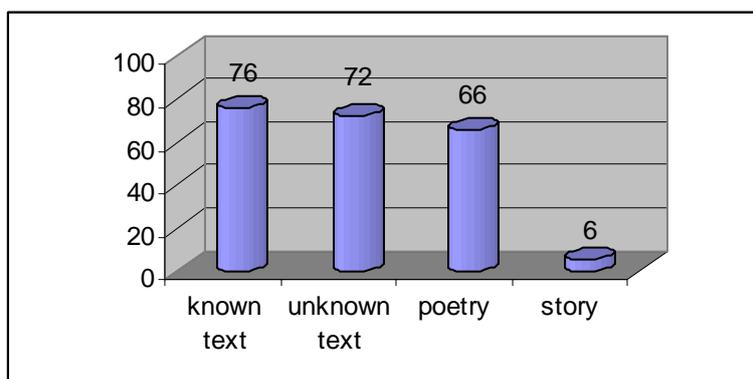
A reassessment procedure that revealed the present status was focused on five aspects:

- reading a familiar text-number of read words/minute; number of words where repetitions are present;
- reading an unfamiliar text-number of read words/minute; number of words where repetitions are present;
- reading a text with rime/poetic text-number of read words/minute; number of words where repetitions are present;
- storytelling based on a picture-number of formulated phrases/minute (phrases length, their grammatical correctness and speech fluency were assessed);
- retelling a short story (phrases length, disfluencies loci and frequency, morpho-lexical complexity, speech suprasegmental level were assessed).

The results obtained after developing assessment activities are presented in Figure 2.

Based on the analysis of the obtained results can be underlined the fact that reading a familiar text is more fluent than the reading of an unfamiliar text, aspect revealed by specialized literature, too (Boşcaiu, 1983), even if from a quantitative point of view differences are not major (in our case number of word/one minute). Thus, the girl reads 76 words/one minute in a familiar text, while in an unfamiliar text she reads just 72 words/one minute; the difference is of four words. The familiar text is a piece from "Punguta cu doi bani" (The bag with two cents- it is a well known story for children in Romanian culture). Even it is well known text for children it contains older words, less frequently used in nowadays Romanian language and more difficult to pronounce, words such as "prasel (a strong boy with magical power)" and "movila (little hill)". At the level of these words appeared disfluencies, even the impossibility to pronounce them, blocking situations that are over crossed through repetitions. Analyzing the words from a phonetic-phonological point of view, it can be observed the

fact that those words first phoneme is a plosive one, sounds that facilitate the blocking in articulation, aspect underlined by specialized literature (Anca, 2007; Boșcaiu, 1983). The unfamiliar text does not contain archaic words, aspect that facilitates the decoding process; even so the child has more difficulties in reading by comparison with the familiar text. Beyond the familiarity with the text, this assessment situation proves the importance of other aspects, such as the linguistic criteria which can heavily influence speech and reading fluency, in stuttering pathology. Thus this conclusion proves again that our research design is a correct one, remaining that other experimental researches based on a larger number of participants to generalize these results.



**Figure 2.** Quantitative results in assessing case study no. 2

When reading an unfamiliar poem, the child scores even lower, 66 words/one minute, this proving that lyrical, rimed and rhythmic structure doesn't necessarily implicitly facilitates reading fluency. This aspect also proves that child's familiarity with the text has a great importance, it having a predictive value for the apparition of the disfluencies. Linguistic material nature and textual structure have the same importance on speech fluency. The girl has difficulties in decoding the word "dumirim (understand)", this word being less frequently used in nowadays Romanian language and in decoding the word "s-a-nnoptat (a word with a greater grammatical complexity)". These facts also emphasize that linguistic material features are important when analyzing speech fluency disorders.

Another linguistic aspect revealed through this assessment approach is that the girl can formulate linguistic structures with grammatical complexity, complex phrases, during a task of storytelling based on a picture. From a lexical point of view, it can be underlined the fact that the girl succeeds in finding very easily words which she adequately combines following morpho-lexical rules, without hesitations, effortless coordinating respiration two moments-inspirations and expiration. Respiration voluntary control also contributes to independent speech fluency.

When retelling "Bucle aurii (Golden Hair)", a familiar story for the girl, without using any type of expressive images, the girl succeeds in formulating a five minutes answer, an answer with the following features: verbal fluency, adequate respiratory pauses, morpho-syntactic complexity. Inspiration and expiration voluntary control is present along the entire retelling sequence, with negative influence on several linguistic structures leading to the apparition of single sound repetitions (for example "a" is repeated several times), even complex linguistic structure repetitions, some of these repeated structures having just morphologic function (for example: „căsuță-little house”, „printre-among”, „bolul cel mare-the big pot”, „bolul cel mijlociu-the medium pot” „trei fotolii-three armchairs”, „cel mijlociu-the medium one”, „s-a-it is reflexive pronoun and verbal auxiliary specific for Romanian language, having no correspondent in English ”, „și-and”, „care-who”, „tata-father”, „sus-up”, „a coborât repede scările-quickly descended ”). The most frequent repetitions were counted on "and" conjunction, more precisely four repetitions. All in all, these results prove the fact that disfluencies appeared both in the case of the words part of the opened lexical class, and in the case of closed lexical class. These results also make us aware about the fact that all experimental approaches can prove a certain discrepancy between the disfluencies that can be recorded either in the case of the

opened lexical class or in the case of the closed lexical class, due to the fact that the selection of the linguistic material can make the difference, this selection having an extremely important role in delimitating stuttering pathology.

Repetitions number was greater than the number of the blockings, resulting in an articulator impossibility, these blockings appeared when pronouncing the word “bolul-the pot” and the word “ciocani-to knock”. The articulator difficulty was given by Romanian first phonemes of the mentioned words. Deficient grammatical aspects were also underlined; this proving that independent speech raises much more difficulties that reflected one.

In conclusion, in this case, therapeutic program must be focus on developing conversational and discursive abilities, increasing the number of items from child’s active vocabulary and improving grammatical abilities.

### Conclusions

This research proves the fact that stuttering pathology, from a psycholinguistic point of view is dependent on each language peculiarities, cross-linguistic and cross-cultural studies being necessary in order to be able to identify the recurrent aspects, otherwise all researches must be analyzed and interpreted within the limited boundaries of the country where people speak the language in which the experimental approach was developed.

### References

- [1] Anca, M. (2007). *Logopedie*, Presa Universitară Clujeană, Cluj-Napoca.
- [2] Bernstein, N. E. (1981). *Are there constraints on childhood disfluency?* Journal of Fluency Disorders, 6, 341-350.
- [3] Bock, K.; Levelt, W. (1994). *Language production: Grammatical encoding*, in M. Gernsbacher (ed.) *Handbook of psycholinguistics*, Academic Press, San Diego, pp. 945-978.
- [4] Boșcaiu, E. (1983). *Bâlbâiala. Prevenire și tratament*, Editura Didactică și Pedagogică, București.
- [5] Curlee, R. F.; Siegel, G.M. (1997). *Nature and Treatment of Stuttering. New Directions*, Second Edition, Allyn&Bacon, Boston.
- [6] Kent, R. D. (editor) (2004). *The MIT Encyclopedia of Communication Disorders*, MIT Press, Massachusetts.
- [7] Moldovan, I. (2006). *Corectarea tulburărilor limbajului oral*, Presa Universitară Clujeană, Cluj-Napoca.
- [8] Throneberg, R.; Yairi, E.; Paden, E. (1994). *Relation between phonological difficulty and the occurrence of disfluencies in the early stage of stuttering*, Journal of Speech and Hearing Research, 37, 504-509.
- [9] Watson, J.B.; Byrd, C.T.; Carlo, E.J. (2011). *Effects of Length, Complexity and Grammatical Correctness on Stuttering in Spanish-Speaking Preschool Children*, American Journal of Speech –Language Pathology, vol.20, 209-220.
- [10] Wingate, M. E. (1988). *The structure of stuttering: A psycholinguistic analysis*, Springer-Verlag, New-York.

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