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## About „Spells and Tricks” During Eliciting Speech Sounds in Case of Peripheral Articulatory Disorders. Preliminary Results of SMURF Therapy Effectiveness

### SUMMARY

The effectiveness of speech-language therapy regarding, eg. timing, method and frames of elicited sound in peripheral speech impediment (anatomical- or functional-based) has not been a target of specific scientific research logopedics nor in Poland neither abroad. The author presents preliminary results of her study concerning timing, method and frame of particular speech sound elicited in patients treated with SMURF therapy. The described study included a group of 30 subjects aged from 3,5 to 40.

**Key words:** peripheral articulation disorders, speech impediment therapy, effectiveness of speech therapy

### 1. INTRODUCTION

The subject of the following article is the effectiveness of speech therapy by means of SMURF<sup>1</sup> applied in the case of peripheral dislalia, functional dislalia and anatomical-functional dislalia (see the typology by H. Mierzejewska i D. Emiluta-Rozyi 1997 and its modification by D. Emiluta-Rozyi 2012, and its discussion by D. Pluta- Wojciechowska 2015). Due to the fact that it involves the specific subject of discussion, the author does not include the analyses of perceptual processes

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<sup>1</sup> *A strategic method of improving the realisation of phonemes* - SMURF was described in detail in the monograph: D. Pluta-Wojciechowska 2017a, *Peripheral dyslexia. Diagnosis and speech therapy of the selected forms of disorders*, Publishing House Ergo-Sum, Bytom.

which does not mean that the anatomical disorders or functional disorders may not be accompanied by disparities connected with reception, differentiation or analysis of speech sounds (see, for example, Kurkowski 1997, 2013; Polewczyk 2012). The author is presenting the results of preliminary research in the area of specific parameters of eliciting the first sound.

The conducted studies do not reflect the previous research in the area of dislalia. Monika Łuszczuk published the study in the selected aspects of effectiveness of the therapy by means of trainer Myo TyK in 2012 (Łuszczuk 2012). The results make us aware that in speech therapy we should consider the cooperation with the orthodontist and the methods he or she employs. It is a crucial conclusion of the dissertation.

In spite of the fact that the therapy of the type of the disorders mentioned in the title is discussed relatively profound in literature, the authors and promoters of various exercises connected with correcting the speech organs, sequences of the therapy of sounds and methods of their elicitation did not prove any effectiveness of the treatment (for example, Antos, Demel, Styczek 1971; Demel 1971; Kania 1968; Michalak-Widera 2007, 2012; Rodak 2002; Sołtys-Chmielowicz 2016). Hence, the presented research results are not to be compared with others. I was not able to find any similar study in the foreign literature. If such studies were found, it would refer to a different phoneme-phonetic system and not all variables in it could be successfully correlated; however, a few of them, for example, the general rules of therapy, could be compared with one another<sup>2</sup>.

The following report assessing the effectiveness of SMURF<sup>3</sup> can, to a certain degree, fulfil the gap existing in the area of the assessment of the therapy according to, for example, the style of work in the case of peripheral dislalia, which is in accordance with the recently popularised frame Evidence Based Practice (EBP) in Poland, whose essence is also presented in the form of the thesis about “speech therapy/practice based on the proofs”. I have an irresistible impression that this formula may be variously and ambiguously comprehended, which I (as a co-author) mentioned in the interview entitled “Discussion after discussion during the conference in Chorzów, discussing some of some prob-

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<sup>2</sup> Assuredly, it is possible to compare, for example, the general style of therapy expressed in the main stages of work, the principles of exercising speech organs, the place of exercising deflected primary activities in the therapeutic procedure, the use of the kind of sequences of therapy of sounds (developmental and/or therapeutic). For example, the place of articulation of Polish sounds is located inside the oral cavity, just as in the case of articulation of sounds in English, Czech, Slovak language.

<sup>3</sup> The effectiveness of therapy in the case of peripheral dislalia will be described in the context of research showing the effectiveness of therapy using *Strategic Method of Improving Phoneme Realisation*, in short SMURF, that I described (Pluta-Wojciechowska 2017a, see also 2009, 2011a, 2012, 2013, 2015ab).

lems in speech therapy in Poland” (Grabias, Ostapiuk, Pluta-Wojciechowska, Woźniak, „Logopedia” 2018, vol. 1).

On page 15 of the book *Dyslalia obwodowa. Diagnostyka i terapia wybranych form zaburzeń* (2017), I ensured the readers that I will present the research concerning the effectiveness of the proposed style of work. The following publication follows the idea of reporting the research results in the effectiveness of SMURF, and the subsequent ones will touch other aspects of the evaluation of the strategic method<sup>4</sup>.

## 2. ON THE STRATEGIC METHOD OF IMPROVING PHONEME REALISATION IN PERIPHERAL DISLALIA (SMURF)

The strategic method of improving phoneme realisation in peripheral dislalia resulted from the analysis of the results of the research on the disorders in phoneme realisation in the case of anatomical disorders or/and functional defects, the reports referring to the links between primary activities and phonetic development (Mackiewicz 2001, 2002; Hiiemae, Palmer 2003; Serrurier, Badin, Barney, Boë, Savariaux 2012; Pluta-Wojciechowska 2011b, 2015; Sambor 2015, 2016, 2017), the analysis of faulty three-phase way of work in the case of dislalia applied so far, as well as my own 30-year practice connected with diagnosis and therapy of people with peripheral dislalia<sup>5</sup>. What is also meaningful in this issue is the fact we analysed the development of the phonetic ability, its conditioning, and the methods of therapy used so far in the case of articulation disorders, and, at last, my own research. The indicated style of work is a proposal attempting to fulfill the gap of the three-phase plan. The name of the following procedure results from the fact that we take into account the relation of the concepts *procedure*, *method*, *strategy* and its paramount goal which the therapist follow along his activities connected with speech therapy – adapting the methods of work to the patient, which requires strategic thinking. One involves several variables to be taken into consideration while designing the therapy, for example, sequencing the therapy

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<sup>4</sup> First preliminary results of studies on the effectiveness of SMURF therapy were the subject of my speech at the 5th International Speech Therapy Conference „Speech therapy in theory and practice”, which was held on September 16-17, 2017 in Chorzów. See: D. Pluta-Wojciechowska, Effectiveness of speech therapy in the case of dislalia. Logopedics and linguistic analysis of research results, University of Silesia Press, Katowice 2019, [in preparation for printing].

<sup>5</sup> The therapy for dislalia is most often described by means of indicating three stages / phases (three-phase work style): preparation of speech organs for eliciting the sound, eliciting the sound, automation of the sound in colloquial speech). This style of work is described, for example, by Antos, Demel, Stycz 1971; Demel 1978; Jastrzębowska, Pelc-Pękala 1999; Kite 1975; Spoon 1978; Grossman 1976, 1997; Michalak-Widera 2012, Sołtys-Chmielowicz 2008; Skorek 2009; Stasiak 2015. See Riper, Irwin 1970.

of sounds, the choice of methods of eliciting sounds depending on symptoms and causes of disorders (Pluta-Wojciechowska 2017).

The following method of therapy involves seven stages of work. Each of them is linked with the method of proceeding which can be accomplished in a different way. This fact is reflected in the strategies of therapy which occur within the particular method of work. The strategies make it possible to adjust the method to the patient, that is, to the characteristic features of the symptom, the causes of the disorders and properties of the psychomotor development. SMURF is described in detail in the publication (Pluta-Wojciechowska 2017)<sup>6</sup>. The number of strategies proposed in the particular methods is not – as I suppose – complete. The research currently carried out by me may hopefully turn out as the one which will verify and revise the list and quality of the strategies.

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<sup>6</sup> At this point, I will present the next stages of work and the methods associated with them, as well as the strategies within the given method. This is important for further considerations. SMURF includes the following methods and the strategies connected with them:

1. **constructing the foreground of articulation**, which should not only be initiated at the beginning of therapy, but should be accompanied (if needed) - strategies: watching over the proper psychomotor development, watching over the proper development of orofacial space, including primary activities, developing “phonetic realisation skills”, stimulating the development of auditory perception, multimodal learning of sounds, watching over the proper development of sound creation from birth, training of cultural methods of speech learning, including in particular imitation.
2. **the choice of the sound for training**, i.e. initiation of the corrective phonetic path, and therefore determining the type of order of learning/teaching sounds (developmental and/or therapeutic); this stage is started almost simultaneously with the previous one – the strategies: the strategy of the developmental sequence of sound learning, the strategy of the therapeutic sequence of sound learning, optimization strategy,
3. **the achievement of threshold conditions**, i.e. preparation for improving the realisation of a specific phoneme (in the form of intentional exercises and using the strategy of threshold conditions), taking into account the whole body, posture, regulation of muscle tensiity, breathing exercises, training the lips, the tongue and the palate, mandible mobility and exercises of perception of speech sounds (conducted depending on the patient and his defects) – the strategies: the strategy of threshold conditions for the sound, the strategy of current and long-term goals for improving speech organs,
4. **learning/teaching the sound using the optimal method and the frame of the elicited sound adjusted to the child** – the strategies: the analytical strategy, i.e. building blocks, synthetic strategy, i.e. rebuilding the building, special strategies, the strategy of the frame elicited sound, the strategy of “awareness of working on a new sound”, the strategy of “unawareness of working on a new phone”,
5. **activation of the sound in a larger structure**: in the syllable (when the sound is elicited in isolation) and in the word (and further: in the expression, sentence, text, dialogue, etc., which is also associated with breathing-phonation-articulation coordination exercises) – the strategies: the strategy of word selection for exercising with the target sound, the strategy of word segmentation, the strategy of word structure training, the strategy of additional features,
6. **polarization of a sound**, i.e. contrasting it with other sounds – the strategies: the strategy of contrast of phonetic features, the strategy of contrast of phonemic features, the strategy of contrast of target phone with faulty sound, (Pluta-Wojciechowska 2017),
7. **introducing the sound into colloquial speech** – the strategies: the strategy of exercising language, communication and cognitive skills, the strategies for short-term and long-term memory exercises, the strategy of current monitoring of therapy progress, “small steps” strategy, “new speaking” strategy, strategy for exercising Inter-Speech positions (Pluta-Wojciechowska 2017).

### 3. RESEARCH METHODOLOGY

#### 1.1. Research aim

The main aim of the study is to determine tentatively the effectiveness of speech therapy carried out by means of SMURF, whereby the present article will reveal the partial results connected with the selection of parameters of sound elicitation, namely, timing, method, frame of the given sound. What is meant by “sound elicitation” is its appearing during work with the patient after the employments of particular ways of treatment, whereby – which is obvious – the patient has not articulated the sound earlier. During the therapy the elicited sound appeared in different frames (that is, the surrounding phonetic environments or its lack), which has to do with the applied strategy, and the sound was achieved by means of different methods. The methods were listed according to the generally accepted approach as well as the approach preferable by the speech therapist during the elicitation of the sound (Pluta-Wojciechowska 2012, 2015, 2017)<sup>7</sup>. In the following study the phoneme-phonetic system proposed by B. Ročlawski (2001) was adopted.

#### 3.2. The selection of subjects and research limits

The patients with peripheral dislalia were accepted as the subjects of the study. They suffered from anatomical, functional and anatomical-functional peripheral dislalia and were not diagnosed with any other disorders, such as: cerebral palsy, delayed speech development, cleft lip and/or cleft palate, autism, mental retardation, aphasia, amblyacousia at the level higher than 30dB, stuttering, schizophrenia, schisophasia, phoneme or phonetic aural disorder, dyslexia. In the group which was analysed there were three subjects who had amblyacousia a little higher than 30dB in the past.

The patients came for the speech therapy spontaneously or on the advice of or on recommendation of orthodontists, ENT specialists or teachers. Each patient was examined by me personally. I assessed the following features: narration,

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<sup>7</sup> The methods of eliciting sounds can be ordered in different ways (e.g. Styczek 1981, Rodak 2002). Due to the general „philosophy” that guides the speech therapist during the design and application of various activities during therapy, two categories can be distinguished: the analytical method (ordering blocks) and the synthetic method (transformation of the building). In the first one, at the beginning the speech therapist teaches various skills, e.g. lifting the tongue, blowing, rounding the lips and then combines these skills, eliciting the phone. Using a synthetic method, a speech therapist conducts a test, during which he checks whether in the repertoire of patient’s current activities there are such an activity that can be transformed into the target phone. It can be a sound (eliciting one sound from another is a known method of working in speech therapy - see, e.g. Rodak 2002) or primary activity, e.g. snoring, spitting. I think that a speech therapist usually uses a combination of both methods or uses them both, with one of them being preferred. More in: Pluta-Wojciechowska 2015, 2017.

implementation of phonemes, anatomical- functional conditions (construction of speech organs, primary activities, motor skills of speech organs), physical hearing, phonemic and phonetic hearing. In the study of these features I used: an interview, an analytical-phonetic evaluation of pronunciation (i.e. using hearing ability, eyesight, touch and special tests to check the characteristics of sounds which were heard), the analysis of ENT examinations, orthodontic and physiotherapeutic tests, the data on previous speech therapy, the analysis children's health cards (case records).

The patients qualified for the tests underwent speech therapy using SMURF. The patients met with me every 2-3 weeks (or less frequently, e.g. every 4 weeks because of illnesses). In the case of children and adolescents, at least one guardian attended the therapy. In the study I accepted those people who had attended at least three appointments. The subjects qualified for the research were not selected due to the functional symmetry of the whole organism, ability to imitate speech sounds, susceptibility to a certain type of modality (visual, auditory, kinesthetic-motor), upbringing style, personality type or their determination to participate in speech therapy, etc.<sup>8</sup>

### 3.3. Characteristics of the research group

The study involved 30 patients and their average age was 13 years. The group analyzed included nine adults, nine preschool children, 10 early school children and two children aged 13-16<sup>9</sup>. 15 females and 15 males participated in the study. The youngest children were 3.5 years old, 4.5 years old, 5 years old; in their speech there were such phoneme realisations that could not be qualified as developmental ones, and the reason for the disorders were faulty anatomic and / or functional conditions.

The people who were examined by me were subjected to a speech diagnosis based on symptomatic-causative analysis. In postdiagnostic activities I included orthodontic, ENT, psychological consultations and treatment, work with a physiotherapist, referring for the cut of the frenulum of the tongue, as well as speech therapy using SMURF.

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<sup>8</sup> The limitations of the conducted research refer, for example, to my own experience related to diagnosis and speech therapy. It cannot be ruled out that the obtained research results are connected not only with the way of work I have developed over the years, which is constantly improved, but also with the individual – due to the relations to my personality traits - style of contact with the patient and the way of giving him instructions, recommendations, advice. That is why I am convinced that in describing SMURF, I was not able to convey all the nuances of the methods and strategies used, which is due to the imperfections of the language we use. Similar difficulties apply to the description of other therapy methods.

<sup>9</sup> Individual patients' age (in years): 40, 30, 30, 25, 24, 23, 21, 19, 18, 16, 13, 11, 10.5, 10, 10, 10, 8.5, 8, 8, 8, 7, 6, 5, 5, 5, 5, 4.5, 4.5, 4, 3.5.

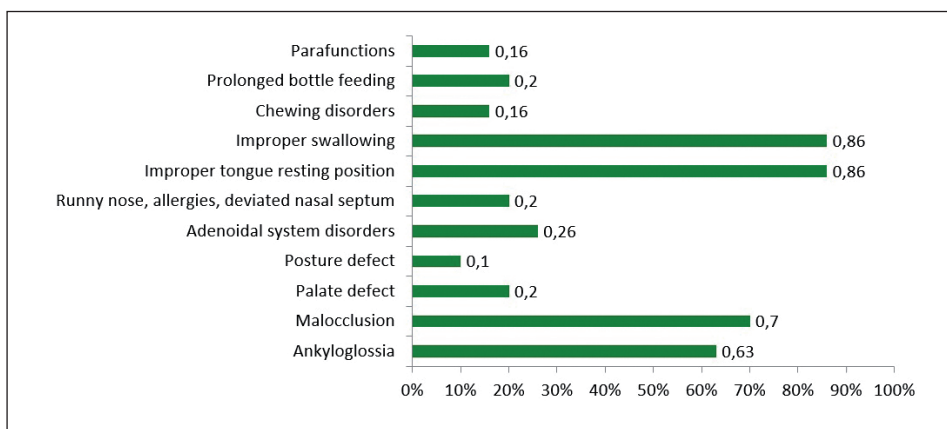
## 4. RESEARCH RESULTS

### 4.4 Non-normative sounds and non-normative phonetic features

The study revealed non-normative realisations of phonemes with regard to non-sibilant, dental non-sibilant, alveolar non-sibilant, **palatal** non-sibilant, back-tongued, labial-dental, labial, and vowel phonemes. Taking a different perspective, it is worth noting that the abnormality of the realisation of individual phonemes revealed the occurrence of various compensation strategies (see the definitions of the terms: compensation strategy, primary compensation strategy and secondary strategy (Pluta-Wojciechowska 2010, 2015, 2017). This means that the subjects dealt with defective anatomical and/or functional conditions in different ways. This was reflected in various non-normative phonetic features revealed in the course of the study. These were the following undesirable phonetic features occurring during the realization of consonant phonemes: interdental feature, dentality, dentality with anterior mandibula movement, dorsality, dorsality with mandibular movement, incorrect formation of the articulation gap, asymmetrical arrangement of the tongue and non-central air flow, lateral feature, asymmetrical vibration, single-impact feature, disdentalisation, semi-voice articulation, labial-dental feature, back-tongue feature, voicelessness, cleft feature, cheekiness, less lip mobility in the implementation of bilabial phonemes and non-syllabic “u”.

### 4.5. Anatomical and functional conditions of speech organs

While looking for the causes of faulty pronunciation, I assessed anatomical and functional as well as perceptual conditions. In determining the etiology of disorders, I also used the interview, the results of medical and psychological consultations with a physiotherapist. Chart 1 presents aggregated test results, which allows me to interpret the identified speech defect



Graph 1. Anatomical and functional conditions of speech organs

Characterizing the realisation conditions, it is worth emphasizing that five people in the earlier years of life were subjected to the cut of the frenulum of the tongue, but only one patient got as a result of the treatment a standard length of the frenulum, and four people (out of five) required another surgery. According to the interview, the parents of the children were not informed about the need for speech therapy after cutting the frenulum of the tongue. Only three people had postural defects; most parents did not consult a physiotherapist.

#### **4.6. Types of peripheral dislalia**

An intra-individual analysis allowed the identification of types of peripheral dyslalia. Using the typology proposed by H. Mierzejewska and D. Emiluta-Rozya (1997, see also Emiluta-Rozya 2012), it can be said that the largest group consisted of persons with organic and functional dyslalia (80%), then those with functional dyslalia (14%), and those with organic dyslalia (6%).

#### **4.7. The parameters of the sounds elicited as the first ones**

In the following section of this article I present the analyzes showing the results of research on selected variables related to the first elicited sound. These are: time, methods and frames of elicited sounds. Danuta Pluta -Wojciechowska

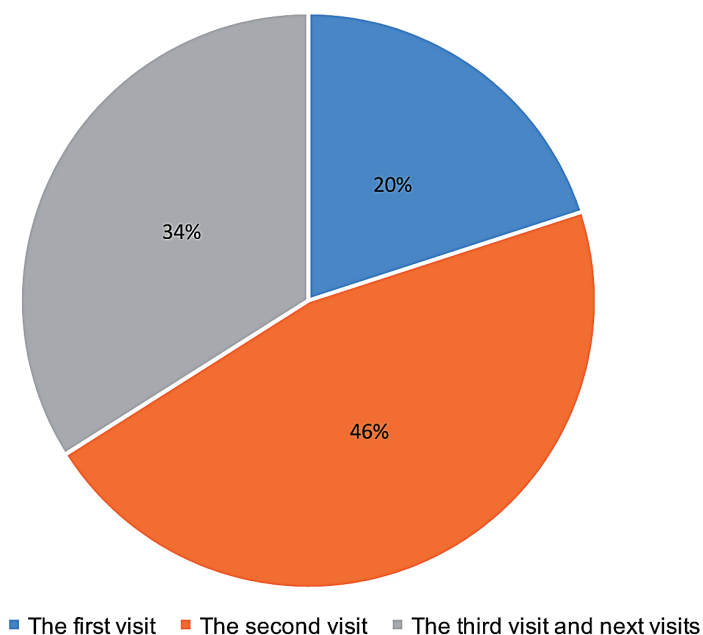
Graph 2 presents the results of the tests regarding the time of eliciting the first sound. By “time of elicitation”, I mean the data referring to the visit during which it was possible to achieve a new sound. In the case of the examined group, the following sounds were elicited as the first ones (different sounds depending on the patient, the patient’s symptoms and causes of the disorder): [w], [t], [n], [c], [cz], [sz], [l], [r], [ć], [k]<sup>10</sup>. According to SMURF, the type of elicited sound was associated with the therapy sequence – the developmental or therapeutic or mixed one. This means that the choice of the sound which initiates the process of repairing a damaged phonetic system in therapy was not accidental, but associated with the analysis of the symptoms of the disorders and their causes.

While accepting the analyses referring to the relation: symptom – cause, as well as the features of psychomotor development, I elicited the phone in a different frame, i.e. phonetic environment. For example, in some patients in open syllables, in others in isolation, and then I introduced the phone into closed syllables, and in some patients I achieved a new phone in the mid-position or even in the consonant group. This means a departure from the frequently described methodological rules indicating the necessity of eliciting the sound in isolation, and then introducing it to the word-initial, middle and word-final position or – in the case of another work style – eliciting the sound in open syllables. The choice of various frames of eliciting sounds implied the individual characteristics of the patient,

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<sup>10</sup> I used letters for writing.





Graph 2. Time of the elicitation of the first sound

which means adjusting the method to the patient with speech impediments, not “adjusting the patient to the method.” If the patient has to “adjust to a given way of work”, then such behavior should be considered contrary to the principle of individualized therapy.

The elicited consonant was close to the normative one in different ways<sup>11</sup>. The difference between the elicited and normative sound concerned, for example, a slightly differently formed articulation gap in [cz] sound, which was related to the shortened frenulum of the tongue and the refusal to perform surgery associated with removal of ankyloglossia. However, these were not common cases.

<sup>11</sup> The new phoneme obtained during the meeting with the patient was normative or similar to the normative sound to a different extent, but - in the case of the latter - completely different from the previous realisation of the given sound. The different „distance” of the elicited sound from the normative sound generally resulted from two reasons. The first was associated primarily with anatomical conditions, which could not be changed in a radical way. For example, the patient refused to cut the frenulum of the tongue, had a malocclusion (the patient could not get, for example, dentalization of the phone), which was treated, had an excessively arched palate. The second reason bore in on the gradual „approaching” of the elicited sound to the normative one observed in the course of work with the patient, which is related to the method of working on a new sound. This corresponds to the observations regarding the phonetic development of children with the so-called biological norm. In some of them, together with the development, for example, the realisation of phoneme / r / goes from single-impact forms to vibrational forms. I skip the phenomenon of so-called developmental substitutions, referring the reader to B. Ostapiuk (2002) and my publications (2013, 2015).

Table 1. Parameters of first sound elicitation

The type of the sound vs. the number of people in whom one was elicited		The visit when the sound was elicited			The method of elicitation of the sound			The frame of elicitation of the sound			
The type of the sound	The number of people in whom the therapy by means of the given sound was initiated	I	II	III and further	Analytical method preference	Syn-tactic method preference	Analytical-syn-tactic method preference	Isolation, then syllable-final position	Syllable initial position	Middle position	In-consonant cluster
[w]	1	1			1					1	
[n]	1		1				1	1			
[t]	1		1				1		1		
[c]	3	2	1			3		3			
[cz]	10		6	4		10		2	8		
[sz]	1		1		1				1		
[l]	10	3	4	3	10			3	7		
[r]	1			1			1				1
[ć]	1			1		1			1		
[k]	1			1			1		1		
Sum		6	14	10	12	14	4	9	19	1	1

Table 1 presents the data on selected and, as I understand it, relevant variables for eliciting individual sounds. The information in the table lets us see that 66% of people pronounced the first sound during the first or second visit (20% of patients during the first visit and 46% during the second visit).

The elicitation of the sound can be done by means of various methods, which is reflected in various typologies and propositions (Antos, Demel, Styczek 1971; Demel 1971; Jastrzębowska, Pelc-Pękala 1999; Kania 1968; Rodak 2002; Sołtys-Chmielowicz 2016; Pluta-Wojciechowska 2017). Depending on the adopted “philosophy” during learning a consonant, one can distinguish the analytical and synthetic method or – which is the most common in my opinion – a combination of the analytical and synthetic methods (see section *Aim of the research*).

Elicitation of the first sound was carried out with the help of procedures that I described as follows: preference for the analytical method, preference for the synthetic method or combination of the analytical and synthetic methods.

The analysis shows that the most common way was based on the treatments associated with the synthetic method, or more specifically, with the higher usage of this approach during work. Further analysis shows that the indicated style of treatment was associated with more frequent elicitation – as the first sounds – of non-voiceless affricative sounds out of the families of particular dentalised consonants. This means that – contrary to the prevailing customs or rules – I did not elicit – as the first sounds – voiceless fricative sound out of the dentalized sounds of a given group. The choice of an affricative sound was caused by the analysis of the mechanism of speech disorder in a given patient and the use of ontogenetic rules of phonetic system acquisition, which is observed in children (more: Pluta-Wojciechowska 2017, as well as another publication of the raport of the study on therapy effectiveness using SMURF 2019, [ in preparation]).

Another important variable is the frame of the elicited sound, i.e. the phonetic context (or its lack), which – according to the speech therapist’s intention – is the best for the elicited sound to be pronounced by the patient as a result of special procedures and treatments applied by the specialist. The choice of the frame of the elicited sound was also conditioned by the individual characteristics of the patient. There were different frames in the study group, which is related to the symptom and causes of the disorder. Sounds initiating the process of repairing the disturbed phonetic system were elicited: in isolation, then a new sound was introduced into closed syllables (9 people), in the open syllable (19 people), in the middle position (1 person), in the consonant cluster (1 person). The most frequent frame of the first sound elicited was an open syllable.

The above reports should be supplemented with data on the detailed features of symptoms of disorders in the area of phoneme realisation together with a description of the mechanism of disorders and the justification of the selection of the sound for training. However, this exceeds the range of this publication (more in: Pluta-Wojciechowska 2019 [in preparation]).

It should be noted that the presented analysis applies only to the elicitation of the first sound, which initiates the process of repairing a damaged phonetic system. Therefore, on the basis of the research results, it is not possible to state which methods or frames of elicited sounds are applied most often. It can be stated, however, that there is no one universal method of learning/teaching sounds and a universal frame for their elicitation, and the emerging preferences for some methods or frames should be confronted with the kind of elicited sounds, as well as to check which therapeutical methods will be characteristic for learning/teaching other sounds of speech. I suppose that depending on the phonetic features of the sound, some methods, as well some frames in which the sounds are to be

elicited, may be more or less effective. Moreover, the individual characteristics of the patient with impaired speech should also be taken into account. This problem certainly requires specially designed research.

## 5. DISCUSSION

As we may read in the study, a patient with anatomical, functional or anatomical-functional dyslalia requires – in addition to work on pronunciation - normalization of primary activities adapted to the causes and symptoms. Defective biomechanical base of articulation formed during eating, breathing, drinking, as well as paraphunctions and/or incorrect construction of speech instruments contributes to the deployment of primary compensation strategies and – further – creating non-normative realisations of phonemes, with reference to children, as well as adults, (see in Sambor 2016). Hence, it is advisable to involve the correction of disorders of biological functions, and – as far as possible – the elimination of parafunctions during dyslalia therapy .

Achieving the desired methods of speech therapy is connected with various activities, including ENT, orthodontic treatment, tongue frenulum cutting, and the help of a physiotherapist. That is why in the method of therapy of peripheral dyslalia proposed by me – SMURF – one accepts as the first stage *constructing the foreground of articulation*<sup>12</sup>. It is associated, among others, with the normalization of primary operations, and particularly, breathing together with the resting position of the tongue, as well as swallowing, and the activities such as cutting the frenulum of the tongue, ENT and orthodontic treatment.

The axis of the exercises of speech organs in the first stage of work – according to SMURF – was the vertical-horizontal position of the tongue (w-h)<sup>13</sup>, which determines, among others, the exercises of subsequent activities during therapy, namely, learning/teaching the correct resting position of the tongue and swallowing. Depending on the patient, lips were also improved. According to the assumptions of SMURF, the sound is elicited when the patient has threshold con-

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<sup>12</sup> This does not mean that we only deal with primary activities first. If the patient presents the threshold, i.e. necessary and sufficient conditions for eliciting a given phone, we proceed to elicit it.

<sup>13</sup> “**The vertical-horizontal position** (w-h) of the tongue is the verticalisation of the wide tongue in the mouth, during which the tongue is raised on one side, touching the tip the area of the upper incisors (upper gum), with the dorsal part glued to the palate, and the sides of the tongue adhere to the lateral surfaces of the upper dental arch, while on the other side the tongue takes a wide shape. We emphasize that the front part of the tongue takes a horizontal position, and the tip is directed to the palatal part of the upper teeth. I call this position vertical-horizontal, which means on one hand the vertical elevation of the tongue, i.e. verticalisation, but maintaining the horizontal position of its front part (Fig. 2). Variants of this position are also important ”(Pluta-Wojciechowska 2017, 56, com. Pluta-Wojciechowska 2015).

ditions enabling work on a new sound. It is not necessary to achieve a complete normalization of primary activities to elicit a new sound.

Most people achieved a new phone as early as during the second visit, which seems quite quickly, given the incorrect biomechanical base of articulation due to a defected course of primary activities, in particular resting position and swallowing, as well as anatomical anomalies. Some patients were immediately on the first visit directed to cutting the frenulum of the tongue, which – given the role of ankyloglossia in the etiology of speech defects (Ostapiuk 2013ab, Pluta-Wojciechowska 2015; Sambor 2016, 2017; Pluta-Wojciechowska, Sambor 2016) – allows us to hypothesise that it was – apart from training the w-h-position of the tongue and, in the case of some people at the first visit the initiation of the resting position of the tongue, an important factor allowing the elicitation of sound.

We should also emphasize that as it was shown in the analyzes of the Polish phoneme-phonetic system described by B. Ročlawski (2001, see also Ostapiuk 1997, 2013ab) as many as 19 consonants in the initiation of the main place of articulation use different types of variants of w-h tongue position inside the oral cavity (Pluta- Wojciechowska 2011, 2013, 2015), and during the inter-articulation position of the tongue called Inter-Speech (see Gick, Wilson, Koch, Cook, 2004; Pluta-Wojciechowska, Sambor 2017) in the case of people with proper anatomical and functional conditions the language is in a position that was described as follows: “elevation of the sides of the tongue to the height between the lower and upper arch with the apex being at the height (above) incisal edges of the lower incisors” or “the elevation of the sides of the tongue to the height of the crowns of the upper arch, with the apex between the lower and upper incisors” (Pluta-Wojciechowska, Sambor 2017, p. 186, see Gick, Wilson, Koch, Cook 2004).

My analyzes (2011ab, 2015, 2017) also indicate that the most important experience of primary activities is the w-h position of the tongue, because it is observed during physiological breathing, as well as during mature swallowing. Therefore, I suppose that an important factor in quick elicitation of a new speech sound during the exercises was the careful choice of sound, which was associated with the analysis of the symptoms of the disorders and their causes, as well as the type of language exercises. During the therapy I did not use the exercises, such as: counting teeth, pointing the tongue towards the nose or the ear, touching the chin, licking the upper lip, cat’s back, tip, groove<sup>14</sup>. These exercises do not correspond with the articulation needs of Polish sounds, which results from comparative analyzes of tongue shapes during non-articulatory tongue exercises (NĆJ), for example, counting teeth, cat’s back and tongue shapes during the realisations of Polish phonemes. Non-articulatory tongue training, and more generally, non-articulatory

<sup>14</sup> See the analysis of the exercises, presented by D. Pluta-Wojciechowska and B. Sambor in the study entitled *On popular but debatable language exercises for peripheral articulation disorders*, Logopedia 2018, vol. 1, pp. 267–278.

speech organs training (NCNM) are also criticized in foreign language publications (Lof 2002, 2008, 2009, 2011; Forrest 2002, Powell 2008; Ruscello 2008), as well as the Polish ones (Ostapiuk 2013ab; Pluta-Wojciechowska 2015, 2017; Pluta-Wojciechowska, Sambor [Logopedia 2018, vol. 1, s. 267–278]).

The preliminary results of the study - referring to the selected, but important parameters of eliciting the first sound - indicate the effectiveness of the proposed method of therapy - SMURF. Unfortunately, the results of the presented research cannot be compared with others, because no similar studies have been conducted in Poland and worldwide. Despite numerous Polish works on therapy in the case of dyslalia, no results of studies on the effectiveness of the proposed methods have been presented, for example, exercises of speech organs (for example, effectiveness of exercises such as counting teeth, directing the tongue to the nose, to the ear, protruding the tongue to the chin, cat's back, trough), elicitation of a fricative dentalized sound – as the first one – out of the particular subcategories of dentalized sounds, the preferable frame of the elicited sound (in isolation or in the syllable). I cannot compare these studies to the foreign studies, because this type of research is also not being carried out there, and besides, different phonetic systems of different languages do not allow the transfer of all conclusions regarding one language to another context, although - as I point out – it is possible to compare, for example, number and type of work stages used, the essence of training used aiming at improving speech organs, applied sequences of therapies of sounds (developmental and / or therapeutic), etc.

The following actions should attempt to show other aspects of the therapy in the case of peripheral dyslalia by means of SMURF, which will be the aim of the next article (Pluta-Wojciechowska 2019 [in preparation]).

## 6. ON WITCHCRAFT AND TRICKS WHILE ELICITING SOUNDS

Finally, the question may be asked: are there spells and tricks when eliciting sounds? The answer is "Yes" if we recognize, for example, that the rapid rate of eliciting is a kind of spell, a trick. From this point of view, we can, for example, assume that the achieved rate of eliciting the first sound presented in the studies is too slow. Therefore, the question should be asked about the reasons for this state of affairs. The adversary of this position, in turn, will declare that eliciting the sound during the first visit in 20% of people and on the second visit in the case of 46% of patients is quick and will state that it is a "spell" or "trick". On the basis of the conducted research, it can be assumed that, behind tricks and spells – seen as efficient and quick acquisition of a new sound – we find strategic thinking that allows to design the order of therapy in accordance with the mechanism of disorder.

ders, as well as the type of language exercises and the choice of method and frame for eliciting a given sound. This was reflected in the adopted phases of work in the case of SMURF.

On the basis of the preliminary analysis of selected aspects of the effectiveness of SMURF therapy, one can risk the statement that the adopted order of proceedings, the type of speech organ exercises, the thorough selection of the sound which is to be practiced and working methods are favorable for the rate of eliciting a sound. These are spells and tricks when eliciting the first sound initiating the process of repairing a disturbed phonetic system. The above analyzes should be supplemented, for example, with an analysis of the quality of elicited sounds, the pace of their automation, as well as the impact of training of primary activities.

Although the described test results are satisfactory, precaution and humility make us wait for the final results of full tests to determine the level of SMURF effectiveness. The next study - hopefully - will confirm the effectiveness of the proposed work style (Pluta-Wojciechowska 2019, [in preparation for printing])

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