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Assessment of the Use of ©GORA Gestures in Language Communication Therapy of a Child with Impaired Speech Development (A Therapist's Perspective)

Ocena wykorzystania gestów ©GORA we wsparciu komunikacji językowej dziecka z zaburzonym rozwojem mowy (perspektywa terapeuty)

Keywords:
©GORA gestures, speech therapy, language communication disorders

Summary: The purpose of this article was to evaluate the use of articulatory gestures by specialists in language communication therapy. Impaired speech development significantly impedes the individual's language communication, leading to developmental deficits in the emotional, cognitive and social spheres. Articulatory gestures are an effective method supporting therapy when working with people with language communication disorders. They help one overcome deficits in the development of motor functions and/or auditory perception, which are the underlying difficulties in mastering the language.

Thanks to this, they stimulate the development of the child's speech and language, building and developing communication and language competencies. The authors of this article verified their observations and thoughts by conducting surveys among speech therapists supporting language communication therapy with articulatory gestures.

Słowa kluczowe:
gesty ©GORA, terapia logopedyczna, zaburzenia komunikacji językowej

Streszczenie: Celem niniejszego artykułu jest ocena wykorzystania przez terapeutów w terapii komunikacji językowej metody Gestów Obrazujących Ruchy Artykulatorów (©GORA). Zaburzony rozwój mowy znacznie utrudnia komunikację językową jednostki, prowadzi do deficytów rozwojowych w sferze emocjonalnej, poznawczej i społecznej. W pracy z osobami z zaburzeniami komunikacji językowej efektywną metodą wspierającą terapię są gesty ©GORA. Wspomagają one przełamanie deficytów w zakresie rozwoju funkcji motorycznych i/lub percepcji słuchowej leżących u podłoża trudności w opanowaniu języka, czytania i pisania. Dzięki temu stymulują rozwój mowy i języka dziecka, budują i rozwijają kompetencję komunikacyjną oraz kompetencję językową. Autorki artykułu zweryfikowały swoje obserwacje i przemyślenia dzięki przeprowadzeniu badania ankietowego wśród pedagogów/logopedów wspierających terapię komunikacji językowej gestami ©GORA.

Introduction

Communication is a process of transferring information which involves the exchange of verbal and non-verbal messages. It is based on expressing thoughts and views, as well as on satisfying both one's own needs and the expectations of other people. The word "communicating" comes from the Latin verb *communico*, *communicare* which means "make common, connect, convey messages," and from the noun *communio* ("community") (Dobek-Ostrowska, 1999). Thanks to communication, we can initiate the activity of others, influence their taking of specific actions and the ways of their implementation and, consequently, experience the effects of these actions and achieve assumed goals. Communication is conducive to cooperation and building important social competences, establishing relationshipsand motivating one to act.

Effective communication is, therefore, a condition for cognitive and social development, a basic human need and our obvious right.

Language communication is of interest to specialists and researchers (speech therapists, educators and linguists) (Baczała & Błeszyński, 2014; Michalik, 2019; Panasiuk, 2019). We can explore its complex nature in different ways, depending on our approach or scientific field. Effective communication between people depends on their language skills. It can occur when it is not affected by any pathological factors that prevent language from normative development.

Language disorders are a barrier to effective communication. In addition to more obvious obstacles in naming, creating sentences, expressing needs verbally or, e.g., sharing experiences, children with difficulties in verbal communication may experience limitations in establishing relationships with peers, school problems, as well as secondary emotional disorders. In addition, communication barriers have a negative impact on the verification of knowledge acquired by students.

According to statistical data, the problem of speech defects and language and communication disorders affects 8–9% of the world's population; in the US alone, the rate of communication difficulties in children is 20% (see Banach, Cybulski & Krajewska-Kułak, 2015). Data from reports on European countries show similar numerical indicators (cf. Bercow, 2008). The statistics cited above suggest that this is not a marginal problem, and the children affected require comprehensive support in their development, provided not only by speech therapists, but also educators and parents.

It is also important to accurately diagnose speech irregularities as early as possible, and to begin pedagogical and therapeutic work on effective communication with the environment in the fullest way, verbally or non-verbally, using all known methods of communication (including augmentative and alternative ones, i.e., AAC). The development of communication should be supported in every class and in all school and non-school situations (*New Core Curriculum*, 2017). One of the augmentative methods is ©GORA (Gestures Representing Articulator Movements) (Lorens, Piotrowska), developed to improve language communication. The monograph entitled *GORA – Gestures Representing Articulator Movements* (Lorens, Karwowska & Więcek-Poborczyk, 2017) is a detailed description of the method itself and a comprehensive guide to help in its use.

The ©GORA gesture method is intended not only for specialists (speech therapists or pedagogues), but also for teachers, parents and guardians of

children in whom language acquisition has been disturbed from the beginning. When supporting therapy with ©GORA gestures, a communication situation is modeled by appropriately selected word material and reinforced with a photo/picture emotionally important to the child. It is conditioned by the fact that language grows out of action (Wygotski, 1971). By participating in various communication situations, the child interacts with the rules of language use, which – in specific conditions – can be updated in the form of language behavior. Therefore, when using ©GORA gestures, proper conditions should be created to motivate the child to demonstrate communication skills (Szuman, 1968). Speech develops on the basis of biological mechanisms but is influenced by necessary patterns of human speech and one's motivation to speak. The child establishes a dialogue with the environment through facial expressions, gestures and, later, language. They need social contact to learn the principles of effective communication, enrich their own language and gain new experiences. Perceptual, cognitive and memory processes are of great importance in language acquisition. Factors that activate the child to linguistic activity include their willingness to meet their needs, as well as tasks performed and goals set. Such conditions are the easiest to meet at home, as well as in kindergarten and the school environment, i.e., in everyday, stable functioning.

©GORA is a system of hand movements which, using specific gestures, support the production of sounds. The gestures do not contain the content of the statement, nor do they explain the meaning of words. Consequently, this is not a method that replaces the child's speech, but only supports its active side. Its task is to illustrate selected articulatory features of phones. With the same gesture we represent the visual aspect of the sounds voiced. Specific hand movements correspond to the assigned articulator systems (see Figures 1–2).

[a] – put your thumb and other fingers at the level of your parsed lips; the fingers form a pincer grasp. Move your fingers apart until the palm is completely open (mouth/jaw opening: wide sound), lips are now open. The gesture and articulation [a] can be extended (duration of sound: prolonged).

Figure 1.
Gesture illustrating the phone *a*.
Source: own study.

[c] – palm horizontally arranged at teeth level, lips open (place of articulation: apical dental sound), thumb and forefinger form a pincer grasp. In a dynamic movement, move the index finger away from the thumb forming a small gap, moving the hand away from the lips horizontally (degree of approximation of speech organs: affricate consonant); then stop the movement (duration of sound: brief).

Figure 2.
Gesture illustrating the phone *c*.
Source: own study.

Gestures are always accompanied by clear and loud speech. The use of gestures makes it easier for the child to distinguish, recognize and remember the phones pronounced at a given moment. This method was created for children with a very specific problem – i.e., speech underdevelopment of cortical

origin (NMPK). In its course, specific difficulties can be observed, including those in reproducing precise movements within the articulation apparatus. This is due to sensory disturbances in the arrangement of articulatory organs (impairment of speech kinesthesia) (Styczek, 1982). Kinesthetic disturbances within the speech apparatus (oral apraxia) (Luria, 1947; Maruszewski, 1970) interfere with the inflow of impulses directed to specific groups of articulatory muscles, debilitating the precise and selective nature of the movement. In this situation, in other words, it is impossible to make precise movements of the tongue, mouth, lips or larynx, thanks to which a particular phone is voiced. The child cannot reproduce the appropriate arrangement of the tongue and lips or make these movements on instruction. The nondevelopment or loss of the precise differentiation of articulation movements leads either to the distortion of articulation expressiveness or the inability to articulate phones. According to Luria (1947), a sensory disturbance within the articulation apparatus disorganizes the speech production process. This occurs in several units of speech pathology, often posing a big challenge in speech therapy which, for both the child and the adult, is a very frustrating experience. Strenuous and unsuccessful attempts to arrange the articulators according to the therapist's verbal instructions increase the patient's sense of powerlessness. The consequence may be their withdrawal from the communication process, and thus from education (Paluch, Drewniak-Wołosz & Mikosza, 2005).

The Gestures Representing Articulator Movements were developed on the basis of neurophysiological knowledge and are an extremely useful tool in work on speech apraxia, i.e., difficulties in the smooth transition from one articulation movement to another. The ©GORA method is currently widely used by speech therapists, educators and parents in the language communication therapy of people with various communication difficulties (speech underdevelopment of cortical origin, autism spectrum disorders, intellectual disabilities or conjugated disorders). The usefulness of ©GORA in supporting the development of communication is clearly emphasized by people using this method in therapy, as well as by the parents and guardians of children with speech disorders characterized by various pathomechanisms.

Method

In the context of the basic assumptions of the ©GORA gesture method, the authors of this article attempted to assess the degree of effectiveness of

©GORA gesture-supported language therapy led by speech therapists/educators in children with impaired speech development.

For the purposes of the study, the following research question was formulated: What is the effectiveness of ©GORA gesture-supported language therapy led by speech therapists/educators in children with impaired speech development?

The research used the diagnostic survey method which is

> […] a way of gathering knowledge about structural and functional attributes and the dynamics of social phenomena, opinions, and views of selected communities, the intensification and development directions of certain phenomena and all other phenomena not institutionally located – but having educational significance – based on a specially selected group representing the general population in which the studied phenomenon occurs. (Pilch, 1998, p. 42)

The technique used in the research was a survey. The research material consists of answers to the questions in the questionnaire obtained from 22 therapists supporting the child's language communication therapy with ©GORA gestures. The survey was addressed to respondents once, via the Internet, in November 2019. It contained both open and closed (single-choice) questions.

The people who took part in the study are pedagogues/speech therapists who became familiar with the ©GORA gesture method during training or internship, or studied it independently on the basis of the publication entitled *GORA – Gestures Representing Articulator Movements* (Lorens et al., 2017). We obtained results from 22 correctly completed surveys. As many as 76% of the respondents learned the ©GORA gesture method during workshops, training sessions or internships, and only 5% of the participants know it only from the publication; 19% of the respondents learned about ©GORA gestures from other sources.

Results

The results of the survey may encourage speech therapists and educators to learn the ©GORA gesture method supporting active speech in order to enable people with complex communication needs to transmit and receive messages. The collected results also allow for the assessment of the usefulness of the ©GORA gestures in supporting language communication in children and adults with various speech disorders.

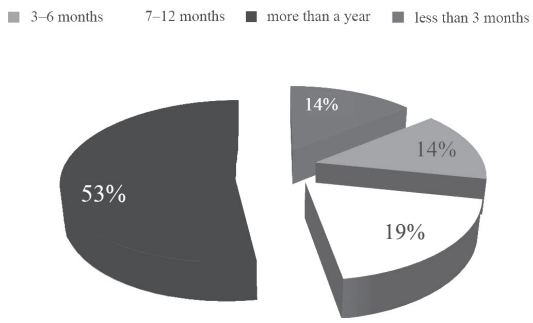

Figure 3.
Time of using the ©GORA gestures by the examined persons.
Source: own research.

The majority of surveyed specialists (53%) report that they have supported their speech therapy by using ©GORA gestures for more than one year. This is sufficient time to notice its advantages and disadvantages. Only 14% of respondents have used this method for less than three months.

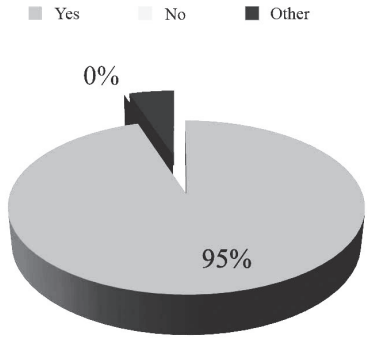

Figure 4.
Respondents' knowledge of the theoretical basis of ©GORA gestures.
Source: own research.

To properly illustrate a given phone with a gesture, one must have the knowledge of the phonetics and phonology of the Polish language, as well as the structure and functioning of speech organs during the articulation of phones. As many as 95% of the surveyed therapists declared their knowledge

of the basics of phoneme mechanisms supported by ©GORA gestures. This indicates, therefore, that the person who supports the child's loud speech knows what each visualization of their hand movement, its dynamics and duration, visualizes.

This knowledge gains special importance when one considers the process of learning to read and write. For a person with speech disorders, this is a difficult task because of the distorted auditory image of the letter (or its absence) and the difficulties in uttering phones and syllables. The basis for reading and writing is phonological awareness. Its creation is supported by articulation gestures (Barton-Hulsey, Sevcik & Romski, 2017; Pullen, 2003). In general, the patient is then helped by a computer equipped with speech synthesis. A phone is not only a sound, but also a specific movement pattern. The ©GORA gestures are, therefore, very helpful in this respect. They are not only a static arrangement of fingers and palms, but they also visualize movement. They are a replacement for the articulation movement when dividing a word into phones and pronouncing them in various positions in the word. They significantly speed up and facilitate reading and writing in a person who does not speak (Przebinda, 2017).

The authors of *©GORA – Gestures Representing Articulator Movements* developed the theoretical foundations for creating gestures. They presented readers with all the necessary information needed to understand the meaning of a particular hand arrangement and movement, or the very dynamics of the movement.

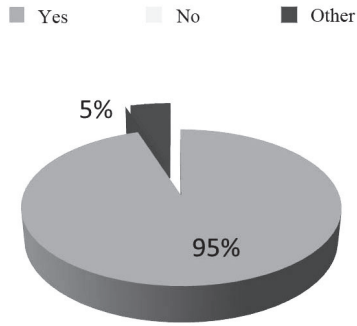

Figure 5.
Effectiveness of ©GORA gestures in support of communication.
Source: own research.

The overwhelming majority (95%) of therapists participating in the study assert the effectiveness of ©GORA gesture-supported therapy in children and adults with speech disorders with different pathomechanisms (congenial defects, reduced efficiency, abnormal movement habits within the articulation apparatus, cerebral cortex damage, intellectual disability, autism spectrum disorders). The remaining 5% of the respondents explained that they had not been using ©GORA gesture-supported therapy long enough to draw such conclusions. The therapists surveyed pointed to the effectiveness of the method in supporting the communication of children and adults in whom the mechanism of their language disorder is due to disturbed auditory perception and/or articulation kinesthesia, leading to difficulties in mastering, updating, and implementing auditory and/or sensorimotor language patterns.

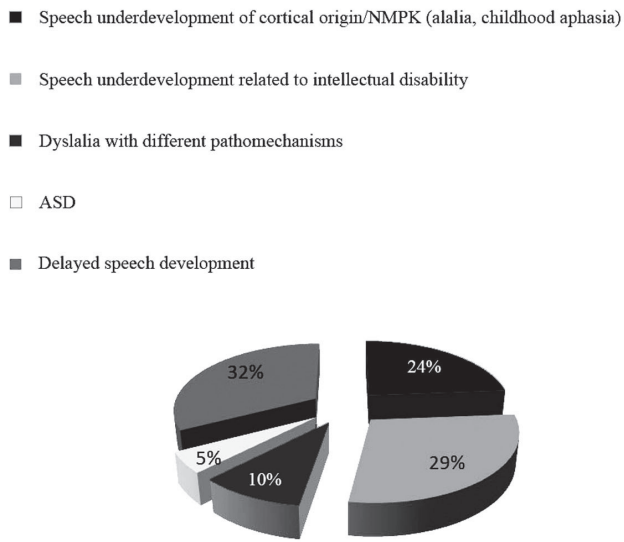

Figure 6.
©GORA gestures in speech disorders.
Source: own research.

According to the surveys, ©GORA gestures are used the most often in therapy of children with delayed speech development (32%) and children with speech underdevelopment related to intellectual disability (29%). The next group is children with speech underdevelopment of cortical origin,

NMPK (24%), followed by dyslalia with various pathomechanisms (10%) and those with the autistic spectrum disorders (ASD) (5%).

Although the method was created specifically to support speech therapy for children with weakened articulation kinesthesia, the majority of the respondents worked with children with delayed speech development. This situation can be explained by the fact that children with delayed speech development are the most numerous group of patients.

The surveys show that the use of the ©GORA gesture method in supporting communication is much broader than indicated in the publication describing the method (Lorens et al., 2017). Interesting conclusions can be drawn from the comments on bilingualism added to the surveys. The normative and most common pronunciation pattern in English is Received or Standard Pronunciation (Gimson, 2008), also called BBC English. However, didactic and therapeutic practice shows various implementations of individual phonemes. This is due to the development of English in countries on different continents, and the implementation of phonemes by foreigners who look for a place to articulate a given sound in their own auditory way. The surveys show that using ©GORA gestures to illustrate the Polish phonemic inventory also supports building a Polish language system in bilingual children. The gestures visualize the criterion for the classification of phones from the Polish, not English, language system. This is very helpful in stabilizing the phonemes. Although these children do not suffer from speech disorders, the main positional variant of individual phonemes is not always implemented correctly. With the support of ©GORA gesture therapy, they are quick to master the place of articulation of a given phone. Smooth hand movements support the smooth movement of the articulators, and thus – the effective locating of where the sound is articulated. What is more, parents of bilingual children also find it easier to absorb the classification features of individual sounds when they see the movement of a hand, rather than hear a description of such classification. They no longer show difficulties in articulating statements addressed to children. Each parent "watches" their own separate places of articulation depending on their native language.

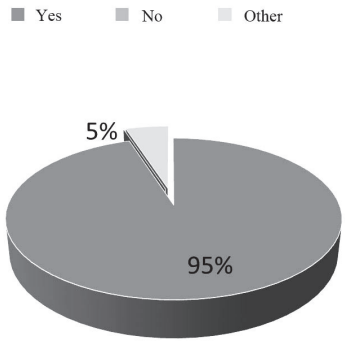

Figure 7.
Widening of the active vocabulary.
Source: own research.

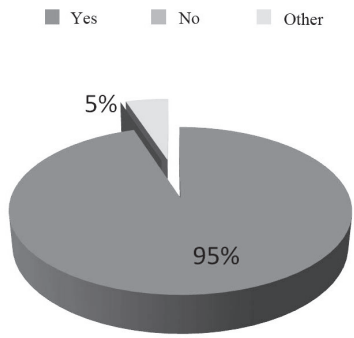

Figure 8.
Improving expressiveness.
Source: own research.

According to the opinions of the surveyed specialists, the ©GORA gesture method can increase the repertoire of words in the child's active vocabulary (95%). The foundation for supporting the development of communication using the ©GORA method is to provide as many communication situations as possible by therapists, educators and the child's family. The utterance of key words is supported by gestures representing the movement of articulators, affecting their executive (motor) process; this is the basis of all implementation skills – including verbal ones – conditioning the ability to master the movement patterns of phones, words and sentences.

An improvement in the child's expressiveness was noticed by 95% of the surveyed therapists. Disturbances in language development at the phonological level are expressed as disturbances in articulation. Although the children's speech organs are built correctly, they confuse sounds – inconsistently replacing one with another, changing the order of phones and syllables in the structure of the word, creating contaminations within words, distorting the pattern of expression through epentheses and elisions, and showing difficulties in carrying out assimilation processes (both in the form of individual sounds within the word, and by the likening of the whole word to a phonically similar, already known word). Articulation distortions are irregular – they are the result of weakened articulation kinesthesia: exaggerated lip, tongue and jaw movements are a symptom of searching for the correct positioning of articulators during speech. Using the right gesture is intended to help the child find the right

place for articulation or indicate how to pronounce a specific sound. This visual hint not only helps them to voice the expected sound once but – when used regularly – gives them a chance to consolidate and stabilize its realization, reducing the irregularities observed at the word level; it thus measurably affects the clarity of expression.

The results of the survey regarding the age of patients in whom therapy was supported by ©GORA gestures are surprising. According to the respondents, the method is useful both in the therapy of young children, i.e., in the first year of life, as well as the elderly, e.g., 70-year-olds.

Discussion

Due to the small size of the surveyed group, the research is of a pilot nature. The obtained results and conclusions based on them should not be extrapolated.

The results of the survey, as well as the experiences and observations of the authors, indicate that the use of ©GORA gestures can be helpful in broadly understood language communication therapy. The analysis of the results provided was interesting and very inspiring. It turned out that the possibilities of using ©GORA gestures are much wider than initially assumed. From the beginning, it seemed that in all disorders where the clarity of speech is disturbed, or in which effective communication is difficult for various reasons, ©GORA gestures prove to be a useful method to support active speech. The need to adapt the method to specific disorders, taking into account the deficits of children in individual groups, seems to be unquestionable. At the same time, the following questions arise:

- What is the effectiveness of ©GORA gesture-supported therapy?
- Can ©GORA gestures be used with equal success regardless of the type of speech disorder?
- Which speech disorders can benefit from therapy using the ©GORA method?

As the authors of the monograph on the Gestures Representing Articulator Movements method, we see the need to conduct this type of research, as well as extend it to the assessment of ©GORA gestures by other therapists (especially educators) and parents of children with impaired speech development. It is worth emphasizing that therapists should have both knowledge and skills in the use of various methods supporting communication therapy for children and adults. The methodical value, naturalness, simplicity and transparency of

Gestures Representing Articulator Movements (©GORA) enable their use in working with both children and adults. Gestures representing the movements of articulators can help speech therapists, as well as educators and parents, in shaping correct pronunciation patterns in people with articulation kinesthesia disorders and/or auditory control in children with speech disorders. The studied method, referring to universal neurophysiological laws, systematizes the mnemotechnics which support education and improve articulation.

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