

## METHOD OF DEVELOPMENT OF DACTYLE AND SIGNED SPEECH IN "NATURAL" SCIENCE LESSONS

### Zulfia Mamarajabova

Professor, DSc,

Department of Sign Pedagogy and Inclusive Education,  
Tashkent State Pedagogical University named after Nizomi

### Nazokat Abidova

Associate Professor, PhD

Department of "Oligophrenopedagogy",  
Tashkent State Pedagogical University named after Nizomi

### Barno Subanova

Associate Professor, PhD,

Department of Deaf Pedagogy and Inclusive Education,  
Tashkent State Pedagogical University named after Nizomi

DOI: [https://doi.org/10.63001/tbs.2024.v19.i02.S.I\(1\).pp176-180](https://doi.org/10.63001/tbs.2024.v19.i02.S.I(1).pp176-180)

#### KEYWORDS

*subject "Natural Science", students with hearing impairments, deaf children, hard of hearing children, dactylic speech, gestural speech, oral speech, written speech, dactylmas, methodology.*

Received on:

01-08-2024

Accepted on:

18-11-2024

#### ABSTRACT

The scientific and theoretical foundations of the development of dactylic and gestural speech of students with hearing impairments in classes on the subject "Natural Science" are analyzed. The content of the methodology for developing dactylic and gestural speech of students with hearing impairments in classes on the subject "Natural Science" is revealed.

#### INTRODUCTION

The modern stage of society's development sets specific requirements for the process of developing speech as a tool of communication, which ensures that children with hearing impairments can actively participate in society as well-formed individuals and move freely among healthy people. These requirements allow hearing-impaired students to form dactyl and sign speech, acquire the native language at the required level, overcome the consequences of deafness, master the basics of science, and after graduating from a special school, enter the hearing community. The acquisition of the mother tongue by children with hearing impairment is unique compared to their

healthy peers. This characteristic affects the speech and general development of these children. This limitation requires a special pedagogical and psychological approach to teaching the mother tongue to children with hearing impairment, in particular, the organization of special language training. In most cases, hearing impairment leads to a lack of speech, severe speech disorders due to this defect, or the general lack of speech development. If the defect is detected as early as possible, the correct diagnosis is made, and special attention is paid to the child with hearing impairment, the possibility of eliminating the defect will be wide. Otherwise, the mental, physical and related mental development lags behind, the child develops in a limited way from

the social environment. The formation of oral speech as a communication tool of children with hearing impairment is the main goal of the specially organized educational system. Dactyl speech is a powerful tool for teaching deaf children, it can increase the vocabulary and the quality of speech acquisition, as well as the general level of development of deaf children several times. Parents and other people raising deaf children not only to use it correctly in communication with the child, but their thoughts, or rather, the judgments they make knowingly, to the full-blooded upbringing of the child. They should also understand the importance of dactyl speech in order to explain its importance to those who give halal. Pupils who master dactylology fully master the sound structure of words. In them, conditional connections are established between the sound and dactyl image of the word. But if the pronunciation of the word is far from the writing, dactylology had an impact on the study of the sound composition.

#### The main results and findings

The relationship between dactylology and written speech is very complex. According to F. F. Rau, in order for hearing-impaired people to adapt to society, it is necessary to effectively organize their education, to create maximum opportunities for them, and of course, in this process, to create the society they want (hearing people or like himself). it is necessary to preserve the right to choose" [5:45]. According to K. G. Korovin's observations, thought is the first component of the formation of speech, which is an external stimulus, an understanding of the motive.

The second component is thought built in inner speech. At this stage in the formation of speech-thoughts, word selection and the transformation of the internal speech code into specific language units take place. The third component of speech formation is the formation of a thought device based on internal speech, and this stage is called the stage of grammatical construction of a thought-sentence. The fourth component is the external application of thought in the form of speech expression. In this case, the external decoration of the speech is the pronunciation and intonation, and the internal decoration is the structure, grammatical construction" [1:76].

The above-mentioned information on the discovery of the "way from thought to speech" leads to a number of conclusions in the practice of language teaching to deaf and hard-of-hearing children. They reveal the importance of internal speech mechanisms in the formation of speech appeals and show the connection between thinking and speech. According to the teachings of I. Pavlov, speech is considered the basis of thinking, so it will not be possible to teach children with hearing impairment or it seems to be possible in a limited way. However, this conclusion is incorrect, because deaf and hearing-impaired children, like healthy children, have the opportunity to acquire specially defined requirements (derived from the physiological and psychological capabilities of these children) as a result of a specially organized educational process. The basis of the process of teaching deaf and hard-of-hearing children to acquire language as a means of communication is the formation of conversational (oral, written) speech.

The psychological and pedagogical description of this process requires the analysis of the physiological and psychological relationship of speech forms and speech tools in deaf and hard of hearing children. According to V. I. Tyupa: "The priority of communication over information, the development of speech means the readiness to teach the native language, the priority over the teaching of formed concepts" [12:2.]. He explains that teaching native language to Hittite children depends on specific and systematic methodical work as follows: "The absence of words for a long time is visible in the activities of all analyzers, as a result of which perception is formed in a unique way. The external world with an object is not sufficiently categorized, its essence is not described, and it is accepted without speech" [3.98.]. By R.M. Boskis, the acquisition of the native language of deaf and hard of hearing children depends on the time and degree of hearing loss, by F.F. Rau, the inability of oral speech to serve as a basis for acquiring the lexicon and grammar of the language for deaf children, this role is played by dactyl for them and learned to perform written speech. "[11:12].

The listed theoretical data justify the need for the scientific and theoretical basis of development of dactyl and gestural speech of students with hearing impairment in "Natural" science lessons. It is necessary to be fully prepared for special teaching of sign language, because the practice of teaching dactyl and sign language to the deaf is unique and variable (depending on the condition and speech abilities of deaf and hard of hearing children). For this, the specialist is required to have flexibility, mobility, pedagogical improvisation skills.

R.M. Boskis determines the level of speech development of a child with hearing impairment based on 4 factors:

1. Level of speech impairment.
2. Time of onset of hearing loss.
3. Pedagogical conditions after hearing loss.
4. Individual characteristics of children.

The more severe the level of hearing loss, the greater the distortions in the phonetic, lexical, and grammatical aspects of speech. Hearing impairment can occur at different stages of a child's life. The later the hearing loss starts, the more opportunities there are to maintain the level of speech development" [7: 86].

L.V. In her research, Nikolayeva mentions that the specificity of the grammatical structure of the speech of hearing-impaired children affects not only the formation of their independent speech, but also the understanding of the speech of others "[9:-45.p.], L.I. Tigranova's research indicates that the uniqueness of the grammatical construction of the speech of hearing-impaired children affects both their mental development and the mastering of a number of sections of the curriculum "[5:-34.p.]. Hearing impaired children have a number of shortcomings in their speech due to a constant decrease in hearing ability: poor vocabulary, underdevelopment of grammatical components, dropping words in a sentence, pronouncing the sounds in words by lowering them, linking words together. There are cases such as not being able to form, agree, use word-forming, word-modifying adverbs, mispronounce sounds, and confuse similar voiced and unvoiced consonants with each other. Hard-of-hearing students cannot distinguish the speaker from the interlocutor and the person addressed, that is, they do not distinguish that pronouns refer to the same persons.

Any speech is made up of words and phrases that match the grammatically interconnected content in a certain sequence [8]. Many studies have analyzed the structural-semantic features of the speech of children with hearing impairment. K.V. Komarov, K.G. Korovin points out that hearing-impaired children have difficulties in mastering vocabulary. The fact that children mix up the consonants and leave out the suffixes naturally makes it difficult to understand the main semantic relations and form them grammatically correctly, as a result, it destroys the full communication" [11:-43. b.].

As a result of impaired hearing perception, a person's inability to master speech, and therefore isolation from members of society, creates a number of problems for him to find his place in social life. These are due to various interdependent reasons, in this regard L.S. Vygotsky: "Social education leads to underdevelopment of speech, lack of development of speech leads to isolation from the community (collective), and separation from the community (collective) on the other hand, it inhibits the development of social education and speech," he says" [12; p.87]. L.S. Vygotsky makes the following comments about the need to work on the basis of the stages of speech development of a healthy (normal) child in order to create these conditions: is placed. This means that the child, first of all, grows, develops and should be educated and in the same process should take over the speech. Children should feel the need to develop their specific qualities and skills. They should not feel that they are different from most other children and people, they should not be convinced that they cannot be equal to them" [36; 215].

The problems of forming the vocabulary of deaf and hard-of-hearing children, communication competences, the grammatical construction of the language, the problems of increasing the effectiveness of mother tongue education by researchers such as U.Yu. through the analysis of artistic works, the issues of developing independent thinking in students were studied" [2; p.-65].

U. Fayziyeva's scientific work focused on the formation of speech skills of students with hearing impairment based on advanced trends in the practice of deaf pedagogy in European countries. The scientist analyzed the process of literacy training -synthesis based on the letter-sound method, in his work, he emphasized that hearing-impaired students acquire letters first through the dactyl alphabet, and then it is easy and convenient for hearing-impaired students to acquire speech. U. Fayziyeva admitted, "Literacy teaching is the foundation of the process of forming the speech skills of students with hearing impairment, and its quality implementation ensures that students become literate, and their speech is clear and fluent." is a contributing factor." In fact, the pronunciation and reading skills acquired by the students during the first grade literacy training, the vocabulary they acquire are the initial foundation, which will be developed later. Forming the first words and sentences, reading them correctly and writing literately are acquired in the process of teaching literacy.

D.A. Nazarova has developed the content, new interactive methods and forms of speech development of hearing-impaired children of preschool age, the principles and methods of organizing corrective and developmental work on the development of children's speech, taking into account the defects and the resulting problems in the general development of children. justified. In the course of the study, the participation of parents in the educational process was also given special importance, and a work system was developed that provides for the development of their children's speech in their home environment. From various forms of work with parents: consultations (group and individual consultations of pedagogues), anonymous communication, educational (training, lectures, roundtables, discussions on the topic) and practical events (open classes, holidays) activities, cooperative activities with children) was carried out using. In this scientific work, the main attention in the development of the speech of preschool-age hearing-impaired children is focused on the clarification of the corrective and developmental work system that should be carried out with children at home. Development of methodical recommendations for parents of children with hearing problems on topics related to their children's adaptation to social life, health and development, among them the feasibility of strengthening propaganda work on children's social adaptation and speech development "[2; 64. p.]. According to F. Kadirova, the first stage of the formation of spoken speech of deaf and hard-of-hearing elementary school students - in the pre-alphabetic period, the symbol of the object is explained through a dactyl-shaped word, in the second stage - pronunciation skills are formed, and the speech of others is also understood by finger movements. , is also taught to perceive using lip movements. In the third stage, students are taught to communicate through conversational speech, the child has the opportunity to read, write, and verbally pronounce words. At the fourth stage, oral and written speech is leading, and a system of general speech movement (verbal-dactyl, graphics) is established. F. Kadirova, using language for communication purposes, differentiating the stages of speech activity in special education, creating special pedagogical conditions, creating problematic situations that require communication, using natural situations and didactic games, specially selected and systematized speech working on the basis of the material, widely involving visual means of language teaching, using various types, forms and methods of speech in an orderly manner, taking into account the information obtained in the process of regular study of the state of students' speech shows that the organization of teaching is an important factor in the practical acquisition of the mother tongue.

By R.Rustamova, practical acquisition of the mother tongue by imitating the speech of adults teaching hearing-impaired children who do not have the opportunity to speak grammatically correctly in their own language, forming the grammatical structure of the language is brought into one system and a special methodology for its implementation has been created. The content of R. Rustamova's program "Formation of the grammatical structure of the language" intended for grades 1-5 takes into account the specific grammatical features of the Uzbek language and the specific features in the formation and development of the speech of hearing-impaired children. developed without In the structure of the program, the selection and grouping of the material, the

general laws of the child's speech and thinking development, as well as the lexicon and the characteristics of the grammatical phenomena of the language, are taken into account. The selection and grouping of material is based on scientifically based principles. Adherence to these principles made it possible to take into account the rules of didactics (from simple to complex, regularity, awareness, demonstrativeness in knowledge, and the rules of combining verbal methods). The requirements of the program "Formation of the grammatical structure of the language" envisage the systematization of the main grammatical laws of the language and the formation of the active speech of students on this basis, that is, the material offered in this program is such a grammatical minimum, a microsystem of grammatical events that its practical mastery is a communication language. was one of the necessary conditions for mastering as a tool.

The content of deaf-pedagogical work on speech development of children with cochlear implants by H.S. Rakhimova was developed on the basis of medical-hygienic, correctional-pedagogical, validity and reliability, alternative critical processing of the products of the game environment. This technology not only teaches children with cochlear implants to name the environment, objects and events, describe their signs, count numbers, but also prepares them to effectively use the knowledge, skills, competences, and competencies acquired in life. This ensured the effectiveness of this correctional-pedagogical work, which incorporates several developmental technologies.

Z.N. Mamarajabova methodical support for speech development of primary grade hearing-impaired students integrated communication (speech development, visual activity, acquaintance with the environment, development of auditory perception, pronunciation training) and design stages (comparative analysis of texts, Children's book publication, photo album, workbook preparation) developed through an activity-competency approach, purposeful through the formation of reading and literary-creative activities, improved the correctional-pedagogical model of the development of the speech of hearing-impaired students in the process of literary education in terms of meaningful, active and evaluation-resultative components" [12; 45.].

As the scientist continues his research in this regard, he takes into account the fact that the development of any child takes place in communication, in various forms and forms of activity. The results of the research showed that a deaf child and a hard-of-hearing child are very different from each other. An analyzer that is very necessary for a person in a hearing-impaired child - a partial, rather than a complete, impairment of hearing allows for some form of speech. However, the extreme limitation of speech acquisition in this way creates a difference in the child's understanding and imagination (subsequent perception and understanding of speech). The speech of a hearing-impaired child is not only underdeveloped, but also impaired. For example, in addition to the lack of vocabulary, words are used in other meanings, the grammar system cannot be developed, and their meanings are misunderstood. All this affects cognitive activity: mental processes such as comparison, analysis, generalization are manifested in a unique way in hearing impaired.

Speech communication plays a crucial role in the development of a child as a person. The specific development of speech of a hearing-impaired child prevents him from acquiring the basics of science under normal conditions. For this reason, in the structure of children's anomalies of this category, speech should be given the first place, and the issue of speech formation based on a plan should occupy a central place in the specially organized educational process.

It is known that deaf and hard-of-hearing children have a very poor perception of the world until they are included in education. Because they need expert help to give them understanding about the signs, functions, parts and other features of objects. It is necessary to organize a specially targeted pedagogical process to explain the nature of events that occur in everyday life to this category of students. "Natural" science, deaf children's ideas about existence It envisages humanization, and in its content, the concepts of nature-man-society are integrated into each other. This subject, along with other general education and correctional

subjects taught in special schools, plays a key role in ensuring the formation of deaf children for independent life in society in all aspects, especially social and life, as a person with necessary skills for the 21st century.

Deaf children's awareness of nature, all the surrounding events (movements, events, life situations) ... before forming an attitude, it is necessary to arm them with elementary knowledge, skills and abilities about the environment (about nature and all living and non-living things in it). Deaf children have a limited perception of the environment before being included in education, teaching this subject simultaneously involves the formation of students' vocabulary, logical thinking and speech.

In the implementation of the method of development of dactyl and gestural speech of students with hearing impairment in "natural" science classes, speakers follow the rules of the written form of speech, in other words, the orthographic standards of the Uzbek language. At the same time, typing must be accompanied by oral speech.

Initially, the inconsistency between the orthographic and orthoepic standards characteristic of the Uzbek language makes it difficult to communicate using dactyl speech. After all, for example, when typing the word m-a-k-t-a-b-, the speaker simultaneously pronounces [school]. Special training exercises allow you to overcome the difficulties that arise.

Dactyl speech, as a rule, is aimed at a deaf interlocutor who visually perceives the speaker's tactility and visually (or auditory-visual) oral speech. This should be taken into account. The typing hand should be in such a position that the deaf person should clearly see the face and lips of the interlocutor. They usually type with the right hand, with the palm of the hand at the level of the speaker's shoulder.

There are different opinions about whether the hand should stay still while typing or move to the left so that the interlocutor can "read" the dactylmes from right to left. If you carefully observe the hand position of deaf people who use dactyl speech in conversation with deaf interlocutors, you will see that they usually type with the hand still at the elbow joint. So, this situation is more convenient for them. Therefore, communication using dactyl speech is carried out with a motionless hand (in the elbow joint).

Fingers and paws are in constant motion. By accurately dactyling each dactylem (so that similar dactyl letters do not get mixed up in the process of perception), the speaker simultaneously dactyls the word as an integral speech unit and gradually moves from the previous dactyl letter to the next. The integrity of typing is ensured by the omission of unnecessary actions. Let's say you need to type the word "ball". After typing the letter K, the speaker does not relax all his fingers, does not return the palm to its original position, but joins the index finger involved in the dactyl letter K with the thumb, straightens it, simultaneously raises the remaining three fingers and thus expresses the dactylem O. then, while typing the letter P, he brings down the index finger with the thumb, and the middle finger with the thumb, then the thumb with the index finger combines, and raises the middle finger (for the second type O) and so on.

If you start each typing from the initial position, it slows down the speed of typing, breaks the integrity, makes it difficult to understand the word (imagine if we pronounce the word phonemically!). If you're still overdoing it, practice and you'll be able to type clearly and smoothly.

Dactyl speech is used by deaf people in interpersonal communication, as well as by hearing people in communication with deaf people; less often - when the deaf communicate with hearing people.

How often deaf people use dactylology when communicating with each other depends on different situations: depending on the communicative situation, age, the level of development of gestures and oral speech, including pronunciation skills and the state of speech perception. 'liq.

In the modern system of education and upbringing of children with hearing impairment, dactyl speech is used from preschool age along with oral and written speech - the main tools of the deaf-pedagogical process. Now, while talking about the functions of dactyl speech, we emphasize that deaf schoolchildren and young children use it widely when learning dactyl speech. By using typing

in combination with oral speech, children remember the sound-letter composition of words more firmly and make it easier for their classmates to understand their speech by listening and seeing. In free informal communication with peers and older deaf people, deaf people, as a rule, use sign language. However, using sign language, they use words and phrases that are typed in their signs, such as some names, scientific terms, etc.

Hearing people (mostly parents and relatives of deaf people, their friends, teachers and interpreters) often use dactyl speech when communicating with deaf people. In fact, hearing people - hear, and deaf people usually use spoken language. they address them. But if the interlocutor does not understand what was said, the deaf person repeating what was said and trying to explain to the teacher or parents; often typed this word. Thus, dactyl speech is included in the communicative activity of deaf people, as part of communication between deaf and hearing people.

Dactylology began to be used in communication with the deaf in the 16th and 17th centuries. Later, dactyl alphabets, which are widely used in many countries of the world, were also created. The first Russian dactyl alphabet was published in 1835.

2. Dactylems often represent the letters of national scripts. The methods of dactylema representation are the main criteria, on the basis of which the description and classification of dactyl letters is carried out - for the purposes of creating new dactyl alphabets and developing methods for teaching typing.

3. Dactyl speech is used as one of the components of interpersonal communicative activity of deaf people, as well as in communication between deaf and hearing people. Dactyl speech is composed according to the rules of orthography of the Uzbek language and is accompanied by oral speech that conforms to orthoepic standards.

4. According to the concept of modern local sign language pedagogy, dactylology as a form of verbal communication is an auxiliary speech tool of the educational process.

## CONCLUSION

A special educational material base, i.e. a room equipped with educational tools, a corner of living nature, and an educational experience for the implementation of the method of development of dactyl and gestural speech of students with hearing impairment in "natural" science classes. The uniqueness of the material is not only the uniqueness of the science teaching method, but also its educational possibilities. Implementation of the method of development of dactyl and gestural speech of students with hearing impairment in their classes, teaching natural science to children with hearing impairment, knowledge and skills necessary for continuing their education and practical activities.

## REFERENCES

- Mamarajabova Z.N. Development of speech of hearing-impaired students in the process of literary education. Ped. science. doctor. dis. (DSc) autoref... - Tashkent: TDP. 2020
- Mamarajabova Z.N. Special methodology of mother tongue teaching - T., 2020.
- Mamarajabova Z.N. Surdopedagogika - T., 2019.
- Special pedagogy (textbook). P. M. Polatova, L. Sh. Nurmukhamedova, D. B. Yakubzhanova, Z. N. Mamarajabova, Sh. M. Amirsaidova, A. D. Sultanova. T., "Science and technology" publishing house. 2014.
- Opiel V. V. Kineticheskaya rech glukhix. Glukhonemota, glu-hota and tugouxost. Sat. St. Leningradskogo institute glukhonemykh. - L., 1936. - S. 135-168, 210.
- Opiel V. V. Kinetic dictionary glukhix. Glukhonemota, glukhota i tugouxost. Sat. St. Leningradskogo instituta glukhone-myx. - L., 1996. - S. 169-210.
- Zaitseva G. L. Dactylology. Jestovaya rech. - M.: Prosveshche-nie, 2011. - 158 p.
- Nazarova N. M. O podgotovke defectologov za rubejom // Defectology. - 1993. - No. 2. - S. 54-59.

- Nazarova N. M. Development theory and practical defectology education. Surdo pedagogy: History, contemporary problems, professional training prospects. – M., 2022. – 163 p.
- Fleury W. I. Yazyk mimichesky. O pridronoy pantomime / Khrestomatiya po istorii vospitaniya i obucheniya glukhonemyx detey v Rossii. – M.: Uchpedgiz, 1949. – S. 33-39.
- Khudaybergenova, Z. N. (2024). Problems of teaching literature in special schools of Uzbekistan: the correctional-pedagogical model of speech development. *Revista De Gestão E Secretariado*, 15(2), e3547. <https://doi.org/10.7769/gesec.v15i2.3547Djon>
- D.Bransford.The Ideal Problem Solver: A Guide to Improving Thinking, Learning, and Creativity 1993.
- Khudaybergenova, Z. (2023). Social education as a factor of personality formation in the learning process. *Revista De Gestão E Secretariado*, 14(10), 17786-17797. <https://doi.org/10.7769/gesec.v14i10.2631>