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Bosh muharrir:
Shoumarov G‘ayrat Bahromovich, psixologiya fanlari doktori, akademik

Bosh muharrir o‘rinbosari:
Qodirov Umarali Do‘stqobilovich, psixologiya fanlari doktori (DSc), professor

Mas’ul kotib:
Muqimov Alisher

Texnik muharrir:
Qarshiyev Jamshid Murotaliyevich, pedagogika fanlari bo‘yicha falsafa doktori (PhD), dotsent v.b.

TAHRIR HAY’ATI:

01.00.00 – FIZIKA-MATEMATIKA FANLARI
Ayupov Shavkat Abdullayevich, fizika-matematika fanlari doktori, akademik
A’zamov Abdulla, fizika-matematika fanlari doktori, akademik
Zohidov Erkin A’zamovich, fizika-matematika fanlari doktori, professor

02.00.00 – KIMYO FANLARI
Normaxamatov Nodirali Soxobataliyevich, kimyo fanlar doktori, professor
Tojibayev Komiljon Sharobitdinovich, kimyo fanlar doktori, akademik

03.00.00 – BIOLOGIYA FANLARI
Abdurahmonov Ibrohim Yo‘lchiyevich, biologiya fanlari doktori, akademik
Sulaymonov Botirjon Abdushukurovich, biologiya fanlari doktori, akademik

04.00.00 – GEOLOGIYA-MINERALOGIYA FANLARI
Fayziyev Abdulhaq Radjabovich, geologiya-mineralogiya fanlari doktori, professor
Husanov Sultonboy To‘xtayevich, geologiya-mineralogiya fanlari doktori, professor

05.00.00 – TEXNIKA FANLARI
Allayev Qahramon Rahimovich, texnika fanlari doktori, akademik
Majidov Inom Urishevich, texnika fanlari doktori, professor
Turobjonov Sadritdin Maxamatdinovich, texnika fanlari doktori, akademik
Shaumarov Said Sanatovich, texnika fanlari doktori, professor

06.00.00 – QISHLOQ XO‘JALIGI FANLARI
Namozov Shodmon Ergashovich, qishloq xo‘jaligi fanlari doktori, akademik
Shoumarov Hikmat Bahromovich, qishloq xo‘jaligi fanlari nomzodi, professor

07.00.00 – TARIX FANLARI
Ziyo Azamat Hamid o‘g‘li, tarix fanlari doktori, akademik
Sagdullayev Anatoliy Sagdullayevich, tarix fanlari doktori, akademik
Yusupova Diloram Yunusovna, tarix fanlari doktori, akademik

08.00.00 – IQTISODIYOT FANLARI
Abdurahmonov Qalandar Xodjayevich, iqtisod fanlari doktori, akademik
Musayev Behzod Anvarovich, iqtisod fanlari nomzodi
To‘xliyev Nurislom, iqtisod fanlari doktori, akademik
G‘ulomov Saidahror Saidahmedovich, iqtisod fanlari doktori, akademik

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09.00.00 – FALSAFA FANLARI
Nazarov Qiyom Normirzayevich, falsafa fanlari doktori, professor
Saifnazarov Ismoil Saifnazarovich, falsafa fanlari doktori, professor

10.00.00 – FILOLOGIYA FANLARI
Mengliyev Baxtiyor Rajabovich, filologiya fanlari doktori, professor
Sirojiddinov Shuhrat Samariddinovich, filologiya fanlari doktori, akademik
Xidirov Rajab Gulmatovich, filologiya fanlari nomzodi, dotsent (Tojikiston)

11.00.00 – GEOGRAFIYA FANLARI
Nigmatov Asqar Nigmatullayevich, geografiya fanlari doktori, professor
Tojiyeva Zulxumor Nazarovna, geografiya fanlari doktori, professor

12.00.00 – YURIDIK FANLAR
Rustamboyev Mirzayusuf Hakimovich, yuridik fanlar doktori, professor
Saidov Akmal Xolmatovich, yuridik fanlar doktori, akademik
Xolmo'minov Jumanazar Toshtemirovich, yuridik fanlar doktori, professor
Qodirov Bobiromon Bekmurodovich, yuridik fanlar doktori, professor

13.00.00 – PEDAGOGIKA FANLARI
Djurayev Risboy Haydarovich, pedagogika fanlari doktori, akademik
Ibraimov Xolboy, pedagogika fanlari doktori, akademik
Musurmonova Oynisa, pedagogika fanlari doktori, professor
Umarov Bahrom Norboyevich, pedagogika fanlari bo'yicha falsafa doktori, dotsent

14.00.00 – TIBBIYOT FANLARI
Akilov Xabibulla Ataullayevich, tibbiyot fanlari doktori, professor
Nazirov Feruz Gafurovich, tibbiyot fanlari doktori, akademik

15.00.00 – FARMATSEVTIKA FANLARI
Abdullabekova Viloyat Nurillabekovna, farmatsevtika fanlari doktori, professor
Tulaganov Abduqodir Abdurahmonovich, farmatsevtika fanlari doktori, professor

16.00.00 – VETERINARIYA FANLARI
Daminov Asadullo Suvonovich, veterinariya fanlari doktori, professor
Jabborov Shuhrat Abdumajidovich, veterinariya fanlari doktori, professor
G'afurov Aktam G'afurovich, veterinariya fanlari doktori, professor

17.00.00 – SAN'ATSHUNOSLIK FANLARI
Ahmedova Nigora Rahimovna, sanatshunoslik fanlari doktori, professor
Hakimov Akbar Abdullayevich, san'atshunoslik fanlari doktori, akademik

18.00.00 – ARXITEKTURA
Nozilov Dodo Avazovich, arxitektura fanlari doktori, professor
Uralov Axtam Sindarovich, arxitektura fanlari doktori, professor

19.00.00 – PSIXOLOGIYA FANLARI
Abdusamatov Hasanboy Usmonjon o'g'li, psixologiya fanlari doktori, professor
Barotov Sharif Ramazonovich, psixologiya fanlari doktori, professor
Karimova Vasila Mamanosirovna, psixologiya fanlari doktori, professor
Halimova Mashraboy Vohidovna, psixologiya fanlari doktori, professor
Lazar Drajeta, psixologiya fanlari doktori, professor, Belgrad, Serbiya
Karpinskiy Konstantin Viktorovich, psixologiya fanlari doktori, professor, Grodno, Belarussiya
Suletbayeva Ella Serikbayevna, psixologiya fanlari doktori, dotsent

22.00.00 – SOTSIOLOGIYA FANLARI
Bekmurodov Mansur Bobomurodovich, sotsiologiya fanlari doktori, professor
Toshmuhamedova Dilorom Gafurdjanovna, sotsiologiya fanlari doktori

23.00.00 – SIYOSIY FANLAR
Fayzullayev Alisher Omonullayevich, siyosiy fanlar doktori, professor
Hasanov Otabek Abdurashidovich, siyosiy fanlar doktori
Paxrutdinov Shukritdin Ilyasovich, siyosiy fanlar doktori, professor
Omonov Baxtiyor Axtamovich, siyosiy fanlar doktori, professor
Quronboyev Qahramon Qo'chqorovich, siyosiy fanlar doktori, professor
Avazov Komil Xolliyevich, siyosiy fanlar bo'yicha falsafa doktori

24.00.00 – ISLOMSHUNOSLIK FANLARI
Ibrohimov Ne'matulla, filologiya fanlari doktori, akademik
Islomov Zohidjon Mahmudovich, filologiya fanlari doktori, professor

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UDK: 376.36:616.89-008.434.5

Akramov Dostonbek Ikromjon oglu,
Teacher of the department of inclusive education, faculty of pedagogy, psychology and art studies, Fergana State University

DEVELOPMENT OF INTERNAL AND EXTERNAL SPEECH IN INTELLECTUALLY DISABLED CHILDREN WITH DYSARTHRIA

Abstract. This article discusses the specific pedagogical and psycholinguistic features of the development of internal and external speech in children with intellectual disability and accompanying dysarthria speech defect. The combination of dysarthria and intellectual disability deeply disrupts the child's cognitive and communicative activity. The article analyzes defects in the processes of programming thought and expressing it through the system of sounds in this category of children. As part of the research, a methodology aimed at the development of correctional and pedagogical technologies, speech therapy massage, interactive articulatory exercises and cognitive structures was developed and its effectiveness was tested in practice. The results obtained showed positive dynamics in the vocabulary, grammatical construction and phonetic pronunciation of children.

Keywords: dysarthria, intellectual disability, internal speech, external speech, correctional and pedagogical approach, psycholinguistics, articulation, speech therapy.

AQLIY RIVOJLANISHIDA NUQSONI BO‘LGAN VA DIZARTRIYAGA EGA BOLALARDA ICHKI VA TASHQI NUTQNI RIVOJLANTIRISH

Annotatsiya. Mazkur maqolada aqliy rivojlanishida nuqsoni bo‘lgan hamda dizartriya nutq nuqsoniga ega bolalarda ichki va tashqi nutqni rivojlantirishning o‘ziga xos pedagogik va psixolingvistik xususiyatlari yoritilgan. Dizartiya va aqliy rivojlanish nuqsonining birgalikda namoyon bo‘lishi bolaning bilish hamda kommunikativ faoliyatini chuqur darajada buzadi. Maqolada ushbu toifadagi bolalarda fikrni rejalashtirish (dasturlash) va uni tovushlar tizimi orqali ifodalash jarayonlaridagi nuqsonlar tahlil qilingan. Tadqiqot doirasida korreksion-pedagogik texnologiyalar, logopedik massaj, interaktiv artikulyatsion mashqlar hamda kognitiv tuzilmalarni rivojlantirishga qaratilgan metodika ishlab chiqilib, uning amaliy samaradorligi sinovdan o‘tkazildi. Olingan natijalar bolalarning lug‘at boyligi, grammatik tuzilishi va fonetik talaffuzida ijobiy o‘zgarishlar kuzatilganini ko‘rsatdi.

Kalit so‘zlar: dizartriya, aqliy rivojlanish nuqsoni, ichki nutq, tashqi nutq, korreksion-pedagogik yondashuv, psixolingvistika, artikulyatsiya, logopediya.

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РАЗВИТИЕ ВНУТРЕННЕЙ И ВНЕШНЕЙ РЕЧИ У ДЕТЕЙ С ИНТЕЛЛЕКТУАЛЬНЫМИ НАРУШЕНИЯМИ И ДИЗАРТРИЕЙ

Аннотация. В данной статье рассматриваются специфические педагогические и психолингвистические особенности развития внутренней и внешней речи у детей с интеллектуальными нарушениями, сопровождающимися дизартрией. Сочетание дизартрии и интеллектуальных нарушений существенно нарушает познавательную и коммуникативную деятельность ребёнка. В статье анализируются нарушения процессов программирования мысли и её выражения посредством звуковой системы у данной категории детей. В рамках исследования была разработана методика, направленная на развитие коррекционно-педагогических технологий, применение логопедического массажа, интерактивных артикуляционных упражнений и развитие когнитивных структур, а также проведена её практическая апробация. Полученные результаты показали положительную динамику в развитии словарного запаса, грамматического строя речи и фонетического произношения детей.

Ключевые слова: дизартрия, интеллектуальные нарушения, внутренняя речь, внешняя речь, коррекционно-педагогический подход, психолингвистика, артикуляция, логопедия.

Development of internal and external speech in intellectually disabled children with dysarthria speech defect.

One of the most urgent and complex problems of modern special pedagogy, defectology and speech therapy is the study of complex structural defects in the development of children and the provision of systematic corrective and rehabilitation assistance to them. Dysarthria of various degrees, accompanied by intellectual disability, is one of such severe pathologies. While intellectual disability seriously affects the general cognitive system of the child, higher nervous activity, dysarthria limits the activity of his speech-motor apparatus, that is, the articulation and auditory expression of speech due to the disruption of innovation due to organic lesions of the central nervous system. Speech is not only a means of interpersonal communication (communicative function), but also a tool of human thinking, the highest system that controls and regulates higher mental processes and behavior. From a psycholinguistic point of view, speech activity exists in two main forms: inner speech and outer speech. Inner speech is the internal stage of the birth of a thought, rich in hidden, reduced, predicative and subjective meanings before its entry into the form of a word. At this stage, a person programs his thought and forms a logical chain. Outer speech is the manifestation of a ready-made internal program (thought) in acoustic, motor and kinematic form through sounds, words and sentences based on certain language laws. In normal ontogenesis (normal development of a child), outer speech is first formed, then in preschool age it passes

through the stage of egocentric speech, turns into inner speech (the process of interiorization) and serves as the basis of the thinking process.

In children with intellectual disability and dysarthria, both of these systems are deeply pathological from the very beginning. Due to intellectual disability (oligophrenia or intellectual decline of various nature), the child has difficulty forming concepts, and the ability to abstract, analyze and synthesize is extremely low. This disrupts the process of "semantic programming of thought", which is the fundamental basis of inner speech, from the very beginning. The child lacks internal motivation and need for communication, and the word forms in his mind are scattered and unsystematic. On the other hand, this intellectual disability is accompanied by dysarthria. In dysarthria, as a result of focal organic lesions of the cerebral cortex, subcortical nodes, cerebellum or brainstem, the tone of the speech muscles changes pathologically (spasticity, hypotonia or dystonia occurs), the movements of the tongue, lips and soft palate are limited, and the coordination of the respiratory and voice-producing systems is disrupted. This completely prevents the weak logical chain formed with its shortcomings and defects at the stage of internal speech from being expressed in the form of sounds through external speech. As a result, the child's external speech becomes inarticulate, hoarse, short, grammatically fragmented and completely devoid of communicative function. Although many studies in this area (L.S. Vygotsky, A.R. Luria, R.E. Levina, L.V. Lopatina, etc.) have separately studied the motor and cognitive aspects of speech, the issue of systematic rehabilitation of the connection of internal and external speech in children with dysarthria has not been sufficiently addressed.

Children in this category are often directed only to mechanically correct pronunciation, which leads to underdevelopment of their thinking and internal speech. The purpose of this study is to conduct a comprehensive neuropsycholinguistic study of the internal and external speech characteristics of children with dysarthria and to develop a special correctional and methodological system aimed at their systematic parallel development and to scientifically substantiate its practical effectiveness. Based on this goal, the following tasks were set:

1. To determine the patterns of interconnection of internal and external speech in children in this category.
2. Diagnosing the level of articulatory-motor and semantic-cognitive defects in children in groups.
3. Creating a system of corrective exercises aimed at visualizing internal programming and normalizing the pathotonus of speech muscles.
4. Developing practical recommendations for the special education and rehabilitation system based on the results of the experiment.

Methodology and Methods.

In order to organize the research work on a comprehensive and scientific basis, the base contingent of special boarding schools and children's rehabilitation centers

was used. To participate in the experiment, 40 children aged 7 to 10 years old were recruited, diagnosed by a neuropathologist, psychiatrist and psychologist-pedagogical commission with "F70" (mild intellectual disability) and "F71" (moderate intellectual disability), as well as with various neurological complications (pseudobulbar, spastic-paretic, hyperkinetic) dysarthria. Participants were divided into two equal groups:

(1) Experimental group (20 people) — in this group, a cognitive-linguistic program developed for the study was used.

(2) Control group (20 people) — in this group, training was carried out on the basis of traditional speech therapy and educational programs.

When forming groups, the age of children, intellectual coefficient (IQ range around 50-69) and the severity of speech impairment were taken into account. The study was methodologically organized in three consecutive stages:

1. Exploratory experimental stage.

Diagnosis of the initial level of internal and external speech of children. For this purpose, a specially prepared neuropsycholinguistic diagnostic card adapted to the psychophysics of intellectually disabled children was developed. The diagnostic program consists of the following two main blocks:

(i) External speech block

Methodology for examining the external speech block: Articulatory motor status, such as testing the tongue, lips, and soft palate at rest and in motion (muscle tone, volume, amplitude, speed of transition from one movement to another, presence of synkinesias). Sound pronunciation system: The occurrence of vowels and consonants at the beginning, middle, and end of words, their phonetic distortions (distortion, mutations, substitutions). Prosodic and voice-voice properties of speech: Speech breathing (phonation breathing duration), voice strength, timbre (signs of nasalism), speech tempo and rhythmic structure. Expressive speech vocabulary: Active vocabulary, syllabic structure of words, ability to grammatically form simple and complex sentences.

(ii) Internal speech block

Methodology for checking the internal speech block (directly through psycholinguistic methods):

- Thought programming and semantic logic test: orderly placement of 3-4 consecutive logically interconnected plot pictures and identification of a hidden logical chain based on them.
- Hidden logical-semantic operations: grouping objects according to functional signs (classification), "fourth is superfluous" methodology, understanding and activation of generalizing words.
- Action based on an internal plan (regulatory function): memorizing 3-4-stage oral complex instructions given by a speech therapist and sequentially performing them based on an internal program.

The diagnostic results were evaluated on a 5-point scale, where 5 points — maximum closeness to the norm, 1 point — indicates a complete lack of formation or deep fragmentation of the function.

2. Formative experimental stage.

For 6 months (a total of 96 sessions), classes were held with the experimental group 4 times a week individually and in small groups (2-3 children) based on a special program. The uniqueness of this program is that it provided for the development of the motor skills of the speech apparatus (external speech) and the parallel conduct of sensory and cognitive exercises aimed at expanding the field of concepts in the child's mind (internal speech).

3. Control experimental stage.

Evaluation of the effectiveness of the corrective work carried out and a statistical and qualitative comparative analysis of the differences between groups.

The data obtained after 6 months of targeted and systematic correctional and pedagogical impact showed a significant growth dynamic in all studied indicators in the experimental group. In the control group, the changes were minimal, and a stable pathological state remained.

Changes in the external speech and articulatory system. In the experimental group, the accuracy of articulation motor skills and movements of the speech organs increased from an initial average of 1.8 points to 3.6 points. Regarding neurological symptomatology, in children with spastic-paretic dysarthria (9 out of 20 children in the experimental group), excessive tension of the tongue and lip muscles decreased, and the duration of holding the tongue in the oral cavity along the midline increased from the initial 2-3 seconds to 8-10 seconds. In children with signs of hypotonia, muscle tone increased, facilitating the pronunciation of labialized sounds (O, U, B, P), which require active movement of the lips. The dynamic coordination indicator also improved: children made less kinetic errors when switching from one type of movement to another. The accuracy of sound pronunciation and speech clarity (vnyatnost) improved in the experimental group from 1.5 to 3.2 points. Children showed an improved memorization of the syllables sequence in words. The rate of speech perseverations (repeated repetition of one sound or syllable in a word) and elisions (omission of sounds), characteristic of intellectually disabled children, decreased by 45 percent. In the control group, this indicator changed only from 1.9 to 2.1 points and from 1.6 to 1.8 points, respectively. Children in the control group continued to demonstrate articulatory apraxia (inability to find the necessary motor movement) when pronouncing multi-syllable words.

Changes in inner speech and cognitive-semantic areas. The difference between the groups in the development of inner speech and cognitive-semantic structures became more distributive and obvious. In the experimental group, the ability to create a logical chain and make an internal plan based on a sequence of pictures increased from an average of 2.0 points to 3.9 points. Children now move from the stage of simply naming individual objects (fixation) to the stage of

understanding and expressing predicative and logical connections between the objects ("the boy is walking", "the puppy is barking because he was scared"). This indicates activation of inner speech and verbal-logical operations in the children's brain. The use of generalizing words, the ability to classify words into categories, and the internal grammatical programming indicator also improved in the experimental group, increasing from 1.7 points to 3.5 points. Children showed high performance in matching nouns and verbs, and in the correct use of grammatical forms in response to questions such as "With whom?" or "about what?". The number of errors in answering the questions decreased significantly. In the control group, changes of the elements of internal speech were negligible (from the initial 1.9 points to only 2.2 points at the end of the experiment). Their speech consisted mainly of a chaotic and unsystematic collection of nominative words (noun) without predication (verb). The children were unable to internally analyze complex verbal instructions and could only perform the first or the last part of a given instruction.

The obtained practical results provide a deeper neuropsycholinguistic understanding of the complex, systematic and multi-component structure of speech dysontogenesis in intellectually disabled children. To understand the essence of the problem, it is worth referring to L.S. Vygotsky's teaching on "The Genetic Roots of Thought and Speech". In a child with normal development, speech and thinking develop in separate directions up to a certain stage, and then at a certain age they intersect, forming "intellectual speech" and "speech thinking". Among the children in our study, this point of convergence and the chain of functional systems are deeply pathologically damaged. In intellectually disabled children, diffuse damage to higher nervous activity primarily limits generalization, abstraction, and analysis-synthesis operations. According to A.A. Leontiev's psycholinguistic model, a speech statement (vyskazyvanie) goes through several stages: internal motive -> thought -> programming through internal speech -> external speech performance. An intellectually disabled child may have a motive and a partial desire to engage in communication, but due to intellectual deficiency and a lack of general concepts, a deep semantic gap arises at the stage of programming thought. That is, in the child's brain, a stable functional connection is not established between the external acoustic shell of the word (name) and its real subject and personal meaning (smysl). Therefore, their inner speech consists only of fragmented, unsystematic visual images and cannot be transformed into a logical code. Moreover, the addition of organic dysarthria factor further complicates the situation. In dysarthria, as a result of bulbar or pseudobulbar syndromes, the chain of kinesthetic and kinetic feedback (afferentation) is interrupted. That is, when the child moves the speech organs, the sensory signal from the muscles to the cerebral cortex ("I raised my tongue up", "I closed my lips") goes incorrectly, vaguely or very weakly. Neuropsychological research has shown that external speech movements (in particular, micromotor movements) are a powerful stimulator of the formation of the inner speech shell. If the external speech apparatus is paralyzed, it cannot sufficiently stimulate the

sensory and cognitive centers of the brain. As a result, inner speech is deprived of its source of development (external motor support) and enters a state of constant inactivity. When the child feels that his physical capabilities are limited, and his tongue and lips do not respond adequately during speech, speech passivity and speech negativism (refusal to speak) arise. That is, the defect in the speech-motor function leads to a further impoverishment of inner speech through a feedback loop (obratnaya svyaz): the child stops trying to speak, as a result of which his inner thinking operations also begin to fade. Therefore, the success of the correctional and pedagogical program developed by us lies in its two-way complex character based on the principle of "cognitive-linguistic integration". During the sessions, we did not work only on mechanical sounding or articulation. At each stage, we inextricably linked the external speech movement with the internal cognitive concept. In the first block of correctional work, special speech therapy massage (using probes, hands) and passive-active articulatory and breathing exercises were performed to normalize the tone of the speech organs. This was necessary to alleviate the organic complications of dysarthria, dampen reflexes, and facilitate the motor mechanisms required for speech production. In the second block, the "Modeling and Visualization of Internal Programming" methodology was used simultaneously to activate the child's internal speech. In this case, each word and concept was formed in the child's mind through a three-way connection (sound shell - visual image - practical-sensory movement). For example, when teaching the object name, the work was not only on its pronunciation, but also on continuously embedding its semantic meaning in the child's internal memory through various games, object cards, sensory perception (touching, smelling, identifying its shape). This expanded the internal semantic field (associative networks) of the word. As a result, when the child heard or said the word, a specific internal logical concept arose in his mind rather than an abstract sound.

At the next stage, the "base schemes and pictograms" method was used to successfully transfer internal speech to external speech (experiorization). Since an intellectually disabled child could not plan a sentence internally, they were taught to build an external syntactic chain using visual drawings (for example: Who? -> What is he doing? -> What/Where?). Over time, these external visual support mechanisms moved into the child's internal speech (the process of interiorization), and the child later began to independently construct simple sentences without drawings. High results achieved in the experimental group prove that inner and outer speech are an inextricably linked chain. Relying merely on motor skills or trying to develop only intellect when working with intellectually disabled children with dysarthria will not give the expected effect. A rehabilitation of an external speech apparatus with the support of systematic cognitive-semantic exercises lead to a radical turn and positive changes in the inner psychic world of intellectually disabled children, specifically the system regulating their thinking and behavior.

The problem of developing inner and outer speech in intellectually disabled children with dysarthria speech disorders is an extremely complex process at the intersection of pedagogical, neurolinguistic and medical-psychological sciences, requiring a deep systematic and individual approach. Based on the conducted multi-stage scientific and practical research, the following fundamental conclusions were drawn.

In children with intellectual disability and dysarthria, internal and external speech disorders are systemic and interrelated. While internal speech defects are characterized by a lack of logical planning, word-logical operations, and semantic programming, problems in external speech are directly related to central organic lesions of the speech muscles and articulatory difficulties.

Traditional speech therapy methods (based only on mechanical sounding and speech therapy lessons) cannot fully cover all the needs of this category of children and cannot prepare them for social communication. In the rehabilitation process, it is necessary to combine the system of pictograms and basic schemes that develop the child's cognitive, sensory, visual, and intellectual spheres simultaneously along with the restoration of motor functions.

The experimental findings demonstrated that the "cognitive-linguistic integration" program significantly improved the intelligibility of external speech, articulation accuracy, active vocabulary, and the ability to construct internal chains of thought in children from the experimental group compared to the control group. This supports the scientific validity of the methodology used.

The proposed systematic methodology is recommended for broader implementation in special preschool and school institutions as well as in the work of speech therapists, defectologists, oligophrenopedagogues and special educators. In future studies, it is planned to explore the issues of further development of the socio-adaptive properties of speech in intellectually disabled children using digital and interactive technologies, and alternative communication tools (PECS, dactyl elements).

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Tahririyat manzili: 190110, Toshkent shahri Uchtepa tumani, Bog'iston MFY, 14-mavze, 8-uy.

Telefonlar: +998 90 749 00 00
+998 90 749 77 77
+998 91 902 05 01
E-mail: saen_2024@mail.ru
Jurnal sayti: www.saen.uz
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