Development and testing of an effective method of training student pathologists, on effective work on pronunciation of sounds with elements of phonetic rhythm institutionalized on the basis of innovative methodical software

Valentina Bobrova¹, Margarita Sokolova², Alfina Sakayeva³, Gulbarshyn Belgibayeva⁴, Nurqul Sadvakasova⁵

Abstract

The main condition for cooperation between child defect with a speech disorder and his family is the correctional activity of pathologists. As you know, the main communication process in a society is the psycho-physiological aspect for the implementation of the language as a means of communication. According to the concept L.S. Vygotsky, the human psyche is formed as a unity of physiological background and iconic, is human, social funds (Pfeifer N.E., Semenov M.V., 2004). The word as a form of cultural sign acts as a psychological tool, through which the natural mental process becomes randomly controlled, i.e., in the cultural. The role of the characters in a categorical apparatus of psychology, in which the discharge according to L.S. Vygotsky includes not only linguistic forms, but other significant tools - charts, maps, works of art, algebra formulas are algebraically nothing compared to the transition from primitive human behaviors to specific human behaviors. Consequently, (phonemes) for correct reproduction of speech sounds and child must learn to recognize the sounds of speech and do not mix them in perception: to recognize the sound of the acoustic characteristics; distinguish normalized utterance sound of not normalized; to exercise control over their own hearing the pronunciation and evaluate the quality of reproduced sound in your own voice. It is essential to take those articulatory positions that provide normalized acoustic sound effect and
the unmistakable sound of the desired use in all types of speech.

The role of pathologists in this case is to find economical and efficient ways to correct sound pronunciation in children on the basis of the study and to identify best practices. Speech pathologists and speech therapists should be able to recognize speech disturbances, techniques and methods of their elimination and correction, special teaching methods with speech disorders of children and their native language in pre-school and school age, to carry out preventive work to prevent school failure, to know the psychological characteristics of children with speech pathology, to use the techniques and methods of education, and the correlation of their higher cortical functions. Success in meeting these objectives depend on whether the speech pathologist has a deep professional knowledge and skill, a general orientation of modern domestic and foreign achievements related to speech therapy sciences, as well as his creativity and initiative.

Keywords: therapist, sound pronunciation, phonetic rhythm, correctional work

Introduction

The requirements of socio-pedagogical practice and insufficient development of the problem determines the choice of research topics: "Development and testing of effective model of training students as pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized based on innovative software and methodological support".

Purpose of the study – Theoretical justification for student pathologists to prepare for corrective work on pronunciation of sounds with elements of phonetic rhythm institutionalized with the practical development of innovative software and methodological support.

Object of study – training of pathologists in high school.

Subject of research - training students as pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized with innovative methodical software.

The hypothesis of the study: if the training of student pathologists for correctional work on sound pronunciation with elements of phonetic rhythm in high school will be based on the developed model and its innovative methodical software, it will enhance the quality of training of highly qualified pathologists in specialized agencies because the model allows you to purposefully form knowledge, abilities, sound pronunciation skill correction with elements of phonetic rhythm.

Research objectives:
- To conduct a theoretical analysis of phonetic sound pronunciation and rhythm at the present stage;
- To identify the preparation of students, and professional pathologist system for correctional work on sound pronunciation phonetic rhythms with elements in high school;
- To justify the need for the development and implementation of professional correctional system work on sound pronunciation with elements of phonetic rhythm institutionalized for defect students;
- To develop and test the model to experimentally prepare students as pathologists for correctional work on sound pronunciation with elements of phonetic rhythm.

The leading idea of the study: to prepare students for professional-pathologists for correctional work sound pronunciation with elements of phonetic rhythm in special institutions must comply with the current level of society, the increasing demands of the education system, the quality of training. The success of training students as pathologists for correctional work on sound pronunciation with elements of phonetic rhythm. It depends on the structure and content of the educational process on the basis of the developed model and the introduction of innovative methodical software.

Materials and Methods
The methodological and theoretical basis of the study are: dialectic theory of systems, activity theory, theory of information on education; pedagogic deontology; LS theory Vygotsky's potential handicapped child; Theory on level building movements.

Methods: analysis of the scientific, psychological, pedagogical and methodological literature, normative documents and archives; modeling; observation, conversation, questioning and testing; pedagogical experiment; methods of mathematical processing of research results.

Research Sources: official government material and normative documents regulating educational process in higher education; teaching methods and program documentation; scientific works of teachers, psychologists and speech therapists on the research problem; advanced pedagogical experience in the training of students as pathologists for correctional work on sound pronunciation with elements of phonetic rhythm.

Stages of the study.
During the process of observation, software and teaching materials for educational process of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm was developed institutionalized. A formative experiment was done on a testing model of training students as pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized at the university. Statistical processing of data obtained during the experimental work was produced. Generalized material research, the conclusions are formulated.

Scientific novelty and theoretical significance of the research:
- Definition of theoretical patterns and features of sound pronunciation and phonetic rhythm at the present stage;
- Revelation of the state of preparation of student pathologist system for professional correctional work on sound pronunciation with phonetic rhythms with elements in high school;
- The necessity of the development and implementation of professional correctional system work on sound pronunciation with elements of phonetic rhythm institutionalized for student pathologists;
- The model of training of students-pathologists for correctional work on sound pronunciation with elements of institutionalized phonetic rhythm.

Scientific novelty and theoretical significance of the research:
- Defined theoretical patterns and features of sound pronunciation and phonetic rhythm at the present stage;
- Revealed the state of preparation of students-pathologist system for professional correctional work on sound pronunciation in phonetic rhythms with elements in high school;
- The necessity of the development and implementation of professional correctional system works on sound pronunciation with elements of phonetic rhythm institutionalized for student pathologists;
- The model of training of students-pathologists for correctional work on sound pronunciation with elements of institutionalized phonetic rhythm.

The practical significance of the study It lies in the development and implementation of a pedagogical process of high school program-methodical complex including:
- course "Professional technique on sound pronunciation ";
- software and methodological support:
  - Teaching manual "Bases of the technique of sound pronunciation (Bernstein S.I., 1990);
  - An electronic textbook "Corrective work on sound-pronunciation of" (Bekturova A.S., Bekturov Sh.K., 2004);
  - Electronic textbook "Interactive tutorial" Learn technique of sound pronunciation" (Povalyaeva M.A., 2002).

Discussion
Development and testing of an effective model of training student pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of innovative methodical software provides analysis of the state of preparation of students-pathologists for correctional work on sound pronunciation with
elements of phonetic rhythm in the system of higher education. The structure of the existing system of preparation of students-pathologists for correctional work on sound pronunciation with elements of phonetic rhythm in high school. The model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized. Disclosed the possibility of using the system developed by us on sound pronunciation correctional work with elements of phonetic rhythm and innovative program-methodical complex - the author of a special course “Professional technique on sound pronunciation” corresponding to its structure and contents of methodical software, including electronic manual, automated tutorial teaching Toolkit. The results of experimental work on the use in the pedagogical process of high school students developed model training defectologists to correctional work at on sound pronunciation with elements of phonetic rhythm institutionalized.

The system of professional corrective work on the pronunciation of the sound with elements of phonetic rhythm future pathologists

The most important task of higher education institutions is to meet the needs of the state in highly qualified specialists. Optimization of the activity at the present stage of social development is impossible without clear ideas about what it must have the professional skills of high school graduates (Law of the Republic of Kazakhstan № 127 «On Education», 2007).

In the current period of development of the state needs a professional-therapist, whose work goes far beyond the normal teaching activities. The main objective of pathologist activity is to promote the development of a person with limited capacity in social adaptation and integration of special education funds. The teacher-therapist must be a person with a special warehouse of the soul, energetic, enterprising, energetic, optimistic, friendly, patient. Speech pathologists distinguish loyalty to the vital interests of people with disabilities, respect and love for their pupils. It is characterized by a humane assessment of the role of man in the modern world, including the person with disabilities (Nurmanbetova Y., Tebenova K.S., Omarova N.N., 2006).

Speech pathologists, carrying out professional work in correctional on sound pronunciation with elements of phonetic rhythm, should well represent the spoken language is normal hearing person, which is characterized by a certain accent sound structure in accordance with the phonetic and phonological patterns of the language.

Implementation of full communication ensures professional-governmental skills of correctional on sound pronunciation and the difficulty in creating a holistic view of speech, scattered attention, resulting in a broken logical, analytical relationship of perceived material.

The presence of a variability of pronouncing a word or phrase cannot violate the understanding in the communication process while maintaining such features phonetic processing, the totality of which can recognize a word or phrase as divisible unit posts. Conversely, the recognition will be violated if a pronunciation option goes beyond certain norms, i.e. E. Will be distorted important for the perception of speech. As a result, uttered words as auditory perception does not keep within the scheme and understanding violated existing in the brain.

On the successful education of children with speech disorders affect a professional corrective work on sound pronunciation with elements of phonetic rhythm, which finds its theoretical explanation in a large higher plasticity of the nervous system, which pointed to IP Pavlov, and in those hidden compensatory resources available to the child (Pavlov I.P., 1951).

Research of P.K. Anokhin shows that the physiological basis of auditory, kinesthetic, speech patterns of excitation in the speech and motor analyzers as a result of the existing system in the past conditioned connections, afferent (sensory) systems. Harvesting of such afferent complexes, which reflects the performance of a series of movements of speech, including each of its managers, is the cortical control apparatus determines the proper and smooth flow of
pronunciation acts. In the process of this apparatus in the speech, which PK Anokhin calls "action acceptor" is continuously fed from the periphery flows kinesthetic and auditory stimuli. They are matched with the prepared brain afferent systems. If you receive an audio-verbal stimuli, they coincide with the prepared afferent complexes and it is a prerequisite to further smoothen the flow of speech, whereas the discrepancy indicates that mistake, which instantly detected and can be corrected (Anokhin P.K., 1980).

In terms of professional correctional work on sound pronunciation with elements of phonetic rhythm in teaching spoken language of children must take into account not only the mechanisms of speech production (articulation), but also the mechanisms of speech play by ear. Rational can be recognized only such a training system that ensures the formation of speech based on the development of verbal communication. As a result, the quality produced by such speech, in which she is able to fully perform the communication function.

AA Leontiev noted that the mechanism of listening closely associated with speech production mechanism, allows for some variation in the phonetic word processing and at the same time, clearly defines the limits of such deviations, in which recognition is preserved (Vygotsky L.S., 2001).

For productive correctional work on sound pronunciation with elements of phonetic rhythm therapist must learn that "action acceptor", which at the hearing person is functioning on the basis of speech motor and auditory analyzers, a deaf person is based on kinesthetic basis, partially supplemented at the time of sounding voices vibrating stimuli. Addition to these analyzers can be considered "eye-muscle imitators", and if the position to extend IM Sechenov on tactile and vibratory.

Indeed, due inter-sensory underlying sense of rhythm, promotes the development of the motor areas of perceptual and cognitive processes, emotional reactions, speech activity. The very perception of rhythm is the variety of kinesthetic sensations - the rhythm has an organizing influence on the formation of movements, improves the spatial and temporal organization of motor acts, including articulation (speech-motor) (Miklyaeva N.V., Polozova O.A., Rodionova Y.N., 2004).

Professional correctional work on sound pronunciation is the work, which is constantly developing and improving the complex process of restructuring pronunciation skills, process, having different patterns and mechanisms in comparison with the primary formation of pronunciation.

Stereotypes of irregular word pronunciation can achieve great strength and stability. Therefore, correctional work on sound pronunciation with elements of phonetic rhythm is defined by us as a complex system (techniques and skills) influence on articulation and should aim to set up and maintaining the physiological conditions of sound education. Exposure to various defects should be strictly differentiated and targeted. Trying to fix the pathologists, the articulation of the student, immediately or gradually restores the correct articulation and facilitate its consolidation. Patch does not give the desired effect, as it does not take into account the nature of the defect of the spoken sound and the physiological conditions of sound education.

Thus, setting the correct articulation in the process of remedial work has considerable originality compared with the initial staging. Even more peculiar and difficult work is marked by its consolidation of correctional work, it is not only in securing the correct articulation, but also in the braking wrong, to overcome interference. Overcoming the interference of skills is an important condition for the effectiveness of any work on restructuring skills. In the correctional work contributing to the strengthening and consolidation of correct articulation.

In a correctional technique of the basic technique it takes place on the organization of work on sound pronunciation with elements of phonetic rhythm. For pathologists for correctional work on sound pronunciation with elements of phonetic rhythm is the main professional activity. Its facilities are: a system of phonemes (sounds) and tone (melody, rhythm, tempo, timbre of voice,
logical stress), breathing, voice (height, strength, tone).

Question of the violation of speech, the prevention and overcoming them through a special corrective training and education science is speech therapy, which is one of the sections of special (correctional) education. Fundamentals of speech therapy as a pedagogy designed RE Levina in 50-70-ies. XX century and based on the teachings of the complex hierarchical structure of speech activity, which is one of the central, most important mental functions, "mirror" the flow of mental operations, emotional states, a means of self-realization and integration into society. It initially has a huge impact on the formation of the mental processes of the child and his overall development. The development of thinking is largely dependent on the development of speech. It is the basis of literacy, and all other disciplines; it is the primary means of communication between people. It plays an important role in the regulation of behavior and the child's activities at all stages of its development, especially during the formation of his personality traits.

The richer and more correct in the child speech, the easier it is to express their thoughts, the greater the possibility of its full development, including psychological, meaningful and fulfilling relationships with peers and adults (Grizzly N.A., 2003).

It should be emphasized that the deviation in the development of speech recorded in the first place, on the formation of the whole mental life of the child. They make it difficult to communicate with others, often interfere with the proper formation of the cognitive processes that affect the emotional and volitional. Under the influence of a speech defect is often a number of secondary abnormalities that form a picture of the abnormal development of the child as a whole. Secondary manifestations of speech deficiency can be overcome by teaching techniques and their effectiveness and eliminate warnings directly related to early detection of the defect structure (Mamaychuk I.I., 2001).

According to current scientific understanding, a violation of the speech development of children is a form of complex cognitive defect, which includes selective disorder of speech function and the resulting deflection of non-language functions and processes.

To identify developmental disorders of speech used by a wide range of terms are not always interchangeable and precise within the meaning of: speech disorders, speech defects, defects of speech, speech pathology, speech underdevelopment, speech abnormalities.

Violations of speech - a collective term for the deviations from the speech rules adopted in the language environment, which can

An important aspect is the fact that this young child is formed in communication with others. Thus, it is necessary that competent adults it was a model for the children (Fomichev M.F., 1997)

For proper organization of correctional work on sound pronunciation important principles of the analysis of speech disorders. One of the first researchers shaped the principles of analysis of speech disorders, speech therapy as an adequate means of pedagogical sciences, was RE Levin. She highlighted three principles: the principle of development, the principle of the system approach and the principle of examining speech disorders in speech relationships with others the child's mental development. These principles are the leaders in speech therapy when analyzing speech disorders (Volkova L.S., Shakhovskoy S.N., 2002).

The principle of the development process, the defect analysis. For proper evaluation of the genesis of a deviation is noted LS Vygotsky, we should distinguish as the origin of change, and these changes themselves, their consistent education and the causal relationship between them.

For genetic causal analysis it is important to analyze the diversity of the conditions necessary for the formation of high-grade voice features on every stage of its development (Chirkina G.V., 2002).
The principle of the system approach allows timely identification of complications in the formation of certain aspects of speech.

Years of experience shows convincingly that the stability of the results can only be achieved if there is a single correctional and educational space with a network of integrative connections (Povalyaeva M.A., 2003).

The principle approach to speech disorders from the standpoint of speech communication with other party’ mental development helps to find the best ways to influence the mental processes involved in the formation of speech defect.

Children with speech disorders in comparison with the age norm observed reduction in cognitive functions and within its framework processes: smaller volume storage and playback of material, instability of attention, distractibility fast, exhaustion of mental processes, reducing the synthesis and interpretation of reality. They connected it difficult deployed. From the emotional and volitional also observed a number of features: increased excitability, irritability or general inhibition, isolation, resentment, tearfulness, mood swings and multiple others (Povalyaeva M.A., 2003).

To normalize the speech development of a child therapist professional should take into account three main aspects of speech activity:

- Structural (Maturity of phonetic, lexical and grammatical system of the language);
- Functional or communicative (the development of coherent speech and two forms of verbal communication - dialogue and monologue);
- Cognitive, or cognitive (the ability of the formation to an elementary understanding of language and speech phenomena).

Highlight specific aspects determined by the specifics of the speech disorder, the child's age, level of psychological development (Trofimova N.M., Duvanova S.P., Trofimova N.B., Pushkina T.F., 2005).

Therefore, the work of pathologists, speech pathologist for on sound pronunciation correction should be built taking into account the following factors:

- The degree of severity of the defect;
- The age of the child;
- Somatic state of the child;
- Peculiarities of the psyche;
- Characteristics of emotional and volitional;
- The impact of micro-social environment;
- The date of commencement of the work of speech therapy and its duration;
- The possibility of an integrated impact;
- Professionalism of the teacher (Volosovets T.V., 2000).

Speech pathologists, speech therapist is important to think through their actions in the implementation of corrective tasks of training and education. In the process of correcting the organization of training of great importance is attached to the skillful use of general didactic principles developed in general and pre-school pedagogy.

We have highlighted the most essential and necessary for the process of normalization of the speech activity of the child:

- The principle of correlation of sensory, mental and speech development, the implementation of which is aimed at enriching speech activity;
- The principle of communicative and active approach to the development of speech, i.e., focus on the formation of verbal expression;
- The principle of formation of elemental awareness of language phenomena assumed a special organization of the process of development of phonemic perception, morphological laws, practical grammatical generalizations;
- The principle of enrichment motivation speech activity, i.e., focus on overcoming speech negativity, stimulation of development of speech activity.

To fully productive speech therapy exposure is crucial level of educational qualification pathologists, speech pathologist. Working with complex contingent of children, the teacher should have high professional competence in the field of speech therapy and defectology, are well know the psychological characteristics of children, patience and love for children, constantly feel responsible.
for the success of their training, education and preparation for life, well-owning culture of speech.

For effective corrective training and education of children with speech disorders must be:
- Take into account the individual characteristics of children;
- Create the motivation to overcome speech disorders, adequate age and psycho-physiological characteristics of the child;
- To establish peer relationships with doctors, psychologists, teachers, parents to work out the optimal path correction (Volkova L.S., Shakhovskoy S.N., 2002).

Special requirements for speech pathologists, speech pathologist: it should be a model for children and adults. Unacceptable phonetic defects quickening pace of speech and violations of grammatical rules. This is very important emotional presentation. Therefore, novice teachers require more thorough preparation. Although this step is important for any teacher.

Gaziz Lukpan notes that for the teacher as a socio-psychological personality type characterized by reduced disinhibition, increased restraint, a high level of self-control, an increased tendency to identify with social norms, high sensitivity to group pressure, a low degree of personal independence, weak internal support, high subjective need "match" (Lukpan G., 2000).

For the organization of correctional work on sound pronunciation important to choose the right system methods.

Visual techniques - aimed at enriching the content of speech side and provide the interaction of two signaling systems. A huge role in this process belongs to the educator. More in the works Pestolotstsi emphasis on the fact that the development of the child's speech is unusual and should be based on the practice of life and reflect his sensual experience (Khrapchenko G.M., Khrapchenko V.G., 1998).

Verbal methods - aimed at retelling training, conversation, story without relying on visual aids, etc.

Practical methods - aimed at creating spoken skills through extensive use of special exercises, games, dramatizations, etc.

Selection and use of a particular method depends on the nature of the speech disorders, content, goals and objectives of correctional and speech therapy effects, stage of work, age, individual psychological characteristics of the child and others. At each stage of logopedic work, the efficiency of mastering the right language skills for appropriate group methods (Chirkina G.V., 2002).

All the work of pathologists’ speech therapy is based on the principles of the formation of the correct on sound pronunciation - these are the common assumptions that define the activity of a speech therapist and children in the process of correction of the sound aspects of speech. The basis of the formation of on sound pronunciation should be consistent, gradual testing of all the sounds of the native language (Belyakova L.I., Dyakov E.A., 1998).

As previously noted in the organization of corrective training attaches great importance to general didactic principles. At the same time for an effective and durable correction of pronunciation defects should be considered and specific guidelines:
- Ethio-pathogenicity (ie keeping the etiology and mechanism of speech production disorders);
- Impact on the complexity of all the components of the voice system;
- Differentiated approach for the correction of various types of dyslalia (Volkova L.S., Shakhovskoy S.N., 2002).

It is known that the age of the children is the most favorable for the formation of the speech as a whole and its phonetic side in particular.

Regulatory age to form a correct on sound pronunciation considered the age of 4 to 5 years. In the same period, increased speech activity, accumulates Dictionary (2500 - 3000 words), lengthened and complicated speech utterances, turning into stories, improving their grammatical form, the role of speech as a means of regulating the behavior of (Grizzly N.A., 2003).
L.G. Paramonov asserts that mastering the correct pronunciation of speech sounds is one of the most important parts of becoming a speech in the child. This sounds absorbed not in isolation, not in themselves, but in the process of gradual mastery of the skills of pronunciation of individual words and phrases (Paramonov L.G., 1996).

It is known that for the successful assimilation of the curriculum need a good, complete, grammatically correct speech. Therefore, the timely detection of defects and their correction on sound pronunciation are obligatory section of the work on the development of speech.

In the Republic of Kazakhstan paid a lot of attention corrective training and educational work with children with speech disorders. Significant progress in addressing the early diagnosis of speech disorders, methods and organization of correctional education and training of children by a special

For the pronunciation of sounds in words examination needs a special set of subject images. The names of objects shown in the pictures should be a different syllabic word and sound structure, polysyllabic, with consonant clusters, with the test sounds occupying a different location. The easiest way to identify a child's ability to pronounce certain sounds of speech is this: the kid for naming images are presented, which shows items whose names sound is analyzed in different positions: at the beginning, end, middle of the word and in combination with a consonant.

In a study of the state of on sound pronunciation special attention should be paid also to the fact there does not mix phonemes and does not replace the child if their speech (words and phrases). You can meet such a case, when the baby correctly pronounces isolated sounds, but their speech does not differentiate, one sound replaces another. (However, most of such undifferentiated utterance pairs or groups of sounds combined with the distorted pronunciation of phonemes.) Thus, a necessary part of the survey is a survey of speech sounds in the differentiation of phrase speech.

For a survey of selected special pictures - subject and story. When selecting images should provide the child recitation of words and phrases that contain similar phonemes for articulation or sound.

Examination of the syllabic structure of the word: in addition to the violations in the pronunciation of phonemes, the children observed the particular difficulties in the pronunciation of multisyllabic words and words with consonant clusters. Violations of the syllabic structure of the word is most often manifested in the permutation, in the pass, you add sounds or syllables. It is therefore necessary to check how the child utters the words of different syllabic structure - with the confluence of consonants at the beginning, middle and end of words, multi-syllable words and words with similar sounds from (Fomichev M.F., 1997).

As a result of this comprehensive survey on sound pronunciation speech therapy can obtain all the necessary data to make a conclusion about the cause, nature and gravity of the violation on sound pronunciation, as well as to outline ways of defect correction.

In the literature, there are different views on how the stages divided speech therapy effects in dyslalia: A FF Rau highlighted two in the works of O. Pravdino and O.A. Tokarev - three, in the works of M.E. Hvattseva - four.

We have discussed in more detail the structure of the sequence of stages in the formation of the phonetic aspect of speech. M.F. Fomichev took into account that in the works of M.E. Hvattseva emphasizes the gradual correction of sound is carried out in stages. Usually distinguish four successive stages: preparation, production of sound, audio and automation, in case of replacement of one or other sound mixing them - a stage of differentiation. Each stage has its own objectives and content of the work, but at all stages of the teacher activates attention, perseverance, determination, self-control, i.e. all the things that helps the child in the future to do well in their studies.

Since the new skill is developed at once and requires prolonged consolidation, at each successive stage, simultaneously with the development of the new is a partial repetition of
the previous stage of the material (Fomichev M.F., 1997).

We consider it necessary to describe in detail each of the four stages that reveal the technique of carrying out professional work on sound pronunciation correction:

**Preparatory stage** It provides for a system of exercises designed to develop articulation device mobility. These exercises can be divided into 2 groups.

- **Group 1** — massage articulation device, the purpose of which is to develop the mobility of the lips, tongue, ability to switch from one articulation to another way of life.

- **Group 2** — exercise, the implementation of which helps to create the necessary framework for articulating the emergence of sounds that are not in the child's speech (Usov A.V., 1986).

**Stage productions missing sounds.** Sound Staging is the process of forming the articulation, pronunciation teaching baby sound in an isolated sound. At the stage of setting the sound is formed Skill correct pronunciation of the sound insulated, fixed auditory, kinesthetic image of the sound, using visual perception of articulation

Movement organs of articulation must be accurate, smooth, without accompanying movements, performed with a normal tone of muscles, without undue stress and lethargy. Attention is drawn to an adequate range of motion, on the ability to hold a certain time position of the articulatory organs, on switch the movements.

After working isolated elements of the movement are combined and included in a single way of articulation.

Считаем важным детально рассмотреть основные **how sound staging:**

- **By imitation** — relying on auditory image, visual perception of articulation. This is due to the fact that the child is well developed imitation. However, imitation often possible to put sound only when it is absent (though mentally retarded children imitate the sound production is carried out by an extremely rare).

- **mechanical** method of setting using special tools (spatula tip, etc.) when the articulatory organs attached to a certain position. For example, when "c" labiodental pronunciation sound lower lip with your fingers push down. When pronouncing the sound "e" of the lower articulation tip of the tongue push into the interior of the mouth, so that it turns the sound

- **Production from other sounds correctly spoken**, without mechanical assistance. For example, the sound "s" can be supplied from the sound "and". It is proposed to utter the sound and blow on the back of the tongue so that the breeze "walked" on the tongue.

**Sound production by way of articulation.** For example, the sound "sh" can be put on the "cup."
The child is offered to make a "cup" is the oral cavity, remove it and blow into the mouth on the tongue.

- **Mixed mode setting when using different methods** (Lalaeva R.I., 2001; Akhmetov A.Z., 2005).

**Step automation.** From a physiological point of view, this stage is a sound automation consolidation conditioned reflex speech-motor connection on a different speech material. Delivered initially sound very fragile, conditional reflex connection can quickly collapse without reinforcement. Automate sound - it means bring it into syllables, words, sentences, coherent speech. In children with defects on sound pronunciation, there occurs consolidation of stereotypes mispronunciation of words, sentences, etc. Therefore, sound automation requires active use of internal inhibition, the ability to differentiate right and wrong way of articulation. It is carried out on the principle of from easy to difficult, from simple to complex. (Lalaeva R.I., 2001)

Thus lexical material should be varied. Included are not only isolated sound pronunciation, but also ready to exercise with the word, which delivered the sound takes a different position, as well as proposals and texts. Moreover, it must be filled with sound studied. At the same time the most excluded defected sound mixtures. (Lalaeva R.I., 2001)
Step differentiation sound comes after well spent fixing the pronunciation of each of the band's sound, similar in sound pronunciation and articulation.

When working on the differentiation of sounds simultaneously connected not more than a couple of sounds. If necessary, the number of sounds articulating one big group combines in pairs. For example by mixing the sounds "p, h, u ", they are combined in pairs: "n - h ", "h - u ", " u - u ". This is because in the process of differentiation, not much success is based on comparison operations, which are conducted with children (Fomichev M.F., 1997).

It should be emphasized that professionalism pathologists, speech therapy is that it has to find the shortest and easiest way of sound performances in the child from the phonetic rhythm as an aid receiving formation of the sound aspects of speech. The phonetic rhythm is organically part of the work on formation of pronunciation and plays an essential role in the correction of the speech of young children, and in the development of their natural movements.

Complex motor exercises involving small and large motor skills of hands, feet, head, torso, giving impulses to the cerebral cortex, kinetically reflect the correct position of the articulatory apparatus, pronouncing certain sounds, syllables, words, phrases, (Denisova I.A., 2002).

In the scientific literature proved the phylogenetic relationship between the development of the movements and the formation of the pronunciation (Vlasova T.M., Pfafendrot A.N., 1997).

We know that the mobility of the articulatory apparatus due to the state of the motor areas of the child. As a rule, young children, there are certain (sometimes very significant) dysmotility. This, in turn, is reflected in the speech of pronunciation of the children: their speech tempo is slowed down, it is often strained, monotonous, inexpressive.

NV Miklyaeva, OA Polozova, YN Rodionova are based on the following objectives phonetic rhythm (Miklyaeva N.V., Polozova O.A., Rodionova Y.N., 2004):

- The development of speech motor analyzer in order to form a correct on sound pronunciation by improving the level of general movements;
- The skills of natural speech with marked intonation saturation statements through the development of speech breathing, voice function, tempo and rhythm of speech;
- Development of the basic psychological processes (perception, attention, memory, etc.) And spatial concepts as a basis for successful mastery of skills indicated above.

In these tasks, the basic principles of the organization of correctional work with elements of phonetic rhythm (Miklyaeva N.V., Polozova O.A., Rodionova Y.N., 2004):

- The principle of anticipatory approach, dictating the need for early identification of children with functional and organic disorders in the development, on the one hand, and the development of adequate corrective training - on the other;
- The principle of developing education (based on the idea of Vygotsky's "zone of proximal development"), which consists in the fact that education should lead the development of the child;
- The principle of multifunctional approach, providing for the simultaneous solution of several problems in the structure of the correction of one class phonetic rhythm;
- The principle of consciousness and activity of children, which means that the teacher must include in their work methods of activating the cognitive abilities of children. Before a child is necessary to put the cognitive task, the solution of which he must rely on his own experience. We must remember that this principle contributes to a more intense psychological development of preschool children, and provides a child's understanding of the studied material, and its successful application in practical activities in the future;
- The principle of accessibility and personalization, providing for consideration of age, physiological characteristics and the nature of the pathological process. The effect of this principle is based on the
continuity of motor, speech and music assignments;

- The principle of a gradual increase in requirements, assuming a gradual transition from more simple to more complex tasks as acquisition and consolidation of emerging skills;
- Visibility of the principle of ensuring the close relationship and the broad cooperation of all analyzer systems of the body in order to enrich the auditory, visual and motor images of children.

Implementation of these principles is provided by pathologists corrective skills and takes place in the process of using the following tools (Miklyaeva N.V., Polozova O.A., Rodionova Y.N., 2004):

- Exercise, activating the account; exercise, regulating muscle tone;
- Walking and marching in different directions, as well as counting exercises, forming a sense of musical tempo;
- Rhythmic exercises;
- Breathing exercises on development, voice and articulation, and singing;
- Exercise in playing the instruments; independent musical activity; gaming activities;
- Exercises for developing creative initiatives.

Performing these exercises possible with the following rules:
- During the first interaction between the adult takes over the functions of the weak link, and then transmits them to the child, building tasks from simple to complex;
- Assimilation of material is progressively - from the Joint

**For example:**

- **Movement on the vowel sounds:**
  - The level of play from memory media;
  - Three key elements in the movements that accompany the utterance of vowel sounds (tension, intensity, time);
  - Assumptions on motor exercises vowels;
  - The level of knowledge in the use environment, similar operations;
  - Articulation and acoustic features of speech sounds; traffic on the vowel sounds I series; traffic on the vowels II series;
- **Movement on the consonants:**
  - The level of play from memory media;
  - Three key elements in the movements that accompany the utterance of consonants (tension, intensity, time);
  - Assumptions on motor exercises consonants;
  - The level of knowledge in the use environment, similar operations;
  - Traffic on the consonants (occlusive, deaf occlusive voiced, fricatives, affricates, resonant);
  - The level of a systematic approach to the coverage of the issue;
  - Exercises to consolidate consonants in statics and movement.

All exercises containing movement and the spoken word, in the classroom for phonetic rhythm aimed at:

- Normalization of the speech breath and related fusion of speech;
- Formation of skills to change the strength and pitch of the voice, while maintaining normal voice with no gross abnormalities;
- Correct reproduction of sounds and their combinations in isolation, in syllables and phrases, words, phrases;
- Reproduction of speech material at a given temperature;
- Perception, discernment and play different rhythms;
- The ability to express their emotions varied intonation means (Bobrova V.V., Begeldinov Z.A., 2005).

It should be emphasized that an important place in this process is given the role of pathologists, speech pathologist. The person who conducts classes in rhythm or a fragment of a class, must:

- Well move to the music, and without it, do the exercises at a certain pace and rhythm;
- Have a pleasant tone of voice, to be able to change the strength and pitch of the voice, to
transmit voice their feelings and facial expressions, to be able to use the word as an instrument affecting children;

- To be able to control himself, credible and children have acting ability, contribute to a need to communicate with adults and peers and motivation to overcome the difficulties encountered.

Productivity of labor is inextricably linked with the art of communication. And during the lessons of rhythm is important to properly organize communication with children. This is only possible when establishing with them a positive emotional contact. Friendly, attentive to each child is the key to success.

Undoubtedly, the use of techniques of rhythm in the process of correction on sound pronunciation should facilitate not only the transition from one stage to another correction due to the organizing influence of rhythm and speech connection to the formation of the foundations of arbitrary behavior and movements. It shows promising use of such technologies in education, training and development of children.

In earlier studies we carried out together with Russian scientist A.J. Mukhina and Kazakhstan practice S.V. Sobolev (Mukhina A.J., Bobrova V.V., Sobolev S.V., 2007), on the phonetic rhythm developed and introduced into practice for the first time in Kazakhstan complex motor exercises for each sound of the native language, the relevant acoustic characteristics of articulation.

The proposed exercises are accompanied by rhythmic impulses coming from the motor cuts the hands, neck, torso, and aimed at the formation of phonemic speech proper clearance.

The main movements on every sound during rhythmic activities are:

**Sound «A».** Start position: arms outstretched, palms up. Pronouncing the sound "A" followed by dilution hand to hand until it stops slightly, without muscle tension (m / n) is pronounced "long, loud" or "fast-loud" or "long-silent" or "fast-quiet."

**Sound «O»** – Start position: Hands roundly connected at the bottom. Pronouncing the sound "O" followed by dilution of the hands through the sides. They climb up and over your head round joined at the dynamics of weakly.

**Sound «Y»** – Start position: arms bent at the elbows, elbows looking down, hands at chest level, clenched into fists, index fingers pointing upwards. Pronouncing the sound "U" followed by pulling the hand forward, fingers pointing up the dynamics of a small m / n.

**Sound «I»** – The starting position is the same as in the "i" sound - the initial position. Pronouncing the sound "I" followed by stretching hands up, at the same time rising on his toes with a slight m / n.

**Sound «Э»** – Start position: arms extended, palms up front. Pronouncing the sound "E" followed by dilution of the hands through the sides, slightly lifting up the hands fall on the shoulders, elbows lightly pressed on the dynamics slightly.

**Sound «Ы»** – Start position: arms bent at the elbows, elbows looking down, hands clenched into fists at the neck, turned to him. Pronouncing the sound "ы" is accompanied by a semicircular motion fists on my own with the m/n.

**Sound «П»** – Start position: arms bent at the elbows, hands clenched into fists at diaphragm level. Pronouncing the sound "P": Pa-Pa cross dipping, then right, then left fist, but not clenched fist, free, m / n is not present, a turn of the head.

**Sound «П»** – Start position: arms bent at the elbows, hands clenched into fists at diaphragm level. Pronouncing the sound "P": Pa-Pa cross dipping, then right, then left fist, but not clenched fist, free, m / n is not present, a turn of the head.

**Sound «Т»** – Start position: at the sound of a "P". Pronouncing the sound "T": Ta-Ta, clenched sharply to the left and right fist with m / n, with a turn of the head.

**Sound «К»** – Start position: arms bent at the elbows, squeezed at the shoulders, elbows, looking to the side, his chin dropped to his chest lightly. Pronouncing the sound "K": sharply push the elbows back while throwing his head back. When "K" or "Ka" with significant m / n.

**Sound «Б»** – Start position: arms bent at the elbows, elbows looking down, hands up. Pronouncing the sound "B": Ba-Ba shaking wrists, torso tilted forward at the same time. At the last utterance of Ba hand throw down the dynamics slightly.

**Sound «В»** – Start position: arms extended in different directions. Pronouncing the sound "V" is
accompanied by the swaying movements of the hands and torso with a strong m/n.

**Sound **Г –** Start position: arms bent at the elbows, elbows looking down, hands at shoulder level. Pronouncing the sound "G": Ha-ha-ha joined all the fingers at the bottom of the thumb prop with m/ n.

**Sound **Д – Starting position: arms bent at the elbows, elbows looking down, hands at chest level, palms facing away from you, together. Pronouncing the sound "D": Yes, yes - the natural movement of the hands and the head, as if you agree with everything with a slight m/ n.

**Sound **Ж – Starting position: hands clenched into fists, pushed slightly to the right at chest level. Pronouncing the sound "ZH" followed by undulating movement torso, fists, feet, slightly shifted to the right with the m/ n.

**Sound **З – Start position: arms bent at the elbows, elbows looking down, hands at chest level, clenched into fists (on both sides of the chest). Pronouncing the sound "Z" followed by shaking movements of the fists, strong m/ n.

**Sound **Л – Start position: (! Do not speak isolated) - arms bent at the elbows, looking down, hands at shoulder level, semicircular deployed to himself as if in each hand an apple, turned sharply to him. Pronouncing the sound "L" is accompanied by a large semicircular motion from the brushes themselves, which makes pronunciation solid. La - (high voltage). Small, semicircular motion give a soft "L" (low voltage).

**Sound **М –** Starting position: initial position of "a" hand raise and bend the elbows, elbows look in different directions, the fingers are pressed against the cheeks palms away from you. Pronouncing the sound "M" followed by breeding of the hands forward saying the "M" and free from lowering of m/ n.

**Sound **Н – Starting position: arms bent at the elbows, elbows looking down, hands at chest level, palms facing you. "N" sound Saying: Na-Na natural hand movements as if we give palms, on the dynamics of weakly without dropping down.

**Sound **Р – No exercise (mechanically). Exercise at consolidating the "R": arms bent at the elbows, elbows looking away, hands clenched into fists at the level of the diaphragm. "R" - one fist orbiting other with m/n and build momentum.

**Sound **С – Start position: arms bent at the elbows, elbows looking down, hands at chest level, palms facing away from you. Pronouncing the sound "S" followed by stretching hands forward, down, with m/ n.

**Sound **Ф – Starting position: brush at about ear level, palms facing away from you. Pronouncing the sound "F" followed by dilution of hands in different directions. Hands do not descend, with a strong m/ n.

**Sound **Ш – Elbows look in different directions at the neck, palms facing away from you. "KH" Saying sound: elbow output forward, fingers from the neck did not let go, do not sink the elbows.

**Sound **Ч – Start position: both hands palms away from you at chest level a little reserved to the right. Pronouncing the sound "SH" followed by undulating movements of the hands, torso, legs with a strong m/n.

**Sound **Ц – Starting position: short "T", going to the undulating movement with the formation of "SH" (burning).

**Diphthongs:** Start position: start, provided the pronunciation of two-part: ИЭ(Е); ИА(Я); ИУ(Ю); ИО(Ё); ОИ и АИ(Й), reducing the pronunciation of sounds to a minimum, therefore, gets a short movement, and movement of the index finger of his own.

In the process of carrying out studies on rhythm, therapist, speech therapist first shows each new movement on the sound, giving a description of each of its components, explaining a particular sequence in its pronunciation (Fig. 1). This information should be supported by both tactile and vibration control, which depends on the audio content. With skin analyzer is provided by the
perception of phenomena accompanying the playback of certain phonetic elements of speech. Applications to their own larynx hand the child feels the vibration of the larynx with vocal cord vibration and establishes the distinction between voiced and unvoiced sounds.

A hand attached to the surface of the chest, it is possible to determine the presence or absence of voice and speech fact casting material normal voice or falsetto heights. With skin analyzer can capture the features inherent in some of the spoken sounds. For example, when pronouncing the sound "and" can be felt not only characteristic of vowels vibration of the larynx, but the crown and vibration. When playing a nasal sounds "m," "n," the child may, in addition to the vibration of the larynx, absorb the vibration of the cheeks and nose wings.

With the help of skin sensitivity is also perceived and pronounced in the air.

Sometimes the difference between the sounds of children is set solely on the basis of tactile and vibration sensation. For example, the difference between the sounds "k" and "s" is determined solely by the nature of the jet of exhaled recompense ha. These sounds are similar optically (the child sees the open mouth and move deeper into the language of the mouth), when playing no vibration of the larynx (both sounds are unvoiced).
Thus, due to the skin analyzer child receives such information on the work of the speech organs, which is not available on visual catalysts. But by itself this information is clearly incomplete, fuzzy, insufficient-ANT for the characteristics of a phonetic element and cannot be sufficiently reliable basis for learning pronunciation, since the possibility of the motor analyzer for speech perception of another person is very limited.

For children with speech disorders such use motor analyzer in connection with the tactile perception of speech movements hand plays only a secondary role in teaching pronunciation.

At the same time an extremely important role to play because of the motor analyzer proprioceptive impulses that enter the brain from themselves moving speech organs. At the nerve impulses of the mucous membranes lining the speech organs and coming in contact with the deformable articulation or movement, they form the basis of speech kinesthesia. Using pulses from kinesthetic speech organs can in some cases serve as a starting point to work on articulation. This occurs in cases where the child passively speech organs are in a particular position or motion through a mechanical impact on them. An example is the well-known methods of pressure on the tongue with a spatula when setting the phoneme "k" or oscillation spatula front edge of language when setting "p". In such cases, the child appears as a primary cue image articulated phonemes, which later serves as a support for an active, random play articulation.

However, the main value of the tactile and vibration control is that it provides the child with speech impairments, for the natural current of self-control over the pronunciation. This applies to all phonetic elements of speech that one way or another child has learned in his pronunciation.

Therefore, the ability to properly use the tactile and vibration control, perceive and imitate a variety of rhythms, facilitates adequate reproduction of the rhythmic pattern of words, accelerates the development of other linguistic abilities.

Thus, the system indirectly exercise is of great importance for the development of the ability to combine the tactile and vibration control, movement and speech, i.e., subordinate them the same rhythm, which is one of the universal basic human capabilities.

Our studies provide a basis for development and implementation of pedagogical process of the new system of corrective work on sound pronunciation with elements of phonetic rhythm, aimed at training highly competent teaching staff.

Given the specificity of correctional work on sound pronunciation with elements of phonetic rhythm, we can define the main activities of the correctional system pathologists in this area when working with children with speech defects:

- Find ways to improve the effectiveness of remedial work in view of the high plasticity of the central nervous system, the social essence of speech, the right choice of means and methods of determining the perspective of the process to eliminate speech disorders;
- Selection of appropriate ways of setting sounds in which the most reasonable account of a close articulatory sounds natural and inherent in speech ways of its implementation;
- The organization of training sessions on the phonetic rhythm, affecting the development of the tempo and rhythm of speech breath; development of oral praxis; strengthening of mimic muscles; forming phonemic system; development tempo-rhythmic and melodic intonation of speech features; the ability to combine movement and speech, i.e., subordinate sound evocation of movement and the same rhythm;
- Skills and personal qualities pathologists, speech pathologist;
- Exchange of experience on the organization of correctional activities.

Justification and development of students' training model - pathologists to correctional work at the sound of the pronunciation with elements of phonetic rhythm institutionalized

modernization of the national system of multilevel education on the basis of the priorities of the Strategic Plan of Development of Kazakhstan till 2010 in order to create effective educational management system that ensures the formation of professionally competent personality, competitive capability of a specialist independently and creatively solve professional problems, conscious of the personal and social significance of professional activity, which is responsible for its results. One of the ways of modernization of Kazakhstan's education is to ensure that the educational structure of innovative software and methodical complex, contributing to improve the quality of training of qualified personnel.

The analysis of the state of the system of training of students-pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm institutionalized showed the need for the development and implementation of the learning process of innovative software and methodical complex, contributing to improve the quality of training of qualified personnel.

The analysis served as the basis for the development of our students training model - pathologists to correctional work at on sound pronunciation with elements of phonetic rhythm institutionalized. The term "modeling" is used in the broadest sense (Averincev S.S., Arab-oglu E.A., Il’ichev L.F. et al., 1989). Therefore modeling expresses some universal aspect of the cognitive process. To know the process - then simulate it. In this sense - concepts, categories, scientific theories - the same model. In a narrow sense, simulation - is a specific way of knowing, in which one system (research object) is reproduced in the other models.

As a method of modeling research suggests that there are clear methodological and theoretical premises and bases. From this perspective, the methodological basis of the simulation is a materialist dialectics, the original - the material unity of the world, the laws of its development.

In a philosophical sense, the model (from the Latin modulus - a measure, sample rate) refers to such a mentally represented or materially implemented a system which, by displaying or reproducing the object of study, is able to replace it so that her study provides us with new information about this object (Averincev S.S., Arab-oglu E.A., Il’ichev L.F. et al., 1989).

Thus, the superior quality of the model is its compliance, system-likeness to the original. At the same time, being simulated playback integrity of the original, the model must also represent something single, holistic. The characteristic features of scientific model are the simplicity and harmony, a certain orderly arrangement of its components, in one way or another appropriate order and structure of the original.

Depending on the time orientation of different models: the state of the system and the future state of the system. In this sense, the current model of training students to pathologists for correctional work with on sound pronunciation logarithm in high school is a model of the system state - the original model. The developed contact model is a predictive model of the future state of the system.

In developing the model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized we considered the requirements for any model - focus, to establish its parameters, structure and content with the aim set before the system, with the expected result. In this regard, we have developed a model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized structural components include the following: target, structural and meaningful, functional, program and methodical, diagnostic, productive. Correlation of the structural components of the model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized presented in Figure 4.
Consider the structural components of the developed model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized.

**Target component.** It is known that the purpose in general terms is expected, the desired state of the system, necessarily involves achieving a predetermined outcome (Afanasyev V.G., 1981). The goal of complete pedagogical process is the main component, combining all other ingredients together. They point out the objective function: system-forming, managing, motivational, and educative.

In determining the purpose of training students pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm institutionalized based on our model were taken into account objectives of vocational training in terms of their objective necessity and subjective significance in relation to the learner, the hierarchy of objectives in the disciplines of vocational training of pathologists in high school disclosed in the State educational standards in the specialty 031640, 050105 - "Defectology" (*State educational standards of the Republic of Kazakhstan. Higher Education. Specialty 031640 “Defectology”, 2001; State obligatory standard of education in the specialty 050105 «Defectology», 2004; 2006). Thus, the purpose of training student pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of the developed model is defined by us as follows: the formation of an integrated system of rehabilitative knowledge Correction and technological skills for on sound pronunciation with elements of phonetic rhythm institutionalized as a basis professional competence in correctional and educational activities.
Structurally-substantial component disclose the specifics of the model developed, its structure, the ordered arrangement of the individual elements, corresponding to the structure and content of future professional correctional and educational activities pathologists institutionalized.

The functional component. From the standpoint of the methodology of the system approach every system of social order, active, activity, which is manifested primarily in the functions of the system. From this viewpoint, the system functions are integrative components of its operation result, whereas the function of components - are largely the result of their exposure to system-wide functions. We have developed a model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized system of social order.

Based on this, we highlight the following system functions developed model training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized:

- information functions, that the developed model is a carrier of educational content pathologists and consists of theoretical knowledge in the field of correctional work on sound pronunciation.\n
![Figure 2. Model training students pathologists to correctional work at the sound of the pronunciation with elements of phonetic rhythm institutionalized](image-url)
pronunciation with elements of phonetic rhythms, ways of learning activities, experiences corrective action. In combination with traditional forms of decomposition of teaching material, course content and program-methodical complex developed by students training model - pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm institutionalized is the source of the mandatory, optional and supplemental information aimed at the assimilation of educational material;

Transformational function associated with the processing of a certain amount of scientific-pedagogical and correctional knowledge to enable them to develop training courses and software and methodological support (electronic manuals, automated tutorials, training manuals);

- **Systematizing function** - it provides strict sequence-FAD interconnection and interdependence of the presentation of educational material. On the basis of systematizing function we developed model provides a representation of educational material in the form of a system of scientific-pedagogical and correctional knowledge selected for the study. The content and structure of educational material are determined by the content and structure of the training of pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm institutionalized and focused on the formation of theoretical knowledge, practical skills of designing speech therapy sessions with elements of phonetic rhythm. In this speech therapy sessions with elements of phonetic rhythm is characterized as the main form of organization of educational process in the specialized agencies in the unity of its structural components for the operation of the class as a system;

- **Fixing function** - in order to implement this function, the developed model provides questions and tasks for students, dictionaries of terms, a list of recommended literature of the studied material;

- Integrating function is implemented in the integration of generated knowledge and skills acquired during the training, and corrective action. An important is the integration of knowledge and skills obtained during the study of educational programs in various academic disciplines "Fundamentals of speech therapy with a history", "Logarithm", "Log technology", as well as in the study developed an additional special course "Professional correctional work on sound pronunciation with phonetic elements of rhythm."

Integration of acquired knowledge contributes to the formation of an integrated system of correctional knowledge and skills on sound pronunciation phonetic rhythms with elements of the future pathologists as the basis of his high professional competence in the field of correctional work on sound pronunciation with elements of phonetic rhythm institutionalized;

- Coordinating function of the developed model is to coordinate the functional use of all means of education;

- Didactic-educational function is to form the students’ ideological approach to the evaluation of the educational information provided by using the program-methodical complex.

**Software Methodological component**

It comprises:

- The introduction of evidence-based program-methodical complex in educational process of preparation of students to the pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized in accordance with our model;

- Preparing students pathologists to use program-methodical complex in professional correctional and educational activities.

In order to achieve these objectives in the developed model including program-methodical complex created on the basis of electronic media - the electronic manual, automated tutorial.

The diagnostic component of the developed model provides diagnostics didactic process, the determination of the results in the following forms:

- Diagnosis of learning - determining the trends and dynamics of the system of correction and of theoretical knowledge, practical skills for on sound pronunciation with elements of phonetic rhythm institutionalized students;
Diagnostic study - timely identification, evaluation and analysis of efficiency of activity of students.

For this purpose, there are different kinds of tasks for monitoring and evaluation of the students' knowledge and skills such as questions for self-control tests.

Efficient component - characterizes the predictable result that is achieved in the process of preparation of students to the pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of the developed model. The result of the process of preparation of students-pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm institutionalized in accordance with the model developed to become a specialist pathologist with the generated system of correctional knowledge Correction and technological skills for on sound pronunciation with elements of phonetic rhythm institutionalized students of specialty 031640, 050105 "Defectology".

Special course "Professional technique on sound pronunciation" is designed to form the theoretical knowledge and practical skills in the field of correctional work on sound pronunciation with elements of phonetic rhythm in domestic and foreign literature, which are an essential component of correctional and theoretical training on sound pronunciation with elements of phonetic rhythm institutionalized act in turn a component of vocational training in correctional on sound pronunciation with elements of phonetic rhythm. Special course helps a student organization in which knowledge presented in the general context of the process of training for correctional work for on sound pronunciation with elements of phonetic rhythm of the future specialist.

special course content is determined by lectures and practical classes: lectures form the theoretical knowledge of the articulatory speech disorders sound pronunciation and phonetic rhythm, and practical exercises form the skills to recognize and eliminate violations on sound pronunciation.

Thematic plan of the special course "Professional technique on sound pronunciation" is shown in Table 5. As can be seen from the table, the topics of lectures and practical classes are based on the content and continuity, workshops continue the theme of the lecture classes. special course program is given in Annex B.

Implementation developed a special course in the educational process allows to generate:
- Theoretical knowledge of students about the work of correctional on sound pronunciation with elements of phonetic rhythm in domestic and foreign;
- A sound knowledge of the culture of speech and its components;
- Knowledge of the phonetic rhythm;
- The ability to identify and correct defects on sound pronunciation;

In order to optimize the pedagogical process of preparation of students to the pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized in accordance with the proposed model, we developed and implemented in the educational process innovative software and methodical complex, which includes:

a) Training Course: course "Professional technique on sound pronunciation";

b) Software and methodological support: teaching manual "Bases of a technique on sound pronunciation" (Bobrova V.V., 2005);

c) c) electronic textbook "correctional work for on sound pronunciation" (Bobrova V.V., 2007);

d) Electronic textbook "Interactive tutorial" Learn technique on sound pronunciation "(Bobrova V.V., Akhmetova N.S., Merz A.S., Mulkamanova O.A., 2007). Raskroem Content of each of the components we developed an innovative program-methodical complex.

The first component of the proposed program-methodical complex is a training course aimed at the formation of an integrated system of rehabilitative knowledge Correction and technological skills for on sound pronunciation with elements of phonetic rhythm institutionalized students of specialty 031640, 050105 "Defectology".
Ability to use the phonetic elements of rhythm in correctional work for on sound pronunciation. The above knowledge and skills generated in the process of studying a special course "Professional technique on sound pronunciation", are an integral component of pathologists knowledge systems in correctional work for on sound pronunciation phonetic rhythms with elements necessary for professional correctional and educational activities in the specialized agencies, the relevant regulatory requirements.

Table 5. Thematic plan of the special course "Professional technique on sound pronunciation"

<table>
<thead>
<tr>
<th>Topic Title</th>
<th>Lecture (Number of hours)</th>
<th>Practical Occupation (number hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulatory aspect of speech</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Study of sound pronunciation and hearing in deaf children. The objectives and content of the training methods of sound pronunciation.</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Violation of sound pronunciation</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>The role of phonetic rhythm in the educational process.</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>16</td>
<td>32</td>
</tr>
</tbody>
</table>

In order to equip the didactic disciplines stipulated by SES, and additional training courses, we were prepared software and methodological support, developed on the basis of innovation, reflecting the current level of information, which includes:

- teaching manual "Bases of a technique on sound pronunciation" (Bobrova V.V., 2005);
- a) electronic textbook "correctional work for on sound pronunciation" (Bobrova V.V., 2007);
- b) Electronic textbook "Interactive tutorial" Learn technique on sound pronunciation "(Bobrova V.V., Akhmetova N.S., Merz A.S., Mulkamanova O.A., 2007).
- The proposed program-methodical support developed on the basis of didactic principles:
  - Scientific and affordability, which is being implemented to provide students with well-established in pedagogical science and defectology theoretical positions, provided in a clear, specific and accessible form;
  - Systematic and communication theory and practice - this principle is implemented in a more systematic exposition of theoretical positions in a strictly logical order, the formation of the system of correctional knowledge aimed at practical application in the future of correctional and educational activities;
  - Consciousness and activity of students and the leading role of the teacher;
  - Visibility, which serves as a reflection of the unity of abstract and concrete;
  - Acquisition of knowledge and strength due to the all-round development of cognitive abilities of students based on the fact that a solid mastery of knowledge, skills and abilities may, with the participation in the process of cognitive powers and abilities;
  - Collective and individualization in their optimal combination in the learning process, enabling the selection of the individual pace of work in view of the optimal mode of operation for the student.

Compliance with these principles makes possible the implementation of the developed software and methodological support in the educational process of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized and ensures the effectiveness of its functioning.

We characterize each of the components of the developed methodical software.
In order to consolidate the theoretical knowledge of the correctional work on sound pronunciation with elements of phonetic rhythm, practical skills, as well as program-methodical equipment of educational process we have developed and included in the program-methodical complex teaching manual "Bases of a technique on sound pronunciation" (Bobrova V.V., 2005).

The structure and content of the training manuals is determined by the structure and content of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized in accordance with the requirements of the time, based on the basic methodological position in pedagogy, psychology, speech therapy, remedial rhythm. The benefits taken into account the content of the main provisions of the normative documents regulating the content of training pathologists college.

Particular attention in the maintenance allowance is paid:

- Characteristics of articulatory aspect of speech (articulation of sounds and acoustics), the content of the work on the sounds;
- Consistent, gradual working out the sounds of the native language;
- Formation of skills of application of theoretical knowledge in practical work on the identification and formulation of the goals and objectives of training on correction with elements of phonetic rhythm and during production (professional) practice;
- To systematize the basic concepts necessary for learning in accordance with the program requirements;
- Preparation of studies on the correction on sound pronunciation with elements of phonetic rhythm-based guidelines to the formulation of the correct pronunciation of the sounds of the native language;
- Distribution of hours devoted to the correction of each sound;
- Planning remedial work on sound pronunciation with phonetic elements of rhythm in a special institution.

Thus, the teaching manual "Bases of a technique on sound pronunciation" largely solves the problem, the relevant regulatory requirements of the educational process and improves its efficiency.

In order to consolidate the theoretical knowledge, practical skills training design technology in correction with elements of phonetic rhythm in specialized agencies, to prepare students for practical training pathologists, production (professional) practice in the specialized agencies, we have developed and included in the software and methodical complex electronic textbook "correctional work for on sound pronunciation" (Bobrova V.V., 2007).

Structural construction of educational material in electronic textbooks (ET) meets the laws of the training process and the requirements for this kind of electronic textbooks, and includes texts, assignments, problem questions, generalizing wording, etc. All these elements are interconnected in a textbook with the device orientation, which are present on the screen, and the textbook are available on any of its page.

The starting basis for ordering the components of any training manual recognizes the desirability of the logic of the presentation of text content, ensuring the successful development of knowledge. This fully applies to the developed EUP "correctional work for on sound pronunciation" basic didactic requirements which were:

- The principle of the scientific content of the training mat

The next component of the developed methodical software is an electronic textbook "Interactive tutorial" Learn technique on sound pronunciation "(Bobrova V.V., Akhmetova N.S., Merz A.S., Mulkamanova O.A., 2007), intended for use in conducting workshops on a special course" Professional technique on sound pronunciation ", as well as independent work.
Independent work is an essential component of any training. By the knowledge and skills of future specialists of new requirements, and achieve a high level of qualification at the present rate of development of information space possible when changing the teaching and learning process. Focusing on independent student work with a well established and scientifically sound methodological support improves quality indicators of the educational process. Cognitive process promotes independence, implements the principle of active learning (Shku tin L.A., Sarsekeeva J.A., 2005).

Previously confined to self-study, mainly the work of students from the scientific and educational literature. We propose to expand the range of individual forms of work through the introduction of computer technology. Experience in the use of computer technology in the educational process allows us to offer as a method to improve the efficiency of formation of professionally important remedial qualities of the method of simulation of real professional activity, as well as a means - a training program with elements of interactivity and multimedia "interactive tutorial" Learn technique on sound pronunciation" (Bobrova V.V., Akhmetova N.S., Merz A.S., Mul kamanova O.A., 2007).

"Interactive tutorial" Learn technique on sound pronunciation "- an electronic textbook (hereinafter ET), which is a training program (hereinafter OP) with elements of interactivity and multimedia.

One of the major advantages of the program is that it does not require a change (increase) the time of the budget allotted to training specialists.

Training material (the material) is represented in the software as a set of Web-related documents software interface. Boot file is index.htm. Navigation electronic tutorial is done by means of hyperlinks, designed in the form of basic and additional sections of material. Presentation of text and graphic material is carried out HTML-code, CSS and JavaScript. To view the electronic manual "interactive tutorial" Learn on sound pronunciation procedure "is recommended to use the IE browser version 6 or higher under Windows 98 and higher. Electronic structure of benefits is open, which allows the student to control the trajectory of the study material. At the heart of the student interaction with the learning program with interactive elements is interactive mode, which can be managed as a learner and the system.

As we developed the training program introduced subsystem, including data banks open for the user (student) access. Each of them is as follows:

**Section "exercises to induce and sound staging"** It includes: exercises for articulation bodies, which are formed as a result of the necessary speech movement for the realization of the desired sound.

**Section "Vowels"** includes: articulating characteristic defects and correct vowel sounds.

**Section "consonant"** includes: articulating characteristic defects and correction of consonants.

**Section "Handout"** It includes 3 themes and 20 sub-themes:

- articulatory aspect of speech (the mechanism of formation of speech sounds and their classification, acoustic properties of speech sounds, vocabulary and grammatical features of spoken language, psycho-physiological mechanism of perception of speech with normal hearing; psychophysiological mechanism of generation of spoken language (speaking) with normal hearing, the formation of speech in normal -heard child; the effects of hearing impairment for the development of speech, objectives and content of teaching pronunciation, stages and methods of setting sounds, phonetic rhythm);
- Methods of Teaching on sound pronunciation hearing and deaf children (work on the speech breathing; work on the voice, the basic principle of the formation of the correct pronunciation; work on the sounds of speech; a combination of sounds);
- Violations on sound pronunciation (guidelines to the formulation of the correct pronunciation of whistling and hissing sounds (с—ч, з—ц, щ, щ, ж, ч, ц) (For hearing children); guidelines to the formulation of the correct pronunciation of sounds л—ль, р—рь (For hearing children); guidelines to the formulation of the correct pronunciation of sounds: к, г, х, vowels, voiced consonants в, б, д,
softened and sound s (for hearing children); guidelines for the formulation of diphthongs and vowel sounds (for deaf children); guidelines to the formulation of the correct pronunciation of consonants (for deaf children)

- **Section "Phonetic rhythm"** It includes: video-production of sounds.

The section "Glossary" It includes: the terms for this course and annotations to them.

The section "Tests" It includes: 5 choices of 20 questions each. With these tests, you can check how well the student has learned the program material.

The section "References" It includes: a list of sources on which you want to rely on in the process of preparation for classes for this course.

The section "About the authors" It includes: data about the authors-developers.

Tutorial - is a highly effective tool of professional training, which allows forming the corrective abilities for professional work at the future pathologists, improving the efficiency of the work on sound pronunciation for pedagogical creativity, and contributes to the individualization process of formation of professionally important qualities.

This tutorial can be considered a universal developing system, since it focuses on a specific subject area and sphere of professional activity.

Thus, the preparation of students to the pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of the developed model includes the following steps:

- Realization of the goal to which the whole process should be oriented;

  organization of activity of students on mastering and securing the content of the training material developed on the basis of program-methodical complex - in the process of studying the disciplines stipulated by SES and develop additional educational special course, the application of the developed methodical software using computer and multimedia technologies;

- The quality of diagnosis of Learning based on the developed test and other assignments;

- Definition and impact analysis.

We have developed a model for future training pathologists contributes to the optimization of the educational process, which is due to the following: if the traditional collective forms of education (lectures, workshops), students are able to personalize learning for itself in optimal mode, the results of completed jobs, self-updating and enhancing knowledge.


These studies may provide a basis for updating the content and preparation of educational paradigm-defectologist students for professional correctional and educational activities in specialized agencies, though; they do not solve the problem as a whole.

In summary, it should be emphasized that the development and implementation of the learning process model training students pathologists for correctional work for on sound pronunciation with elements of phonetic rhythms, innovative program-methodical complex contributes to the creation of pedagogical conditions for lasting assimilation system correctional and theoretical knowledge, correctional and technological skills and skills on sound pronunciation with elements of phonetic rhythm institutionalized future pathologists. As a result, the preparation of students to the pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized transformed into a system that has the qualities of the new system, aimed at training
highly qualified specialists, competent in correctional and educational activities, meets the requirements of the social order.

We have developed a model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of program-methodical complex introduced in the educational process of the Karaganda State University. EA Buketov.

The effectiveness of the system of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of the developed model was tested in the course of the experimental work.

**Experimental verification of the effectiveness of the model of training students pathologists to correctional work at the sound of the pronunciation with elements of phonetic rhythm institutionalized** The study, which showed lack of base level to prepare student pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm institutionalized, we came to the conclusion about the need to modernize the system of training of students-pathologists for correctional work for on sound pronunciation with the elements and the phonetic rhythm institutionalized high school, the creation of its model based on the development and implementation of pedagogical process of program-methodical complex.

The effectiveness of the proposed model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of program-methodical complex can only be assessed during the pedagogical experiment.

It is known that the experiment is a method of educational research, in which there is an active influence on the educational phenomenon by creating new conditions, relevant research goals. The experiment allows us to answer the question posed in compliance with all necessary requirements and conditions of his (Kovryalg A.A., 1980; Shkutin L.A., Plotnikov V.M., Egorov V.V., 2000).

Stages of our research were:
- Collection and analysis of materials for the research topic;
- The nomination of a working hypothesis;
- Pedagogical experiment.

The structure of the pedagogical experiment was as follows:
1) ascertaining experiment (2004 - 2005 academic year);
2) formative experiment (2005 - 2008 academic years).

It should be emphasized that the ascertaining and forming experiments have common features, which include: the equation of the experimental conditions on a number of parameters, preparation of experimental data, statistical processing of the results, followed by the conclusions.

In the final phase we conducted to determine the effectiveness of implementation in the pedagogical process model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of program-methodical complex.

The experiment consisted of three phases:
- The initial control of knowledge and skills;
- Introduction to the pedagogical process components developed model training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized on the basis of program-methodical complex;
- Comparison of the levels of formation of knowledge and skills of correctional work on sound pronunciation with elements of phonetic rhythms students control and experimental groups.

The pedagogical experiment was carried out with students of the specialty "Defectology" of Karaganda State University named after E.A. Buketov. Total number of students participating in the experiment, was 164 people.

In order to ensure the reliability of pedagogical experiment with the acquisition of the experimental groups of students the following factors were considered:
Representativeness, i.e., students should have approximately the same level of knowledge and skills;
- Verification of the results of the experiment must be carried out on the basis of compliance with the established criteria.

Ascertaining experiment has allowed establishing the actual state of the object, a statement of the initial parameters, input parameters for performing formative experiment. As part of our research in the ascertaining experiment it was necessary to determine the level of correction and theoretical knowledge, correctional and technological skills for on sound pronunciation phonetic rhythms with elements of the future pathologists.

To this end, students were asked to perform safety tests.

Evaluation of the effectiveness of the proposed educational model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized, developed on the basis of program-methodical complex, was carried out in two directions:

1. Determination of formation of correctional level of knowledge of students on sound pronunciation phonetic rhythms with elements of the future pathologists.

2. Determination of the level of formation of correctional and technological abilities and skills of students on sound pronunciation with elements of phonetic rhythm as the basis of competence in correctional and educational activities.

The level of formation of the system of correctional knowledge of on sound pronunciation with elements of phonetic rhythm determined by the following criteria:
- Completeness of mastering concepts on sound pronunciation correction with elements of phonetic rhythm;
- Assimilation of knowledge on the strength of the correction on sound pronunciation with elements of phonetic rhythm.

Formation of the correctional system of knowledge on sound pronunciation with elements of phonetic rhythms performed in the control group using the traditional methods of teaching, experimental - with the use of components of software and methodical complex.

The quality of the completeness of mastering concepts on sound pronunciation correction with elements of phonetic rhythm was assessed on the following parameters:
- Completeness of the content of the concept of assimilation - the totality of its essential features;
- Complete assimilation connections and relations of this concept with other (Volkova L.S., Shakhtovskoy S.N., 2002; Usov A.V., 1986).

In accordance with the above parameters are defined the following quantitative indicators mastering concepts on correctional on sound pronunciation phonetic rhythms with elements:
- Coefficient of completeness of mastering the content of correction terms for on sound pronunciation with elements of phonetic rhythm;
- Coefficient characterizing completeness of assimilation connections and relations of this concept with others.

1) The coefficient of completeness of mastering the content of the correction terms for on sound pronunciation with elements of phonetic rhythm determined by the formula:

\[ K_{col} = \frac{\sum li}{l \cdot N} \]  \hspace{1cm} (1)

where \( li \) - the amount of the essential features of the concepts learned i-th student, \( l \) - the number of signs to be assimilation, \( N \) - number of students in the group.

1) The coefficient characterizing the completeness of assimilation connections and relations of this concept with others, determined by the formula:

\[ K_{ca} = \frac{\sum ni}{n \cdot N} \]  \hspace{1cm} (2)

where \( ni \) - number of connections and relationships, learned the i-th student, \( n \) - the...
number of connections that need to be learned by pupils at this stage of the formation of concepts, N - number of students in the group.

These factors are indicators of the completeness of the arithmetic mean of mastering concepts students control and experimental groups.

To assess the completeness of mastering concepts on correctional on sound pronunciation rhythms with elements of phonetic analysis method was used by students perform control tasks. The level of completeness of mastering concepts on sound pronunciation correction with elements of phonetic rhythm determined by the following indicators:

- If the rate is 0.2-0.49.
- Data is high, if the coefficient of 0.8-1.0 for all parameters (fullness of assimilation of content, the concept of the amount of connections and relationships with other concepts);
- Average, if the coefficient of 0.5-0.79;
- Low, the level of completeness of mastering concepts on sound pronunciation correction with elements of phonetic rhythms is shown in Table 6.

<table>
<thead>
<tr>
<th>Levels</th>
<th>Group control</th>
<th></th>
<th>Experimental Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>people</td>
<td>%</td>
<td>people</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>31</td>
<td>38.8</td>
<td>29</td>
<td>34.5</td>
</tr>
<tr>
<td>Average</td>
<td>28</td>
<td>35</td>
<td>29</td>
<td>34.5</td>
</tr>
<tr>
<td>Tall</td>
<td>21</td>
<td>26.2</td>
<td>26</td>
<td>31</td>
</tr>
</tbody>
</table>

According to Table 6 there is based diagram (Figure 7).

Figure 7. Levels completeness of mastering the concepts of correction by the sound of the pronunciation with elements of phonetic rhythm (ascertaining experiment)

Checking the strength of correction of mastering knowledge of the sound of the pronunciation with elements of phonetic rhythm carried out during the test conducted after the passage of pedagogical practice. Developed tests include 2 versions, each with 20 test items. The quality of execution of tests was determined in accordance with the indicators reflecting the strength level of assimilation of knowledge in rehabilitative on sound pronunciation with elements of phonetic rhythm and presented in Table 7.
Table 7. Indicators reflecting the strength level of mastering of correctional knowledge of sound with elements of phonetic pronunciation rhythm

<table>
<thead>
<tr>
<th>Level</th>
<th>Main factors</th>
<th>Indirect indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>The correct answers to test items 19-20 of 20</td>
<td>The manifestation of cognitive activity, interest in the subject and the desire to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>perform a new task.</td>
</tr>
<tr>
<td>Average</td>
<td>The correct answers to test items 18-16 of 20</td>
<td>The passivity and contemplation in the classroom, lack of interest and a creative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>approach to the assignment.</td>
</tr>
<tr>
<td>Low</td>
<td>The correct answers to test items 15-13 of 20</td>
<td>The lack of attention in class, interest in the academic subject.</td>
</tr>
</tbody>
</table>

Data on the strength of the assimilation of knowledge in rehabilitative on sound pronunciation with elements of phonetic rhythms are shown in Table 8 and the diagram (Figure 8).

Table 8. Levels strength assimilation corrective knowledge of the sound of the pronunciation with elements of phonetic rhythm (ascertaining experiment)

<table>
<thead>
<tr>
<th>Levels</th>
<th>Control group</th>
<th>experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>people.</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>30</td>
<td>37,5</td>
</tr>
<tr>
<td>Average</td>
<td>29</td>
<td>36,3</td>
</tr>
</tbody>
</table>

Figure 8. Levels strength assimilation corrective knowledge of the sound of the pronunciation with elements of phonetic rhythm (ascertaining experiment)

Summary data on the level of formation of the system of correctional knowledge of sound with elements of phonetic pronunciation of rhythm as a result of ascertaining experiment are shown in Table 9 and Figure 9.

Table 9. Levels of formation of correctional knowledge on the sound of the pronunciation with elements of phonetic rhythm (ascertaining experiment)

<table>
<thead>
<tr>
<th>level</th>
<th>Control group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>
This ascertaining experiment confirms the relative similarity of pedagogical control and experimental groups in the level of formation of correctional knowledge of on sound pronunciation with elements of phonetic rhythm.

The level of formation of correctional and technological skills for on sound pronunciation with elements of phonetic rhythm determined by the following criteria:
- Completeness and independence of operations training with elements of phonetic pronunciation of rhythm;
- Completeness and independence of operations to design speech therapy sessions with elements of phonetic rhythm.

Identify the level of formation of correctional and technological skills for on sound pronunciation with elements of phonetic rhythms performed during the execution of the control studies.

The first criterion - the fullness and autonomy of operations in pronunciation training with elements of phonetic rhythm - defined during the execution of the control task for a given sound. When the job was taken into account:
- Compliance with all the steps and operations training with elements of phonetic pronunciation of rhythm;
- Compliance with the logical sequence of stages of training with elements of phonetic pronunciation of rhythm;
- Meaningfulness of each of the stages;

The level of completeness and independence of operations training with elements of the phonetic pronunciation of the students' rhythm control and experimental groups was determined by the figures presented in Table 10.

### Table 10. Indicators that reflect the level of completeness and independence of operations training with elements of phonetic pronunciation rhythm

<table>
<thead>
<tr>
<th>Level</th>
<th>Main factors</th>
<th>Indirect indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>For proper and independent execution of tasks in full, satisfied and fulfilled all the stages of work on the sounds.</td>
<td>A creative approach to the assignment, is the use of a variety of sources for the correction of sound pronunciation, made exactly of pis-</td>
</tr>
</tbody>
</table>

![Figure 9. Levels of formation of correctional knowledge on the sound of the pronunciation with elements of phonetic rhythm (ascertaining experiment)](image-url)
Average

Independent execution of tasks with little assistance from the teacher, minor errors in any of the stages of work on the sounds. The template approach to the work, the use of a single source for the correct pronunciation of the sound, some negligence in submitting written work.

Low

The ability to perform a task without the help of a teacher, a significant error in the stages of work on the sounds. Failure to apply the semi-acquired knowledge on the correct pronunciation of the sound, NEGLIGENCE introduction pis-variable work.

Data on the levels of completeness and self-fulfillment in pronunciation training operations with elements of phonetic rhythm in Table 11.

Table 11. The levels of completeness and independence of operations in pronunciation training with elements of phonetic rhythm (ascertaining experiment)

<table>
<thead>
<tr>
<th>Level</th>
<th>Control Group.</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>people</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>33</td>
<td>41,3</td>
</tr>
<tr>
<td>Average</td>
<td>27</td>
<td>33,7</td>
</tr>
<tr>
<td>High</td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

Based on the data presented in Table 11 drawn diagram (Figure 10).

Figure 10. The levels of completeness and independence of operations in pronunciation training with elements of phonetic rhythm (ascertaining experiment)

The second criterion – completeness and independence of operations to design speech therapy sessions with elements of phonetic rhythm. When performing tasks on designing speech therapy sessions with elements of phonetic rhythm taken into account consistently and correctly perform the steps of:

- Definition of the objectives and tasks of speech therapy sessions with elements of phonetic rhythm corresponding to the target plants and the content of the program;
- Determination of the content of speech therapy sessions with elements of phonetic rhythm;
- Determination of the optimal dosage time for each section of the speech therapy sessions with elements of phonetic rhythm;
- Selection of appropriate goals and objectives of speech therapy sessions with elements of phonetic rhythm methods of joint activities pathologists, speech therapists and students with speech pathology;
- Determination of appropriate sequences and technology use of technical training, software and teaching materials;
- Definition of the forms of control and evaluation of the correctional knowledge and skills on on sound pronunciation with elements of phonetic rhythm pupils with speech pathology;
- A description of the phase-stroke speech therapy sessions with elements of phonetic rhythm

**Table 12.** Indicators that reflect the level of completeness and independence of operations to design speech therapy sessions with elements of phonetic rhythm

<table>
<thead>
<tr>
<th>Level</th>
<th>Main factors</th>
<th>Indirect indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Proper quest for self-designing speech therapy sessions with elements of phonetic rhythms in full compliance and correct implementation of all stages of design speech therapy sessions with elements of phonetic rhythm, the results of which are presented in the project, which is decorated in accordance with the requirements.</td>
<td>Interest and creative approach to the assignment, using different sources of sound correction of pronunciation, preparation of visual-didactic material, nice speech therapy project involving elements of phonetic rhythm.</td>
</tr>
<tr>
<td>Average</td>
<td>Correct and self-determination of objectives and tasks of speech therapy sessions with elements of phonetic rhythm, but admitted minor errors in one or more stages of the design, not enough fully reflected in the steps provided by the project, seeking minor assistance from the teacher.</td>
<td>The template approach to design speech therapy sessions with elements of phonetic rhythm, the use of a single source for the correction of the sound of the pronunciation, lack of visual didactic material and some negligence of the project.</td>
</tr>
<tr>
<td>Low</td>
<td>Incorrect definition of the objectives and tasks of speech therapy sessions with elements of phonetic rhythm is not the appropriate target and thematic content in programs, significant errors in some or all stages of the design, the result of uncertainty, inconsistency of its goal of speech therapy sessions with elements of phonetic rhythm, forming documents that do not match the requirements, the inability to do the job without the help of a teacher.</td>
<td>Lack of interest in the job, the inability to use the sources of knowledge for correct pronunciation of the sound, the lack of visual-didactic material, negligence in completing project speech therapy sessions with elements of phonetic rhythm.</td>
</tr>
</tbody>
</table>

Data on the levels of completeness and independence of operations to design speech therapy sessions with elements of phonetic rhythms are shown in Table 13 and diagram (Figure 11).

**Table 13.** The levels of completeness and independence in operations to design speech therapy sessions with elements of phonetic rhythm (ascertaining experiment)
Table 14 and Figure 12 summarize data on the level of formation of correctional and technological skills for on sound pronunciation with elements of phonetic rhythm. 

This ascertaining experiment confirms the relative similarity of pedagogical control and experimental groups in the level of formation of technological skills.

**Table 14.** The level of formation of correctional and technology for the sound of the pronunciation with elements of phonetic rhythmic skills (ascertaining experiment)

<table>
<thead>
<tr>
<th>Level</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>38.8</td>
<td>36.35</td>
</tr>
<tr>
<td>Average</td>
<td>35.5</td>
<td>33.3</td>
</tr>
<tr>
<td>High</td>
<td>26.2</td>
<td>30.35</td>
</tr>
</tbody>
</table>

Ascertaining experiment section in the control and experimental groups identified insufficient formation of the system of correctional knowledge of on sound pronunciation with elements of phonetic rhythm, correction and processing on on sound pronunciation with elements of phonetic rhythm skills students majoring.
Defectology, mismatched levels of correctional training on sound pronunciation rhythms with elements of phonetic requirements of the modern education system, contained in the qualifying characteristic pathologists specialized agencies. Analysis of students' works showed that the typical disadvantages of the majority of students are:

- aborted correctional system-theoretical on on sound pronunciation with elements of phonetic rhythm of knowledge:
  - Lack of knowledge of the structure of the work on the sounds;
  - Ignorance of the combination of sounds;
  - Ignorance of the ways of self-control over the sounds;
  - Lack of knowledge of the phonetic rhythm;
- aborted correctional system and technology for on sound pronunciation with elements of phonetic rhythm skills:
  - The inability to own articulation and acoustic characteristics of the sounds of the native language;
  - The inability to use the techniques, methods of elimination and correction of violations on sound pronunciation;
  - Poor skills in recognizing speech disorders;
  - The inability to determine the techniques, methods and the correlation of rhythmic abilities in individuals with speech impairments;
  - Inability to identify the purpose and objectives of speech therapy sessions with elements of phonetic rhythm;
  - To determine the optimal dosage time for each stage of speech therapy sessions;
  - Choose appropriate goals and objectives of working methods;
  - To reflect all the components in the project independently developed speech therapy sessions with elements of phonetic rhythm.

Lack of Maturity of the above knowledge and skills shows incompetence of the future in the professional pathologists correctional and educational activities in specialized agencies, inadequate training of students of a specialty in defectology work on sound pronunciation with elements of phonetic rhythm.

All of this confirms the need to create an integrated system of rehabilitative work on sound pronunciation knowledge with elements of phonetic rhythm, correction and processing on on sound pronunciation with elements of phonetic rhythm skills at the future pathologists on the basis of the developed model, the use of the experimental group-forming equipment in accordance with the proposed model. We have
been tasked with the introduction in pedagogical process model student training pathologists for correctional work for on sound pronunciation with elements of phonetic rhythm, developed on the basis of program-methodical complex, aimed at eliminating the identified deficiencies.

Checking the efficiency of formation of an integrated system of rehabilitative work on sound pronunciation knowledge with elements of phonetic rhythm, correction and processing on on sound pronunciation with elements of phonetic rhythm skills at the future pathologists based on the model developed using software developed and methodical complex has been carried out during the formative experiment.

In the process of forming the control group of the experiment, students were taught by traditional methods, and experimental group students - based on the model developed using software developed by us and methodical complex consisting of: Exclusive training course – special course "Professional technique of sound pronunciation" copyright methodical software – electronic textbook "correctional work for on sound pronunciation" (Bobrova V.V., 2007), computer-aided instruction program "interactive tutorial" Learn technique on sound pronunciation" (Bobrova V.V., Akhmetova N.S., Merz A.S., Mulkamanova O.A., 2007), training manuals "Fundamentals on sound pronunciation technique" (Bobrova V.V., 2005).

The results of mastering concepts on correctional on sound pronunciation with elements of phonetic rhythms are shown in Table 15 and in the diagram (Figure 13).

<table>
<thead>
<tr>
<th>Level</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>persons</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Average</td>
<td>37</td>
<td>46,3</td>
</tr>
<tr>
<td>High</td>
<td>27</td>
<td>33,7</td>
</tr>
</tbody>
</table>

**Figure 13.** Levels completeness of mastering the concepts of correction by the sound of the pronunciation with elements of phonetic rhythm (formative experiment)

Data on the strength of correction of mastering knowledge of the sound of the pronunciation with elements of phonetic rhythms are shown in Table 16 and diagram (Figure 14).
Table 16. Levels strength assimilation corrective knowledge of the sound of the pronunciation with elements of phonetic rhythm (formative experiment)

<table>
<thead>
<tr>
<th>Level</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>persons</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>23</td>
<td>28.8</td>
</tr>
<tr>
<td>Average</td>
<td>31</td>
<td>38.8</td>
</tr>
<tr>
<td>High</td>
<td>26</td>
<td>32.5</td>
</tr>
</tbody>
</table>

Figure 14. Levels strength assimilation corrective knowledge of the sound of the pronunciation with elements of phonetic rhythm (formative experiment)

Data on the level of formation of correctional knowledge on the sound of the pronunciation with elements of phonetic rhythms are presented in Table 17 and Figure 15.

Table 17. The level of formation of correctional knowledge on the sound of the pronunciation with elements of phonetic rhythm (formative experiment)

<table>
<thead>
<tr>
<th>Level</th>
<th>Control Group</th>
<th>Experimental group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>24.4</td>
<td>–</td>
</tr>
<tr>
<td>Average</td>
<td>42.5</td>
<td>48.2</td>
</tr>
<tr>
<td>High</td>
<td>33.1</td>
<td>51.8</td>
</tr>
</tbody>
</table>
Data on the levels of completeness and independence of operations training with elements of phonetic pronunciation rhythms are shown in Table 18 and shown in the diagram (Figure 16).

**Table 18.** The levels of completeness and independence of operations in pronunciation training with elements of phonetic rhythm (formative experiment)

<table>
<thead>
<tr>
<th>level</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>persons</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>25</td>
<td>31.3</td>
</tr>
<tr>
<td>Average</td>
<td>30</td>
<td>37.4</td>
</tr>
<tr>
<td>High</td>
<td>25</td>
<td>31.3</td>
</tr>
</tbody>
</table>

Figure 16. The levels of completeness and independence of operations in pronunciation training with elements of phonetic rhythm (formative experiment)

Data on the levels of completeness and independence of operations to design speech therapy sessions with elements of phonetic rhythms are shown in Table 19 and diagram (Figure 17).
**RESEARCH ARTICLES**

Table 19. The levels of completeness and independence of operations to design speech therapy sessions with elements of phonetic rhythm (formative experiment)

<table>
<thead>
<tr>
<th>Level</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>persons</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>23</td>
<td>28.8</td>
</tr>
<tr>
<td>Average</td>
<td>33</td>
<td>41.2</td>
</tr>
<tr>
<td>High</td>
<td>24</td>
<td>30</td>
</tr>
</tbody>
</table>

![Graph showing levels of completeness and independence of operations](image)

**Figure 17.** The levels of completeness and independence of operations to design speech therapy sessions with elements of phonetic rhythm (formative experiment)

Table 20 and Figure 18 summarizes data on the level of formation of correctional and technology for the sound of the pronunciation with elements of phonetic rhythm skills.

**Table 20.** The level of formation of correctional and technology for the sound of the pronunciation with elements of phonetic rhythmic skills (formative experiment)

<table>
<thead>
<tr>
<th>Level</th>
<th>Control Group</th>
<th>Experimental Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Low</td>
<td>30.05</td>
<td>7.15</td>
</tr>
<tr>
<td>Average</td>
<td>39.3</td>
<td>50</td>
</tr>
<tr>
<td>High</td>
<td>30.65</td>
<td>42.85</td>
</tr>
</tbody>
</table>

![Graph showing levels of formation of correctional and technology](image)

**Table 20.** The level of formation of correctional and technology for the sound of the pronunciation with elements of phonetic rhythmic skills (formative experiment)
The results of forming experiment allowed determining the level of formation of the system of correctional knowledge Correction and technological skills for on sound pronunciation phonetic rhythms with elements of future pathologists specialized agencies.

To test the significance of differences in the results of the control and experimental groups, we used the Student's t-test, the calculation of which we used the package «Statistic of Windows», version 5. Copyright State Soft, license serial number 72492256140090. The experimental data are summarized in Table 21 and represented in Figure 19.

Table 21. Summary table of the results of experimental work on the formation of an integrated system of correctional knowledge and skills at the sound of the pronunciation with elements of phonetic rhythm as the basis for the competence of pathologists specialized agencies in correctional and educational activities (in percentage)

<table>
<thead>
<tr>
<th>Group</th>
<th>Low level</th>
<th>Average level</th>
<th>High level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>variable</td>
<td>constant</td>
</tr>
<tr>
<td>Control</td>
<td>38,5</td>
<td>27,2</td>
<td>35,3</td>
</tr>
<tr>
<td>Experiment</td>
<td>35,7</td>
<td>3,6</td>
<td>33,6</td>
</tr>
</tbody>
</table>

Figure 19. Levels of formation of an integrated system of correctional knowledge and skills at the sound of the pronunciation with elements of phonetic rhythm as the basis for the competence of pathologists specialized agencies in correctional and educational activities

Results

1) These data suggest that, on average, the level of formation of an integrated system of correctional knowledge and skills on sound pronunciation with elements of phonetic rhythm as the basis for the competence of pathologists specialized agencies in korrektsionno-educational activity in the experimental group increased by 21.3% compared with the control.

2) To test the hypothesis, embedded in our work, it was necessary to compare the detected data in several ways:

3) Verification of the differences in the results between the experimental and control group on the
first slice (will determine the degree of correctness of procedure of forming the control group);

4) - Verification of the differences in the results between the experimental and control groups on the second slice (will determine the degree of success of the experiment, the mental impact);

5) - Verification of the differences in the results between the first and the second cut at the Expo-tal group (will determine the growth of knowledge and skills as a result of the pilot action);

6) - Verification of the differences in the results between the first and second cut in the control group (will determine the growth of knowledge and skills as a result of traditional forms of training).

7) For comparative analysis, aimed at the discovery of the significance of differences, the statistics may be enough to offer a wide range of criteria - t-Student criterion, F-test Fisher or analysis of variance, the U-Mann-Whitney, H-Kruskal-Wallis, x2-test and some others. Selection criteria depend on the specific conditions of the study and the nature of the data.

8) In this case, the most appropriate choice is the Student's t-test, which is justified by the following reasons below:

is compared in each direction not more than 2 groups;

The data obtained in the course of the study, presented at an interval scale;

The data obtained in the study can be attributed to the type;

subject to the previous conditions, t-Student test in comparison with most other criteria has high sensitivity to the differences.

\[ t = \frac{\bar{d}}{S_d / \sqrt{n}} \]

Given the specificity of the above areas for analysis, two versions of the t-test were used:

for the comparisons on the first and second directions used Student's t-test for non-dependent groups

\[ t = \frac{X_1 - X_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}} \]

comparisons for the third and fourth lines used Student's t-test for paired comparisons (considering that in these cases, comparison is made in the context of "dependent samples")

In calculating the above criteria used Statistica V.6 program specifically designed for statistical calculations, including those in the humanities. Below the following results were obtained from the results of the calculations made.

In the first direction, by calculating the Student's t-test, there were no significant differences, as follows from the table below and figure chart 22 20.

<table>
<thead>
<tr>
<th>Table 22. Comparison of experimental and control group on the first slice</th>
<th>Average for experimental group</th>
<th>Average for control group</th>
<th>t-tests</th>
<th>p-level</th>
<th>S (exp.)</th>
<th>S (control.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completeness of mastering the concepts of correction by the sound of the pronunciation with elements of phonetic rhythm</td>
<td>16.45238</td>
<td>16.31250</td>
<td>0.404454</td>
<td>0.686412</td>
<td>2.219328</td>
<td>2.208119</td>
</tr>
<tr>
<td>The strength of assimilation of knowledge on sound correction of pronunciation from the phonetic elements of rhythm</td>
<td>16.46429</td>
<td>16.43750</td>
<td>0.072802</td>
<td>0.942053</td>
<td>2.386945</td>
<td>2.321303</td>
</tr>
</tbody>
</table>
The completeness of the content of the concept of mastering the totality of its essential features

<table>
<thead>
<tr>
<th>Completion</th>
<th>Assimilation connections and relations of this concept with other</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.44048</td>
<td>16.69048</td>
</tr>
<tr>
<td>16.42500</td>
<td>16.65000</td>
</tr>
<tr>
<td>0.041885</td>
<td>0.110781</td>
</tr>
<tr>
<td>0.966642</td>
<td>0.911927</td>
</tr>
<tr>
<td>2.350858</td>
<td>2.354059</td>
</tr>
<tr>
<td>2.380166</td>
<td>2.322700</td>
</tr>
</tbody>
</table>

No statistically significant differences between the experimental and the control group for the first slice, in this case indicates that the groups have been formed correctly and further the differences between them can be justified or experimental exposure, or the effect of side-variables (hereinafter, their effects will be recorded through the increase results in the control group).

![Figure 20](image-url)

**Figure 20.** The average values of the experimental and control groups on the first slice

In the second direction, by calculating the Student's t-test, the following were found statistically significant differences were shown in Table 23, wherein a statistically significant indicators criterion in italics.

| Table 23. Comparison of experimental and control groups on the second slice |
|---------------------------------|----------------|----------------|------------|--------|--------|
|                                | Average acc. to Contr. Gr. | Average acc. to Exper. Gr. | t-criterion | p-level | S (exp.) | S (control.) |
| The completeness of digestion-compensation-tion concepts for the sound of the pronunciation with elements of phonetic rhythm | 18.38095 | 17.15000 | 4.432232 | 0.000017 | 1.378883 | 2.117438 |
| The strength of mastering core-knowledge in which the reaction of the pronunciation of the sound with elements of phonetic rhythm | 18.51190 | 16.87500 | 5.597184 | 0.000001 | 1.384023 | 2.274654 |
Completeness of mastering the totality of its essential features

<table>
<thead>
<tr>
<th>Concept</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>Difference</th>
<th>t-criterion</th>
<th>p-level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completeness assimilation</td>
<td>17.7619</td>
<td>16.65000</td>
<td>3.145544</td>
<td>0.001973</td>
<td>2.086209</td>
</tr>
<tr>
<td>connections and relations of</td>
<td>17.9047</td>
<td>17.03750</td>
<td>3.191661</td>
<td>0.001699</td>
<td>1.477698</td>
</tr>
<tr>
<td>this concept with others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As the table shows, statistically significant differences were found for all four indicators, and, as can be seen on the river - the level of significance of these differences is quite high. Analyzing the nature of the differences (this can be done in the first two columns of a table or graphics pattern, which specifies the arithmetic average by groups), you may find that the average number of correct answers in the experimental group, on all counts, higher than the average number of correct answers in the control group. These results confirm our hypothesis and suggest that the experimental effects really appealing performance gain in comparison with the traditional system of education.

![Figure 21](image-url). The average values of the experimental and control groups on the second slice.

The third direction analysis, the counting result of Student's t-test, were also detected statistically significant differences reported in Table 24 where statistically significant indicators in italics criterion for drawing graphics and 22.

<table>
<thead>
<tr>
<th>Table 24. Comparison of the results of the experimental group before and after experimental exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average the arithmetic.</td>
</tr>
<tr>
<td>The first section</td>
</tr>
<tr>
<td>Completeness of mastering the concepts of correction</td>
</tr>
</tbody>
</table>

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Based on these results, it can be seen that in all areas of diagnostic cut as in the previous case, there are significant differences. A more detailed familiarization with the data shows that these differences in all cases education through the increase in the average number of correct answers in the experimental group. It makes sense to pay attention to the fact that the second slice standard deviation tends to decrease, that is, reducing the number of differences in the nature of the responses in the whole group.

The results of this statistical analysis route, confirm our hypothesis and indicate that the experimental impact really causes a statistically significant change in the quantity and quality of knowledge.

According to the fourth direction analysis, the counting result of the Student's t-test, statistically significant differences were the following, shown in Table 25, wherein a statistically significant

<table>
<thead>
<tr>
<th>The second section</th>
<th>Completeness of mastering the concepts of correction</th>
<th>18.38095</th>
<th>1.378883</th>
<th>-1.92857</th>
<th>0.928605</th>
<th>-19.0346</th>
<th>0.000012</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first section</td>
<td>The strength of correctional knowledge assimilation</td>
<td>16.46429</td>
<td>2.386945</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The second section</td>
<td>The strength of correctional knowledge assimilation</td>
<td>18.51190</td>
<td>1.384023</td>
<td>-2.04762</td>
<td>1.139697</td>
<td>-16.4664</td>
<td>0.000072</td>
</tr>
<tr>
<td>The first section</td>
<td>The completeness of the content of the concept of assimilation</td>
<td>16.44048</td>
<td>2.350858</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The second section</td>
<td>The completeness of the content of the concept of assimilation</td>
<td>17.76190</td>
<td>2.086209</td>
<td>-1.32143</td>
<td>0.696994</td>
<td>-17.3762</td>
<td>0.000023</td>
</tr>
<tr>
<td>The first section</td>
<td>Completeness assimilation of connections and relationships</td>
<td>16.69048</td>
<td>2.354059</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The second section</td>
<td>Completeness assimilation of connections and relationships</td>
<td>17.90476</td>
<td>1.477698</td>
<td>-1.21429</td>
<td>1.006861</td>
<td>-11.0533</td>
<td>0.000154</td>
</tr>
</tbody>
</table>

Figure 22. Average values of the results of the experimental group before and after experimental exposure
indicators in italics criterion were found on the graph pattern 23.

<table>
<thead>
<tr>
<th>Table 25. Comparison of the results of the control group for the first and second slices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average the arithmetic.</td>
</tr>
<tr>
<td>The first section</td>
</tr>
<tr>
<td>Completeness of mastering the concepts of correction</td>
</tr>
<tr>
<td>The second section</td>
</tr>
<tr>
<td>Completeness of mastering the concepts of correction</td>
</tr>
<tr>
<td>The first section</td>
</tr>
<tr>
<td>The strength of correctional knowledge assimilation</td>
</tr>
<tr>
<td>The second section</td>
</tr>
<tr>
<td>The strength of correctional knowledge assimilation</td>
</tr>
<tr>
<td>The first section</td>
</tr>
<tr>
<td>The completeness of the content of the concept of assimilation</td>
</tr>
<tr>
<td>The second section</td>
</tr>
<tr>
<td>Completeness of content assimilation concepts</td>
</tr>
<tr>
<td>The first section</td>
</tr>
<tr>
<td>Completeness assimilation of connections and relationships</td>
</tr>
<tr>
<td>The second section</td>
</tr>
<tr>
<td>Completeness assimilation of connections and relationships</td>
</tr>
</tbody>
</table>

**Figure 23.** Averages of the results of control group before and after exposure to an experimental
Counting t-test on the data collected in the control group, showing statistically significant changes in the number of correct answers. This trend is observed in all four tests. Statistically significant differences in this area indicate that in the control group, without any experimental effects observed knowledge gain. However, we cannot say that this disproves our hypothesis because:

- a complete lack of growth in the number of correct responses in the control group would have meant, not absolute effectiveness of training on the traditional pattern that would look not sufficiently convincing;
- increase in the number of correct answers in the control group is expressed to a lesser extent than in the pilot that is already evident from the analysis of the first two directions.

It has the same meaning as pay attention to the fact that unlike the experimental group, the standard deviation is not actually changed in the control group. It can also serve as an indication of the great efficiency experimental model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythms based on an innovative program-methodical complex.

The effectiveness of techniques confirmed the introduction of instruments in teaching and Sunnourishing process of the Karaganda State University. EA Buketov, the Institute of advanced training and retraining of civil servants and educators of Karaganda, the auxiliary boarding school Stepnogorsk, "PBPC" in Ekbastuz PMPC, helper classes school № 1 g.Abaya, "rehabilitation center" Department of Education Astana, a boarding school for deaf children and late Kokshetau.

Conclusion

After analyzing the level of students-pathologists training specialty 031640, 050105 Defectology — to correctional work at on sound pronunciation phonetic rhythms with elements in high school, we came to the following conclusions:

1. In the context of reforming the education system need updated study of theoretical aspects of sound pronunciation and phonetic rhythm in training pathologists, students are complex in general and correctional pedagogy and psychology, which is due to the exceptional role of speech in a person's life.

2. We have identified the need to create an integrated system of rehabilitative knowledge, technology and skills for on sound pronunciation with elements of phonetic rhythm as the basis of competence in the future professional activity pathologists specialized agencies confirmed the respondents (79.1%).

3. Taking into account the specificity of correctional work on sound pronunciation with elements of phonetic rhythm, designed correctional system pathologists activities when working with children with speech defects by using, for the first time in the Republic of Kazakhstan, developed complex motor exercises for each sound of the native language, the relevant acoustic characteristics of articulation.

4. The efficiency of developed and implemented our model, which showed that the level of formation of an integrated system of rehabilitative knowledge of on sound pronunciation with elements of phonetic rhythm, correction and technological abilities and skills on sound pronunciation with elements of phonetic rhythm in the experimental group compared with the control increased, on average, 21.3%.

The results can be used to improve the preparation of students to the pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized in a system of continuous education:

- During the preparation of students of a specialty 031640, 050105 - Defectology;
- The system of additional vocational training - training;
- The development of software and methodological tools for speech pathology disciplines;
- To modernize the content of educational programs for speech pathology disciplines.
This study has allowed to put forward a number of recommendations:

1. In order to prepare the student-pathologists for correctional and educational activities requires purposeful activity at all levels of continuing professional education.

2. It should be the introduction of the system of higher professional education of science-based innovation, the spirit of adequate correctional and educational activities pathologists.

3. In order to improve the preparation of students to introduce wider pathologists developed our model of training students to pathologists for correctional work on sound pronunciation with elements of phonetic rhythm institutionalized, program-methodical complex as part of the additional training course, methodical software.

There should be continuous self-education of students in order to deepen knowledge in the field of correctional work on sound pronunciation with elements of phonetic rhythm.

40th anniversary of the Republican Institute for Management and scientific-pedagogical system frame” (August 23-25) – Almaty, pp. 104-106.

30. 142. Denisova I.A., (2002). For the project "Rhythm" (see section "Voice rhythm") school program for children with severe speech disorders in a subject – Problems and prospects of development of correctional and educational assistance for children with special educational needs: Materials of the republican scientific-practical conference – Almaty, pp. 124-128.


