SCIENTIFIC RESEARCH OF THE SCO COUNTRIES: SYNERGY AND INTEGRATION

上合组织国家的科学研究：协同和一体化

Materials of the International Conference

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国际会议

参与者的英文报告

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“Scientific research of the SCO countries: synergy and integration”

Part 2: Participants’ reports in English

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这些会议文集结合了会议的材料 – 研究论文和科学工作者的论文报告。 它考察了职业化人格的技术和社会学问题。一些文章涉及人格职业化研究问题的理论和方法论方法和原则。
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These Conference Proceedings combine materials of the conference – research papers and thesis reports of scientific workers. They examines tecnical and sociological issues of research issues. Some articles deal with theoretical and methodological approaches and principles of research questions of personality professionalization.

Authors are responsible for the accuracy of cited publications, facts, figures, quotations, statistics, proper names and other information.

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Foreword

We thank all participants of our conference "Scientific research of the SCO countries: synergy and integration" for the interest shown, for your speeches and reports. Such a wide range of participants, representing all the countries that are members of the Shanghai Cooperation Organization, speaks about the necessity and importance of this event. The reports of the participants cover a wide range of topical scientific problems and our joint interaction will contribute to the further development of both theoretical and applied modern scientific research by scientists from different countries. The result of the conference was the participation of 56 authors from 7 countries (China, Russia, Uzbekistan, Kazakhstan, Azerbaijan, Tajikistan, Kyrgyzstan).

This conference was a result of the serious interest of the world academic community, the state authorities of China and the Chinese Communist Party to preserve and strengthen international cooperation in the field of science. We also thank our Russian partner Infinity Publishing House for assistance in organizing the conference, preparing and publishing the conference proceedings in Chinese Part and English Part.

I hope that the collection of this conference will be useful to a wide range of readers. It will help to consider issues, that would interest the public, under a new point of view. It will also allow to find contacts among scientists of common interests.

Fan Fukuan,
Chairman of the organizing committee of the conference
"Scientific research of the SCO countries: synergy and integration"
Full Professor, Doctor of Economic Sciences

前言

我们感谢所有参加本次会议的“上海合作组织国家的科学研究：协同作用和整合”，感谢您的演讲和报告。代表所有上海合作组织成员国的广泛参与者都谈到此次活动的必要性和重要性。参与者的报告涵盖了广泛的主题性科学问题，我们的联合互动将有助于不同国家的科学家进一步发展理论和应用的现代科学研究。会议结果是来自7个国家（中国，俄罗斯，乌兹别克斯坦，哈萨克斯坦，阿塞拜疆，塔吉克斯坦，吉尔吉斯斯坦）的83位作者的参与。

这次会议的召开，是学术界，中国国家权力机关和中国共产党对维护和加强科学领域国际合作的高度重视的结果。我们还要感谢我们的俄罗斯合作伙伴无限出版社协助组织会议，准备和发布中英文会议文集。

我希望会议的收集对广大读者有用，将有助于在新的观点下为读者提供有趣的问题，并且还将允许在共同利益的科学家中寻找联系。

范福宽，
教授，经济科学博士，中国科学院院士，会议组委会主席“上合组织国家科学研究：协同与融合”

区域集群系统形成的组织和经济机制
ORGANIZATIONAL AND ECONOMIC MECHANISM OF FORMATION OF REGIONAL CLUSTER SYSTEMS

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抽象。 本文研究了区域集群系统形成和发展的组织和经济机制。 考虑了集群经济体系的理论和方法论问题。 研究了俄罗斯地区集群形成的国内实践。
关键词：集群，经济学，系统，区域，组织和经济机制，理论，方法论。

Abstract. *The article examines the organizational and economic mechanism of the formation and development of regional cluster systems. The theoretical and methodological issues of clustering economic systems are considered. The domestic practices of cluster formation in the regions of Russia are investigated.*

Keywords: *Clusters, economics, system, region, organizational and economic mechanism, theory, methodology.*

In modern conditions, the use of the cluster approach has taken one of the key places in the strategies for socio-economic development of the subjects (regions) of the Russian Federation and municipalities. However, in the regions, work on clustering the economy has begun, but is not being systematically implemented. The relevance of the study is due to the need to develop an organizational and economic mechanism for the formation of cluster systems in the regions of the Russian Federation, which ensure the growth of production volumes, increase the competitiveness of the economy and intensify the mechanisms of public-private partnership in the face of a shortage of investment resources.

The strategy of socio-economic development of the Russian Federation for the period up to 2025, the Strategies for socio-economic development of the North Caucasus Federal District and the Republic of Dagestan until 2025, provides for the creation of a network of territorial production clusters that realize the competitive potential of the regions, the formation of innovative high-tech clusters in the regions.

The development of the organizational and economic mechanism for the formation of cluster systems in the Republic of Dagestan will allow a systematic approach to the process of clustering the economy.

In the research process, the following methodological principles were used:

- The principle of a systematic approach to the study of the economic development of the region;
- The principle of the diversity of research forms and integrated assessments;
- The principle of regional specificity;
- The principle of information security research;
- The principle of practical feasibility of research and modeling results.

The methods of economic, functional, structural and statistical analysis, organizational modeling, expert evaluations, planning and programming are applied.

A methodology will also be used to conduct comprehensive socio-economic monitoring of the region, taking into account its characteristics, in order to create cluster systems in the context of the "Strategy for the socio-economic development of the Republic of Dagestan for the period until 2025."

The current regional systems in Russia with weak intra-systemic and interregional potential of market infrastructure make it difficult to pursue a clear policy of interaction between state bodies, municipalities and businesses, and limit the development of the socio-economic space of the subjects of the federation. [5]

In Russia, the process of economic clustering, i.e. cluster formation is currently carried out mainly spontaneously, under the influence of market forces. This is a completely natural phenomenon, however, its theoretical, methodological and applied aspects are not fully implemented.

The theory of cluster management, regulation of the process of their creation and functioning has not been properly developed in the economic science and practice of the Russian Federation, and the unadapted application of foreign experience does not provide the necessary effect in the special socio-economic and institutional conditions of the country. [7]

The cluster methodology is based on the consideration of the form of economic relations aimed at creating a modern innovative product, as an integral set of elements in the totality of bonds and relations between them. Therefore, we can consider the cluster as a complex economic system.

More than 1,500 clusters function in Russia, as a rule, created on the basis of large backbone enterprises. The following subjects of the Federation, advanced in the field of economic clustering, are: the cities of Moscow and St. Petersburg, Krasnodar and Krasnoyarsk Krais, Moscow, Leningrad, Novosibirsk, Tomsk, Yaroslavl, Belgorod Regions, the Republic of Tatarstan and Bashkortostan, and others. In the North Caucasus, there are several structurally distinguished clusters.

It is necessary to study the organizational and economic mechanisms for the formation of cluster systems in these regions of Russia and adapt this experience to the economy of the Republic of Dagestan.

For example, a scientific and educational medical cluster of the North Caucasus Federal District has been created - a territorial, specialized functional association that carries out educational and scientific (research) activities of organizations subordinate to the Ministry of Health of the Russian Federation, is formed for the purpose of interaction between cluster members to solve strategic tasks in the field of public health.

The North-Caucasian cluster was created pursuant to the order of the Ministry of Health of the Russian Federation № 844 dated November 26, 2015. On the organization of work on the formation of scientific and educational medical clusters.

The cluster was formed in order to implement a modern effective corporate system for training qualified health care professionals, create an effective innovative system of continuing professional education, implement innovative projects based on the integration of the scientific, educational and innovative potential of cluster members. [2]

In order to increase the efficiency of activities to create cluster systems in the Republic of Dagestan, the implementation of the following system tasks is necessary:

1. The study of theoretical and scientific methods, principles, mechanisms, approaches to the formation of regional cluster systems.

2. The study of the positive experience of the functioning of regional cluster systems in the subjects of the Russian Federation.

In modern conditions of digitalization, the economy gives powerful impulses to the development of the innovative direction. Today, the formation of economic structures is aimed at increasing their competitiveness through cooperation, specialization and integration, and the development of partnerships.

The current regional systems in Russia with weak intra-systemic and interregional potential of market infrastructure make it difficult to pursue a clear policy of interaction between government bodies and business, and limit the development of the socio-economic space of the federation entities.

On the contrary, in developed countries, a noticeable and steady trend is the formation of clusters, both proactive and regulated by the state.

In Russia, the process of economic clustering, i.e. cluster formation is currently carried out mainly spontaneously, under the influence of market forces. This is a completely natural phenomenon, however, its theoretical, methodological and applied aspects are not fully implemented.

The theory of cluster management, regulation of the process of their creation and functioning has not been properly developed in the economic science and practice of the Russian Federation, and the unadapted application of foreign experience may not provide the necessary effect in the peculiar socio-economic and institutional conditions of the country.

We study the basic principles of the cluster approach methodology. As a rule, in modern studies, the authors note the relevance of using this method, but do not determine the essence of the phenomena underlying the organization of the economic clustering process: “cluster policy”, “cluster initiative”, “cluster technology”, “cluster consulting”. For an effective methodology for managing the clustering processes of the socio-economic space of the regions of the Russian Federation, it is necessary to specify the terminology. [8]

The process of economic clustering is implemented on the basis of the basic principles of cluster theory, which is distinguished by its abstract nature. The governing efforts of the state are always concrete, have a certain focus, solve urgent problems of territorial development, are carried out through a set of clustering tools that are acceptable in a market economy, therefore, on the one hand, a clear identification of the cluster as an object of cluster theory, and on the other hand, as an object of state management.

In modern Russia, the practical application of cluster theory is associated with the names of such scientists as M.K. Bandman, N.N. Kolosovsky, N.I. Larina, I.V. Pilipenko et al. In general, the authors formulate three broad definitions of clusters, each of which emphasizes the main features of its functioning:

— regionally limited forms of economic activity within related sectors, usually tied to one or another scientific institution (research institute, university, etc.);

— vertical production chains; rather narrowly defined sectors in which the adjacent stages of the production process form the core of the cluster (for example, the chain "supplier — manufacturer — marketer — customer"). Networks forming around parent firms fall into the same category;

— sectors of the economy defined at a high level of aggregation (for example, a “chemical cluster”) or aggregates of sectors at an even higher level of aggregation (for example, a “agricultural cluster”).

The center of the cluster is most often several powerful companies, while competitive relations between them remain. This distinguishes a cluster from a cartel or financial group. The concentration of competitors, their customers and suppliers contributes to the growth of effective production specialization. At the same time, the cluster provides work for many small firms and small enterprises. Thus, the cluster is a form of organization of economic relations. It was originally used to increase competitiveness. However, in the adopted course on the modernization of the economy, the construction of an innovative economy, the cluster began to be applied in solving a wider range of tasks, in particular:

— in the analysis of the competitiveness of the state, region, industry;
— as the basis of a nationwide industrial policy;
— in the development of regional development programs;
— as a basis for stimulating innovation;
— as the basis for the interaction of large and small businesses. [8]

T.V. Mirolyubova, based on a review of foreign and Russian concepts and models, classified clusters by to the following criteria: by territorial scope; at the stage of cluster development; by the degree of novelty of the products; by size; by industry affiliation; by differences in the structure of relationships; by degree of innovation; by the role in the system of exchange and use of knowledge; by the presence and degree of development of cluster structure elements; by the level of aggregation of cluster members; by the co-organization of practice-oriented fundamental science, design and development and innovative industry; by the nature of the industry of enterprises participating in the cluster.

The cluster methodology is based on the consideration of the form of economic relations aimed at creating a "modern innovative product" as an integral set of elements in the totality of relations and bonds between them. Therefore, we can talk about the cluster as a complex economic system.

Cluster systems are characterized by common features:

— presence of a leading enterprise that determines the long-term economic, innovative and other strategies of the entire regional economic system;
— territorial localization of the bulk of business entities - participants in the cluster system;
— creation by participants of a non-profit association, voluntary entry into this association and the presence of a coordinating organization and site;
— the sustainability of strategic economic ties within the cluster system, including its regional, interregional, domestic and international ties;
— long-term coordination of the interaction of participants in the cluster system within the framework of its national and intraregional development programs, investment projects, innovative processes;
— the presence of corporate management systems, control of business processes, collective economic monitoring.

Cluster systems are formed on the basis of three principles depending on the structure, size and type of activity:

— common interests of potential participants - the same or interrelated areas of activity, a common market or spheres of activity; agglomeration;
— concentration - an arrangement convenient for regular contacts;
— interaction - interconnections, interdependence with a wide variety of formal and informal relationships. [5]

The Russian Federation is undergoing the stage of adaptation of the concept of "cluster policy" to the Russian specific conditions for the functioning of state power, the economy, science and education, business and society. Cluster policy is a new direction in the development of Russian state regional policy.

The topic of clusters and cluster policy in Russia was first officially identified in the documents of the Government of the Russian Federation in 2005.

In the same year, the Ministry of Economic Development of the Russian Federation published a report stating that "the only way to build up our economic potential is to increase labor productivity and diversify the economy."

In the future, cluster policy issues were reflected in other documents of the Government of the Russian Federation. The draft Concept of the Strategy for Socio-Economic Development of the Regions of the Russian Federation defines the concept of "territorial cluster" - a cluster that combines dynamic and internally competitive networks of closely localized enterprises producing the same or related products, and which together provide good market position for the country, industry and the enterprises themselves.

At the beginning of 2008, the topic of clusters was identified in the Concept of Long-Term Socio-Economic Development of the Russian Federation until 2020. The Concept examined three scenarios of the country's development: inertial, energy-source and innovative. It is noted that the transition to an innovative scenario is possible with the active stimulation of entrepreneurial initiative and the increase of innovative activity in the economy, which, in turn, will require improving the institutional environment and the formation of institutional structures that distinguish the post-industrial economy. Among them is "support for cluster initiatives aimed at achieving effective cooperation between organizations - suppliers of equipment, components, specialized production and services, research and educational organizations within territorial production clusters. [1]

The Concept for Improving Regional Policy in the Russian Federation touches upon the creation of territorial production clusters for the manufacture of high value-added products; recommendations are made on the formation and development of clusters taking into account priority sectors for a particular subject.

A clear drawback of the above Concepts is the lack of a unified methodology for economic clustering: it is not systemic. The current methodological problems of economic clustering are presented in fig. 1.

As can be seen from fig. 1, the process of economic clustering is a set of interconnected strategic and tactical components aimed at building a cluster. In the modern concept of public administration, only the main components of the cluster system are presented; their basic functions and effects expected from their creation are not taken into account. Also, there is no justification of the organizational and economic mechanism by which the subject of government (public authorities

and government of the subject of the Russian Federation) with the help of cluster policy is able to have a productive effect on the processes of formation and development of clusters. In this case, the hierarchical nature of the clusters, their ability to activate interactions with the external environment through feedback is not taken into account.

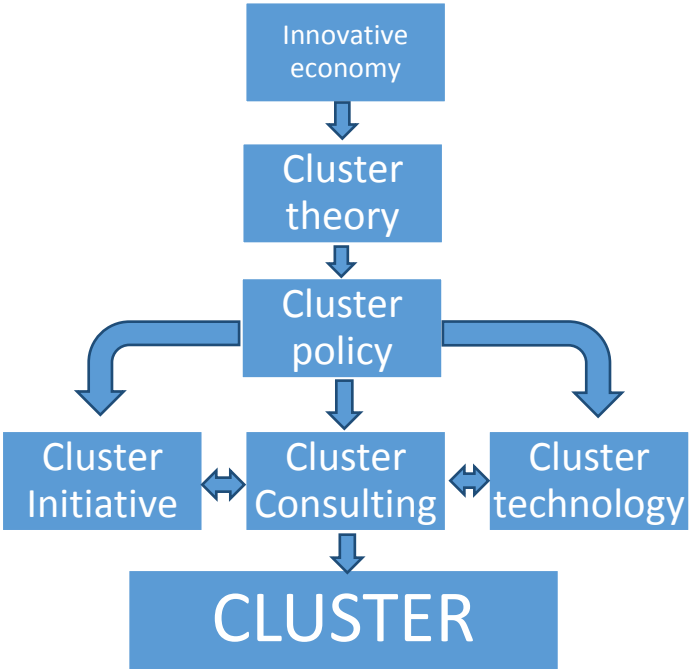

Fig. 1. *Methodological problems of economic clustering*

The results of the methodological analysis suggest that increasing the efficiency of the process of economic clustering in the regions of Russia is associated with the implementation of a number of aspects of a systematic approach:

— inclusion of processes of formation and development of cluster initiatives and cluster technologies in the composition of key objects of strategic management of cluster development;

— focus on achieving many significant effects for the state and participants in the economic clustering process of expectations when planning, organizing support and monitoring the results;

— taking into account the multifunctional role of the state, which it implements in the processes of creating, functioning and developing economic clusters through cluster consulting;

— achieving a high level of diversity of forms and tools, i.e. cluster technologies through which public authorities and management provide a managerial impact on the process of economic clustering;

— ensuring a wide scope of use of the mechanism of public-private partnership for the development of clustering processes of the socio-economic space of the region;

— ensuring the unity of the different stages of the economic clustering process in the development and implementation of clusters.

Thus, based on the fact that clusters are structures that are independently formed due to the spatial manifestation of market forces, then, accordingly, public authorities should create conditions for their accelerated and successful development, and not try to develop clusters from scratch. For this, it is initially necessary to create an effective methodology for economic clustering.

A study of the organizational and economic mechanism for the formation of cluster systems in the above regions of Russia in order to adapt their practices in the economy of the Republic of Dagestan and in the subjects of the North Caucasus Federal District.

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区域集群：外国惯例，形成和发展政策

REGIONAL CLUSTERS: FOREIGN PRACTICES, POLICY OF FORMATION AND DEVELOPMENT

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抽象。 本文考察了集群系统形成的国外实践。 在执行“到2025年之前的社会经济发展战略”的背景下，对达吉斯坦共和国的状况进行了监测。已经制定了该地区集群政策的概念性方向。

关键字：集群，集群政策，系统，经济学，概念，战略，监控，实践。

Abstract. *The article examines the foreign practices of the formation of cluster systems. The state of the Republic of Dagestan was monitored in the context of the implementation of the "Strategy for Socio-Economic Development for the Period until 2025." A conceptual direction of cluster policy in the region has been developed.*

Keywords: *Clusters, cluster policy, system, economics, concept, strategy, monitoring, practices.*

In order to increase the efficiency of activities to create cluster systems in the Republic of Dagestan, the implementation of the following system tasks is necessary:

1. Study of positive practices of the functioning of regional cluster systems abroad.

2. Identification of potential opportunities of territorial production clusters in order to implement the "Strategy for the socio-economic development of the Republic of Dagestan for the period up to 2025" and priority projects of the Republic of Dagestan.

3. Elaboration of conceptual directions for the development of the economic and social spheres of the Republic of Dagestan based on the creation of territorial production clusters.

4. Identification of priorities, determination of specific strategic directions of

the state cluster policy for state, municipal bodies and interested economic entities.

5. Formation of a systematic package of organizational, methodological and regulatory documents for the Government of the Republic of Dagestan on the creation of cluster systems in the republic. [9]

In the research process, the following methodological principles were used:

- The principle of a systematic approach to the study of the economic development of the region;
- The principle of the diversity of research forms and integrated assessments;
- The principle of regional specificity;
- The principle of information security research;
- The principle of practical feasibility of research and modeling results.

The methods of economic, functional, structural and statistical analysis, organizational modeling, expert evaluations, planning and programming are applied.

A methodology will also be used to conduct comprehensive socio-economic monitoring of the region, taking into account its features, in order to create cluster systems in the region.

The concept of "cluster" is one of the elements of the competition strategy proposed by M. Porter, professor at Businea School, Department of Business Administration; leading specialist in the field of competitive strategy and competition in international markets. Michael Porter defined the cluster as a group of geographically neighboring interconnected companies (suppliers, manufacturers, etc.) and related organizations (educational institutions, government bodies, infrastructure companies) that operate in a certain area (market niche) and complement each other. [5]

In developed countries, cluster theory began to be applied in practice in the early 1990s thanks to the works of M. Porter, M. Enright, J. Dunning, and R. Martin.

Today, cluster policy is an important stage in the development of regional policy in advanced countries, from 50 to 70% of production is made in clusters.

In foreign practice, cluster policy has historically been divided into two periods: the first and second generations. The first generation cluster policy is a set of measures undertaken by the state to identify the cluster, determine the field of activity of the cluster-forming firms, create state support bodies and implement a common policy of stimulating all clusters in the country. In this period, the leading role in research is played by economic geographers and regional economists, who, using spatial modeling tools, should identify clusters and determine their composition. The first stage of cluster policy is characteristic, mainly, for states with a high degree of development of traditional industries - Spain, Portugal, Greece, the Netherlands and Italy.

The second generation cluster policy, which is based on good knowledge of

the existing clusters in the country, implies an individual approach to the development problems of each cluster individually, as the state can act as a manager, customer, initiator of the production process, broker, bringing the producer and consumer within the cluster, and a source of funding for firms operating in the cluster. The second generation cluster policy prevails in countries with a high standard of living (in Switzerland, Sweden, the UK, Finland, Austria, the USA), where all sectors of the economy are "clustered" - traditional industry, new technology and services.

Depending on the goals set and the culture of entrepreneurship, the state can perform various functions when conducting cluster policy. In this regard, two models of the cluster policy of developed countries are distinguished - "continental" and "Anglo-Saxon".

The "continental" cluster development policy is implemented in a number of European countries - Sweden, France, Norway, etc., where an active state (federal) cluster development policy plays a special role. It includes a set of measures - from selecting priority clusters and financing projects to develop strategies and programs for their development to targeted creation of key success factors for their activities (for example, the creation of infrastructure, centers of excellence in research and development).

The main principle of the second - the "Anglo-Saxon" – model, used in the United States and Great Britain, is that the cluster is regarded as a market organism, and the role of federal authorities is to remove barriers to its natural development. The peculiarities of cluster policy in these countries include the fact that the main players are regional authorities and regional organizations, which together with key participants in the clusters develop and implement programs for their development. Federal authorities in some cases financed and supported pilot projects.

M. Enright, student and follower of M. Porter, suggested considering four mechanisms for conducting cluster policy:

1) catalytic cluster policy - the government brings together stakeholders (for example, private companies and research firms) and provides them with limited financial support;

2) supporting - the catalytic policy of the state is supplemented by significant investments in the infrastructure of the regions (in education, vocational training, marketing, etc.), creating an enabling environment for the development of clusters;

3) directive - the supporting function of the state is supplemented by special programs aimed at transforming the specialization of the region through the development of clusters;

4) interventionist - the government, along with the fulfillment of its legislative

function, assumes responsibility from the private sector for making decisions on the further development of clusters and, through transfers, subsidies, administrative restrictions or incentives, as well as active control over firms in the cluster, forms its specialization. [7]

In connection with the implementation of cluster policy and cluster initiatives, another element of the cluster system becomes relevant - cluster consulting, which means providing services for projects for the allocation of a certain type of cluster in the region, as well as teaching the theoretical foundations of managing cluster initiatives - cluster management.

In modern conditions, monitoring is of great importance in the study of the socio-economic development of the region. Monitoring allows at each stage of development of systems (environmental, social, economic) to study not only positive, but also negative trends, factors of external influence, which allow not only to identify and classify insufficiently. In this case, the object of monitoring is the socio-economic system of the Republic of Dagestan, its individual sectors, sectors, complexes, forms of entrepreneurial activity, types of business, municipalities. [10]

The modern regional economy uses a variety of analytical tools, both general scientific and special, which is divided into blocks such as methods of regional economic analysis and mathematical models of the regional economy. The information base for regional analysis is statistical indicators and their systems, the construction of balances and composite indicators of socio-economic development. Analysis of various aspects of the region's economy is carried out in order to determine an objective diagnosis, on the basis of which the strategy and tactics of regional analysis should be built. For this, it is necessary to consider the macroeconomic characteristics of the region such as Gross Regional Product and its main components, population incomes, national wealth, concentrated in the region. Next, it is necessary to analyze the sectoral structure of the region based on indicators of output and employment. [8]

Comprehensive monitoring of the state of the economy of the republic, the prospects for the development of the republic are a statistical and analytical basis for designing the creation of clusters, for researching trends, identifying development priorities in the framework of the implementation of the "Strategy for the socio-economic development of the Republic of Dagestan for the period until 2025."

"The concept of cluster policy of the Republic of Dagestan", includes:

1. Used definitions;

2. Types of clusters, taking into account the industry specifics indicated in the "Strategy for the socio-economic development of the North-Caucasian Federal District and the Republic of Dagestan for the period until 2025";

3. The goals and objectives of cluster policy;

4. Problems of cluster development;

The main directions of promoting cluster development:

- assistance to organizational development of clusters;
- assistance in the implementation of projects aimed at improving the competitiveness of cluster members;
- ensuring the formation of favorable conditions for the development of clusters;
- creation of industrial parks and technology parks as an infrastructure for the development of clusters;
- reduction of administrative barriers;
- implementation of tax regulation measures for cluster members

6. System of measures for the implementation of the Concept:

- development of mechanisms for financial support of cluster policy at the federal, regional and municipal levels;
- Providing methodological information and consulting, educational support for the implementation of cluster policy.

7. Mechanisms for the implementation of the Concept

8. Measures aimed at preventing the risks of inefficient implementation of the Concept.

9. The main results of the implementation of cluster policy. [8]

Cluster policy provides for the adoption of strategies and programs for the development of individual clusters - the so-called "Cluster initiatives", as well as the formation of an instrumental base for their implementation - the so-called "Cluster technology."

Cluster initiatives are both separate and joint organized efforts of cluster firms, government, educational and research organizations aimed at increasing the growth and competitiveness of a particular cluster in a particular territory. If cluster policy is a system of government measures and cluster support mechanisms that ensure the competitiveness of the regions and enterprises included in the cluster, as well as the introduction of innovations, the cluster initiative is the activity of organizing specific clusters in a particular territory.

Cluster policy is seen as an alternative to the traditional “industry policy”, within the framework of which specific enterprises and industries are supported. The main distinguishing parameters of the cluster approach in comparison with traditional industry are:

- territory development strategy;
- the relationship between government and business;
- production and technology;
- competition;

- spatial development;
- criteria for economic efficiency;
- labor market;
- institutional environment;
- type of dominant communications between enterprises. [7]

Implementation of cluster development strategies carried out at the regional and municipal levels will make it possible to effectively and adequately take into account cluster development priorities in the implementation of socio-economic development strategies and programs, including transport and engineering infrastructure development projects, housing construction, as well as small and medium support areas entrepreneurship, innovation, technological and educational policies, policies for attracting investment and export development and trasley economy.

Along with the "Concept of cluster development of the Republic of Dagestan", the Government of the Republic of Dagestan needs to develop a package of organizational and methodological documents on the implementation of the state cluster policy.

1. Regulation on the Cluster Development Center of the Republic of Dagestan
2. Regulation on the Coordination Council under the Government of the Republic of Dagestan of the Center for Cluster Development of the Republic of Dagestan
3. Regulation on the Administrative Group of the Center for Cluster Development of the Republic of Dagestan
4. Methodological materials for developing a program for the development of a territorial innovation cluster.

The creation of these structural units under the Government of the Republic of Dagestan will allow for the systematic implementation of the "Concept of cluster development of the RD", state cluster policy, and the development of the Strategy and Programs for the formation of clusters in the Republic of Dagestan.

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按结果分类管理模型
CLASSIFICATION OF RESULTS-BASED MANAGEMENT MODELS

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抽象。 本文提出了基于管理成果概念的理论和实践研究。 强调了这一概念的主要问题和方法，分析了实施基于结果的管理系统的国家和组织的活动，考虑了基于结果的管理概念的实施收益，对基于结果的管理概念进行了分类。 建立了基于结果的管理模型，开发了公司和公共管理系统中的组织方法。

关键字：基于结果的管理，公共管理，公务员，动机，模型分类，方法，公司治理。

Abstract. *The article presents theoretical and practical research of the concept of management results-based. The main issues and approaches of this concept are highlighted, the activity of the state and the organization in which the results-based management system is implemented is analyzed, the benefits of the implementation of the results-based management concept are considered, the classification of results-based management models, the methods of organizations in the system of corporate and public administration are developed.*

Keywords: *results-based management, public administration, civil servants, motivation, classification of models, methods, corporate governance.*

In modern conditions of globalization, a process of continuous improvement of existing systems, methodologies and technologies for the development of an object, including a state, municipal and commercial organization, is carried out. They require this approach in connection with the growing volume of operations, information and competition. These factors make it necessary to manage change and find optimal solutions.

As you know, for the first time, the famous theoretician and practitioner Frederick Taylor, the founder of the school of scientific management, drew attention to

this. However, Taylor himself called his system "management by tasks", and the concept of "scientific management" was introduced much later. In his scientific activity [1], [2] he investigated various approaches that could lead an enterprise to increase productivity and efficient use of labor. The prevailing opinion at that time that the well-being of an entrepreneur was inversely related to the well-being of his employees was refuted by him. He believed that the interests of the first side and the interests of the second side overlap, and the task of management is to properly balance the activities of both of them, which will unquestionably lead to the same satisfaction of the needs of both of them. It is such an organization of activities that can rightfully be considered successful.

Taylor has repeatedly practiced his theoretical concepts at various enterprises. Despite the fact that his activities were criticized by both the workers and the owners, his projects were always successful and always led to an increase in labor productivity. What was the essence of his activity? Taylor drew attention to the fact that many employees sometimes inefficiently use working hours and do not reveal their full potential. This is due to the demotivation of employees, since there were no specific requirements for the volume of production of the worker, which he must reproduce for a specified period of time. He called it "work with a breeze". Salary did not depend on whether the employee worked well or did it poorly. For example, he studied the behavior of workers at the Bethlehem plant who were throwing heavy masses of ore and light coal with shovels. First, he independently designed different types of shovels for each material. Then he calculated the weight of the load most convenient for lifting the shovel and, based on a thousand measurements, calculated with the help of a stopwatch the time necessary for the worker to load the shovel into the heap and pull it out again, as it should be filled. After these studies, he was able to assign people a daily rate of production and prescribe them the best method of work.

As a result, the workload of workers on the second day decreased and labor productivity increased almost four times. Another important result was a halving of the factory's processing costs. This, of course, has benefited both parties. The specifics of these operations clearly reflect the main principles of management based on the results:

1. Event planning;
2. Periodic monitoring of activities;
3. Motivation of employees;

Taylor's ideas were widely used at the beginning of the XX century, and they can be considered a prerequisite for the development of the concept of management based on the results in the works of Peter Drucker [3] in the middle of the XX century.

The success of any organization with any form of ownership and any specific activity throughout all ages has remained and remains the center of attention of managers. And today, the concept of results-based management is gaining popularity among managers wishing to help the company.

In this article, the principles of a systematic approach to the study of the economic development of enterprises and the principles of practical realism of the results of research and modeling were applied, research was conducted on the basis of methods of economic, functional and structural analysis, and expert assessments.

Results-based management is an aggregate system of management, thinking and development, with the help of which the goals defined and agreed by all members of the organization are achieved [4].

In connection with the development of the results-based management system, various models of this concept have appeared. Of course, there is no single algorithm of actions for any organization within which a results-based management system is being introduced. The company always has a number of features that, in general, determine the nature of the organization's development. They give it exactly the structural and functional set of characteristics against which the goals of this concept are realized.

The results-based management system can be classified according to various criteria. Consider the division of this type of control according to the characteristic of the degree of importance:

- strategic. It includes a set of managerial decisions and actions aimed at achieving a global goal and implementing the organization’s mission. A hierarchical structured goal system appears in the organization. First of all, priority is always given to key goals (no more than 3-5). To achieve these very key goals, the strategic approach defines sub-goals or goals of the second order. Achieving subgoals contributes to the organization's key goal. In compiling the correct program-target concept lies the key to successful strategic results-based management. It also carries out the correct coordination of all goals and individual elements, in accordance with such a concept, each subgoal contains a division into separate tasks. A classic example is the organization’s goal tree, which graphically illustrates the process of breaking down goals into subgoals and their tasks.

- tactical. The most common problem among leaders is the inability to distinguish between tactical management and strategic. The difference, first of all, is that tactical management of results denotes a form of interaction and a way of working communication within the organization, which is aimed at achieving a long-term strategic goal. It is important to observe the principle of tactical management of results in the organization, because otherwise the everyday work of the organization, mainly collective labor, will turn into ineffective, fragmented actions that are not aimed at achieving the key goals of the company.

- operational. Operational results-based management is a solution to daily, current tasks. The main components of this management are operational planning, accounting and control. Operational planning seeks to draw up a plan that focuses on specific results, and also includes the development of criteria for evaluating the effectiveness of actions taken as part of the operational plan. Accounting involves the distribution of functional responsibilities in relation to the degree of responsibility of both performers and managers to achieve a specific result. And control organizes daily work with performers and verification of official performance of tasks. In this concept, the goal is the formation of smooth operation and coordination of the work of the head with all other divisions of the enterprise.

The next characteristic of the classification of results-based management models is the environment. In accordance with it there is:

- internal results-based management. Internal results-based management solves problems associated with the internal characteristics and subjects of the organization. These include the structure, strategy, goals, functions and tasks of the organization. It is worth paying particular attention to the fact that all internal variables of an enterprise are interconnected, and the restructuring or complete change of one affects almost all the others.

- external results-based management. The set of external actors and factors that to a large extent affect the effectiveness of the organization's activities is called the external environment, and the management of these parameters within the framework of the concept being studied is the external management of the results. This happens as follows: as soon as there is any change in the external environment that discredits a certain intraorganizational process, and there is indicative data about this change, the management staff, without wasting time, finds the optimal solution to this problem that does not go beyond the given strategy. Summarizing, we can say that the organization adapts to new environmental conditions without violating the main target areas.

By its content, results-based management is divided into:

- economic. The main economic results of the organization's business are gross income, the value of the property complex, and the volume of output and sales. Each indicator requires special attention on the part of managers and directly depends on the effectiveness of using economic management methods that have an indirect effect, in other words, the choice of certain levers and means based on the analysis.

- organizational. The main task of organizational management according to the results is to ensure the effective and optimal functioning of the structural units of the organization. Appropriate actions are implemented on the basis of managerial decisions and the analytical work carried out by the leaders. These actions can take the form of meetings and conferences, in the form of regulatory and administrative documentation or interaction with employees.

- technical. Objects created by man and aimed at meeting his needs (apparatus, devices, structures, machines, etc.) in the organization constitute the technical structure. Unlike personnel, technical systems cannot exist independently, but have the potential to reproduce a certain beneficial effect. In order for a technical system to start functioning in a given way and create the same useful effect, an external control action is required. Regulate this system, directing its potential to achieve precisely the goals set, is also the prerogative of management. This happens by regulating the volume and quality of production, setting deadlines, requirements, developing new production models, and innovations. The listed operations are also based on the analysis, in particular, of the external environment. But the internal environment can also become an object of attention for managers relying on technical management of results. Their activities can be directed, for example, to the emergence of new ergonomic equipment, improving working conditions in the field, increasing the intensity of the split system on hot days. Such actions have a direct impact on labor productivity, which, in turn, is one of the results of the organization work.

- social. The human resources of an organization are an important potential of an organization. The realization of its capabilities has a positive effect on performance indicators. Management operations synthesizing knowledge in the field of sociology, economics, management, psychology and other sciences are always aimed at finding approaches to organizing a social structure in such a way as to get the most out of it. Basically, this is the task of a leader who is able to unite a team, organize an interconnected process, stimulate an increase in labor productivity through skillful motivation, the distribution of clear job descriptions and the corresponding powers and resources, leveling the possibility of destructive conflicts at all organizational levels [5]. This will create ideal conditions in the team for the full or partial implementation of the special and creative abilities of each employee. Such an environment allows for feedback from management to staff.

Today, many countries, in order to increase the interest of civil servants in the implementation of socially significant goals and objectives, increase their motivation for the high-quality fulfillment of their duties, create a transparent public administration system and maximize the leveling of time costs for the implementation of management decisions, are moving to the concept of management based on results in the public sector. This concept has worked well in the private sector. The high return of a commercial organization from such activities has interested government administration bodies.

One of these countries is New Zealand, which is characterized by a fairly rapid pace of reform in the field of public service and uses special systems for evaluating the performance of civil servants. [6]

The main step on the path to reform was the fact that each ministry, department and agency received the rights of an independent employer. In other words, these authorities acquired a certain share of the decentralization of their activities. The emerging budgeting system based on the results of replacing resource control is important. Departments now have the opportunity to hire civil servants on a competitive basis consistent with general labor legislation.

Such reforms aimed to increase flexibility and mobility in relations between the public and private sectors, in particular, in the labor market, as well as to increase the efficiency of public service. Another fact was that now special attention is paid precisely to the results of activities, and not to the process of their achievement.

At the moment, New Zealand has abandoned a standardized performance evaluation system and a unified system of remuneration in the activities of public servants. The idea is that each department develops its own systems for evaluating and remunerating employees, of course, within a certain framework, and centralized supervision is not carried out for these activities of departments. The control share operates within the framework of general financial accountability and is carried out by the head of the department. He also checks the conformity of the size of budgeting of wages with the results of activities.

What are the outcomes of implementing results-basedmanagement in New Zealand's public sector? These are, first of all:

- the emergence of a close relationship between the performance of public servants and the level of remuneration;
- an increase in the efficiency of government bodies through the introduction of effective principles;
- the emergence of the possibility of retaining highly qualified employees in the public service through additional stimulus and labor incentives;
- an increase in cases of overfulfillment of performance indicators and the provision of lump-sum incentive payments to employees who completed it.

Malaysia's experience in public administration also intersects with the concept of results-based management. [7] So in 2009, a special institution was created in this country - PEMANDU (Performance Management and Delivery Unit), in fact it is an agency engaged in performance management, based on the 8-level methodology PEMANDU BFR (Big Fast Results) and six secrets of transformation. It allows government agencies to formulate clear strategic goals and develop implementation programs with a quantitative assessment of results. PEMANDU has in its arsenal a system of key indicators, ball ratings and an extensive reporting system. Often, relevant operations are conducted with the involvement of external experts. However, this organization is not involved in the regulation of all state management activities in the country, but is aimed at implementing individual state projects. This program has brought Malaysia to the forefront.

In Malaysia, special bodies have been created that are responsible for evaluating effectiveness; they help to develop an accountability system. The activities of governing bodies for the implementation of significant projects are evaluated on a six-point scale from "unsatisfactory" to "excellent" and help in absolute terms to compare the activities of various government bodies.

Interesting is the experience of evaluating the effectiveness of public administration by the methodology of efficiency networks in Norway. [8] This methodology is aimed at assessing the effectiveness of the activities of municipalities. It includes three main components:

1. Assessment of the performance of municipalities.
2. Comparison of results.
3. Network Formation.

A network is an organized structure that is formed to solve problems in a particular area, for example, social security or primary education. At meetings of working groups, the effectiveness of different municipalities is compared with the national average, it examines how satisfied the population is with the services provided, and also discusses the causes of certain problems and ways to solve them. It is interesting that performance evaluation is carried out based not only on expert analysis, but also on opinion polls or official statistical data.

As a result of such procedures, the provision of public services by municipalities in Norway is improved.

Thus, we can confidently say that the concept of results-based management, which had its origins in the school of scientific management and developed in the middle of the last century, is actively implemented in organizations of various types of management and every time, when applied correctly, a positive synergistic effect is achieved. Today it occupies a leading position in the control system and has a fairly extensive scope.

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经济现代化问题：区域方面
ISSUES OF ECONOMIC MODERNIZATION: REGIONAL ASPECT

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抽象。 本文考虑了区域经济的现代化，其相互联系以及确保国家整体竞争力的问题。 研究了区域经济现代化的主要方向和指标。

关键词：现代化，区域，竞争力，战略，投资吸引力，投资环境，投资过程，经济增长。

Abstract. *The article considers the problems of modernization of the regional economy, its interconnection and ensuring the competitiveness of the country as a whole. The key directions and indicators of modernization of the regional economy are investigated.*

Keywords: *modernization, region, competitiveness, strategy, investment attractiveness, investment climate, investment processes, economic growth.*

Recently, in connection with the increasing differentiation of the socio-economic development of Russian regions, more and more attention is paid to the analysis of factors of modernization of the regional economies. At the same time, it is emphasized that in order to overcome the crisis and create new growth points, primarily in the regions of the country, it is necessary to maximize the expansion of domestic demand, the consistent improvement of the investment climate, the reduction of barriers to direct investment, and the entry of small and medium-sized businesses into the market.

Achieving higher competitiveness seems to be a strategic task, the solution of which would make it possible to increase the rating of the national economy of Russia in terms of the welfare of the population, thereby providing it with leading positions in the world. The need to study the theoretical and practical aspects of the strategic competitiveness of the regions and the country is due to the need to form the organizational and legal indicators of the parametric characteristics of the economic potential, create conditions for socio-economic well-being.

The concept of "region" in its most general form is formulated as a subject of the federation, which differs from other territories in a number of ways and has some integrity, interconnectedness of its constituent elements.

Each region has its own internal space and relations with external space. The most important characteristics of space are: density (population, gross regional product, natural resources, fixed assets, etc. per unit area); accommodation (indicators of uniformity, differentiation, concentration, distribution of the population and economic activity); connectedness (the intensity of economic relations between parts and elements of space, the conditions for the mobility of goods, services, capital and people, determined by the development of communication networks) [1].

Thus, the economic development of the regions can be represented as:

- complex process of changes in its economic, social, spatial, political, environmental and spiritual spheres, leading to their qualitative transformations and, ultimately;
- changes in human living conditions;
- objective process that occurs both in the region itself and in the country as a whole, under the influence of historical, geographical, resource, demographic and other factors;
- subjective process that occurs under the influence of managerial measures, primarily from the regional administration, as well as the administration of the federal level.

The process of managing the region is correctly considered as a combination of the following three levels of decision-making:

The strategic level involves the identification of problem areas in various spheres of the region's life, analysis and forecast of long-term trends in its socio-economic development; analysis and forecast of socio-political trends and the creation of a system of balancing various manifestations of political activity. At this level, methods for solving problems are generated, conceptual approaches are developed, models and scenarios for the development of the region are optimized.

At the operational level, monitoring and analysis of the current state of the elements of the socio-economic and socio-political spheres of the region is carried out, plans for the implementation of concepts, models and scenarios for the development of the region are formed, operational control and adjustment of the implementation of plans and projects is carried out.

Emergency management (level) involves both forecasting and preventing extreme situations, creating scenarios for their occurrence and development, continuous monitoring of the characteristics and indicators of potentially dangerous natural, technogenic, socio-political factors and providing organizational and technical issues for the management in extreme conditions [1].

Sustainable development - the socio-economic development of society, ensuring the satisfaction of the material and spiritual needs of the present and future generations of people in the conditions of environmental regulation of economic and other activities.

The general direction of ensuring sustainable development is the socio-ecological and economic optimization of the life of society. Economic growth is necessary to solve social problems, but an expanding economy leads to increased anthropogenic pressure on the environment. Therefore, it is necessary to find a balance of economic, environmental and social interests at all levels of the global socioecosystem: international, national, regional and local [2].

The system-providing environment necessary for solving the strategic tasks set includes scientific and technological, regulatory, political, financial-resource and information support.

For the effective development of the region and the implementation of an economic breakthrough, which will become a condition for improving the standard of living in the country, new, more effective methods of strategic management of the regional economy and regional development as a whole must be found. Such methods should be based on the timely receipt of adequate information on the implementation of the regional mission and the implementation of regional strategic goals, in accordance with the development of the whole country.

In the Russian regions, the possibility of their competitive development depends on the establishment of a balanced development system and bringing a qualitatively new level of economic regulation. The creation of such a system is in its infancy. In the establishment of a balanced regional development system, the key role should be played by state methods of regulating market relations. In recent years, the efforts of state authorities and regional administrations allowed us to achieve some improvement in the balanced use of regional resources and direct development in a number of regions to increase regional competitiveness.

The criteria and factors for the formation of a competitive economy are closely interconnected and have a direct impact on the sustainable development of the regional economy. The process of studying the economic prerequisites for the formation of a competitive economy has led to the emergence of various theoretical concepts regarding the presence and composition of criteria and factors of competitiveness. Moreover, in some studies, economic phenomena can be recognized as factors, and in others, as criteria for the formation of economic competitiveness.

The criterion of competitiveness of a region's economy is a qualitative and quantitative characteristic of a region that serves as a basis for assessing its competitiveness. In other words, the criterion of competitiveness of a region's economy is a sign on the basis of which an assessment, determination or classification of regional competitiveness is made.

Currently, there is a shift in emphasis in modern regional economic science from the "comparative advantage" of a particular location on which the traditional regional economy was based to a "competitive advantage". Here the emphasis is placed on the fact that both business and the population are becoming more and more free in choosing their place and residence in connection with the modern processes of globalization and informatization. Therefore, the role of factors inherent in a particular location (natural resources, geographical location) decreases, and the role of factors that can be created in the region itself increases.

The formation of a system of strategic management of the region's development, which allows achieving the above goals, has a number of problems objectively justified by both the historical course of development of the regional economy and the consequences of the transition to market conditions.

Firstly, an evaluation system is needed that would adequately reflect economic and social processes both in the current situation and in the future. The evaluation system should be built on the basis of indicators that allow the formation of regional budgets based on achievable results. The use of such a system allows monitoring and diagnosis of economic and social development.

Secondly, the active introduction of modern information technologies and technical equipment of the process of obtaining information is necessary.

Thirdly, indicators in the system should reflect the implementation of strategic goals and objectives.

Fourth, indicators should contain not only financial, but non-financial information and describe the performance of not only the regional administration, but also the subjects of the regional economy.

In modern conditions, the development of territorial economic systems depends on the full use of their economic potential.

In order to obtain a comprehensive assessment of the potential of the territory, it is necessary to study not the economic, but rather the socio-economic potential. The study of all components of the economic potential of the region requires consideration and registration of the social aspect, characterized by the relations between people in the process of its creation, development and effective use. Therefore, the territorial socio-economic potential determines the capabilities of the region when using the entire complex of its resources, the characteristics of the existing and future structure of the economy, and geographical location in the interest of improving the quality of life of the population.

One of the most important approaches to regulating the region's economic development and achieving its high level is to ensure the investment attractiveness of the territory. Its value directly depends on the volume of potential opportunities, the degree of their use, as well as the speed of receiving returns, subject to investment.

An important point in implementing the policy of stimulating investment attractiveness in order to ensure regulation of the development of the region and achieve sustainable growth of the regional economic system is to assess the level of investment attractiveness of the territory.

A comprehensive assessment of the investment attractiveness of the regions is based on the determination and analysis of the relationship of investment-relevant indicators to determine the integral level of investment attractiveness.

The most common concept characterizing the investment processes in the region is its investment climate. The investment climate of the region of the Russian Federation is a combination of various socio-economic, natural, environmental, political and other conditions that have developed over the years that determine the scale (volume and pace) of attracting investment in fixed assets of this region of the Russian Federation. The investment climate consists of two components of the region's investment attractiveness and investment activity in it [4]

Based on the foregoing, we can conclude that the problem of modernization of the economy of the region is one of the strategic tasks of the development of the region, the country as a whole.

Applying appropriate approaches to the modernization of the region's economy, we will subsequently obtain a high level of its competitiveness, and hence the competitiveness of the country as a whole, which will provide: a rich natural resource base; high level of highly qualified, scientific and managerial personnel; modern material and technical base; developed financial, information and marketing systems, a powerful export-oriented sector.

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组织中的冲突管理技术
CONFLICT MANAGEMENT TECHNOLOGIES IN ORGANIZATIONS

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抽象。 本文分析了管理活动中冲突的原因，确定了组织中冲突的显着特征，确定了每位领导者具有冲突管理能力的需求，并确定了使用冲突解决技术时组织中管理人员犯的典型错误。 公开了组织中冲突管理技术的内容。
关键字：冲突，管理，技术，动力，谈判，调解，共识，妥协，解决，升级。

Abstract. *The article analyzes the causes of conflicts in management activities, identifies the distinguishing features of conflicts in organizations, identifies the need for each leader to have conflict management competency, and identifies typical mistakes made by managers in organizations when using conflict resolution technologies. The content of the technologies of conflict management in organizations is disclosed.*
Keywords: *Conflict, management, technology, dynamics, negotiations, mediation, consensus, compromise, resolution, escalation.*

According to many scientists, conflicts can bring a positive effect, however, for such an effect it is necessary to properly manage them, i.e. to act purposefully, eliminating or minimizing the causes of the conflict and adjust the behavior of the parties to the conflict [16].

At the present stage, the conflict is understood as a boon, as it represents:
- assistance in identifying problems and different points of view on them;
- increasing the efficiency of activities;
- rallying the team against external pressure,

and as evil, since the conflict:

- leads to stress;
- worsens the social - psychological climate;
- distracts attention from the performance of official duties.

The duality of the consideration of the conflict broadens and deepens the problem of handling it [7].

Thus, conflicts are divided into destructive and constructive. At the same time, the goal of conflict management in an organization is to prevent destructive conflicts and successfully resolve constructive conflict situations.

Conflict management refers to the targeted impact on the conflict process, providing solutions to socially significant problems, which includes forecasting conflicts, preventing some and stimulating others, ending and suppressing conflicts, solving and resolving them [5].

The main condition for conflict management is the ability to organize your own behavior, to express your own point of view, without causing a defensive reaction in others [16].

Conflict partners are initially equal and have equal rights when dealing with a conflict [6].

Often, the occurrence of a conflict between the parties is perceived by them as a negative impact, and therefore the protective mechanisms of the psyche are triggered. One of the universal reactions to conflict is the desire to resolve it. However, it should be noted that not always permission implies its full completion. More often this is presented as a temporary end to the conflict, in which the conflict becomes latent.

According to R.L. Krichevsky and A.A. Urbanovich there are three groups of reasons that cause conflict in management activities:

1. The reasons generated by the process of activity:

- technological interdependence, when the actions of one subject adversely affect the actions of another;
- the transfer of problems solved vertically to the horizontal level of relations;
- violation of contractual obligations in the "head-subordinate" system;
- Inconsistency of a person's actions with the norms and values adopted in this team.

2. The reasons generated by the personal identity of the members of the team (characterological personality traits):

- inability to control oneself;
- low level of self-esteem;
- high anxiety and / or aggressiveness;
- low sociability;
- very high integrity in combination with dogmatism.

3. The reasons generated by the psychological characteristics of human relations:

- mutual sympathies and (or) antipathies;
- poor psychological communication;
- unfavorable psychological atmosphere in the team;
- violation of the principle of territoriality of a person, his empirical zone [10].

Today, the development of effective technologies for the prevention and resolution of conflicts is one of the urgent tasks facing society.

There are two fundamental conflict management strategies. Firstly, their prevention (or prophylaxis). Secondly, the management of conflict interaction in the event of its occurrence, as well as the use of the results of collisions (including those designed - both constructive and destructive).

The conflict prevention strategy comes down mainly to organizational and explanatory activities: improving working conditions, more equitable distribution of resources and remuneration, changing the structure of the organization, its management methods, monitoring compliance with internal life rules, traditions, standards of conduct, and work ethics [17].

The techniques used to prevent conflict, stress, and tension in a team or organization include the following:

- attentive listening;
- the desire to establish and maintain contact with subordinates when issuing a task, receiving feedback, discussing interpersonal relationships (including eccentric);
- respectful attitude, friendliness, tolerance, self-control; distraction or switching attention in case of increased emotionality; reduction of social distance;
- informing about ones condition caused by the message of the interlocutor, understanding of ones health;
- appeal to facts, verification by reality;
- Seeking advice, a promise of help [15].

Of all the ways to overcome the confrontation between the parties, negotiations are the most effective.

Negotiations are a joint discussion by the conflicting parties with the possible involvement of a mediator of controversial issues in order to reach agreement. Negotiations are a kind of continuation of the conflict and at the same time serve as a means to overcome it [7].

The negotiation process can begin if the parties, firstly, in addition to conflicting interests, have significant common interests, secondly, they consider it possible to reach a certain understanding or agreement, which is more beneficial for them than other alternatives, and thirdly, they enter into discussion in search of a mutually satisfactory solution. The negotiations should take into account the wid-

est possible range of opinions. Taking into account the fact that many completely different participants can be involved in the negotiations, we note that the result of reaching agreement may be insignificant. At the same time, with an increase in the number of negotiators, the chances of forming a stable coalition increase. In addition to the conflicting parties, arbitrators and mediators may participate in the negotiation process. At the same time, arbitration and simple mediation differ in the degree of regulation of the negotiation procedure: in arbitration it is more streamlined, although it does not require compliance with judicial rules. The mediator also does not impose any decision on the parties, but only contributes to the course of negotiations between them [9].

Along with the traditional and modernized approach to conflict prevention and resolution, new technologies, for example, mediation aimed at resolving conflicts, are increasingly asserting themselves. Mediation is one of the forms of third-party intervention in order to seek agreement by the parties to the conflict. Mediation is a negotiation process involving a mediator that helps those in conflict to resolve the conflict. Mediation is a voluntary process that is controlled by the parties themselves. The mediator makes no decisions; parties make all decisions on their own, this is the main difference from methods such as court or arbitration.

Mediation is perhaps the most universal and least violent form of conflict resolution, but its effectiveness is largely determined by the skills and independence of the mediator [12].

In the study of literature, the following social technologies for managing conflict interaction in an organization were identified: information, communication, socio-psychological, administrative [1].

Conflict management information technologies create conditions for complete information of the warring parties to the conflict; exclude distortion of information, the use of rivals rumors.

Communicative conflict management technologies are designed to establish direct communication between conflicting parties and their supporters; direct communication in a constructive direction; create conditions for communication in which the rivals, without interrupting each other, listen to the other side.

Socio-psychological conflict management technologies are aimed at connecting authoritative leaders to conflict resolution; the exclusion of the posting of the conflict so as not to create tension that could affect the working capacity of the team and worsen the psychological climate; conducting conversations, beliefs, explanations, etc.

Administrative technologies – are the movement of personnel (promotion, demotion, horizontal movement to other units, layoffs); the use of methods of material and moral encouragement and punishment; transfer of conflicting to different units, the implementation of court decisions [18].

One of the technologies for effective conflict interaction in an organization is the formation of a communicative culture of a leader. Communicative qualities are understood as a combination of personality traits, abilities and skills characterizing their attitude towards people and providing the possibility of establishing and maintaining contact and mutual understanding between them. The degree of development and severity of communicative qualities is a prerequisite for successful human activity in conflict management [15].

Conflict competence includes:

- understanding the nature of conflicts between people;
- the formation of subordinates constructive attitude to conflicts in the organization;
- possession of non-conflict communication skills in difficult situations;
- the ability to assess and explain emerging problem situations;
- the presence of conflict management skills;
- the ability to develop constructive principles of emerging conflicts;
- the ability to anticipate the possible consequences of conflicts;
- the ability to constructively regulate contradiction and conflicts;
- the presence of skills to eliminate the negative consequences of conflicts [16].

I.E. Vorozheikin writes: "It must be borne in mind that a leader in a conflict may find himself in at least two positions - either a subject, a direct participant in the conflict, or a mediator, an arbitrator acting as a mediator of opposing parties" [3]. The head of the conflict becomes the leader in cases where he violates professional ethics, deviates from the norms of labor law or allows an unfair assessment of the work and behavior of subordinates.

The leader must be "above the conflict" in order to be able to find the right ways out of it [4]. Therefore, to minimize the destructive consequences of conflicts in the management system, the leader needs to have specific skills:

- foresee the situation;
- provide reliable information;
- manage their emotions;
- make subordinates clear requirements;
- encourage subordinates to work;
- take care of feedback;
- apply positive motivation;
- actively listen;
- maintain subordinates self-esteem;
- focus on the goals of the organization [2].

To resolve the conflict, multilateral knowledge is required (and, first of all, the head of the organization), as well as experience working in a team and with the population, skill and art of finding non-standard solutions [13].

The psychological atmosphere at the enterprise and the result of the interaction of the warring parties [8] depend on the existence of effective practices for overcoming problematic and conflict situations among managers.

It should be noted that the manager is not always able to correctly apply the existing conflict management technologies in organizations. Typical mistakes made by managers in organizations when using conflict resolution technologies are:

- attempts to resolve the conflict without clarifying its true causes, i.e. without diagnostics. Often, the administration's attempts to extinguish the conflict on a personal level, to achieve reconciliation of opponents do not lead to positive results due to the fact that the underlying problem that led to the conflict is not resolved.

- "freezing" the conflict. A simple parting of the parties and delimitation of their areas of activity can have a definite positive effect. But even the replacement of existing actors, carried out while maintaining the objective causes of the conflict, will lead to its resumption with another active staff.

- subject of conflict and opponents are incorrectly defined. Even if the diagnosis of the components of the conflict is carried out, the probability of an error in determining the subject of the conflict and real opponents cannot be ruled out. Sometimes opponents who are actively involved in a conflict are actually not independent players and act on a tip from real opponents who prefer to be in the "shadow" for one reason or another.

- delay in taking action. Even if a conflict was posed by objective reasons, it tends to spread to interpersonal relationships. If by this indicator the conflict has become chronic, even effective organizational decisions are not enough to resolve it. Opponents continue to have a personal dislike of each other for a long time.

- incompleteness, one-sidedness of measures: coercive or diplomatic. Experience shows that the most effective combination of various measures of conflict resolution, which allows you to actualize the multi-level motives of the opposing parties.

- unsuccessful choice of an intermediary. The choice of an intermediary negotiating with both parties cannot be accidental. The mediator must be equidistant from opponents and at the same time close to them. Best of all, if in any part of his biography he is in contact with both sides and can consider each side to be his own.

- intermediary's attempts to play his own "card". Opponents must be sure that the mediator's thoughts are directed exclusively toward resolving the conflict. If he gives reason to even partially doubt his motivation, negotiations to resolve the conflict could immediately come to a standstill.

- passivity of opponents. Opponents will not reach the desired compromise if they limit their activity in his search. Some conflict analysts believe that a party in a less favorable situation should take a more active position. In our opinion, it would be more correct to say that both sides should be active. Moreover, losses from an uncompromising position in the strategic plan cannot be beneficial to either side. Sooner or later, an incident can lead to even more dramatic losses for both sides.

- "lack of work" with emotions and tension. Conflict is always accompanied by a lot of tension and emotional experiences. These phenomena, as a rule, significantly modify both the perception and activity of the parties. It is very dangerous if emotions take precedence over the mind. So it can happen if you do not accompany the negotiations on the content of the conflict with psychological work aimed at reducing the level of tension and emotional background. In this case, unlike negotiations in which three parties, opponents and intermediaries participate, mediators must participate separately in psychological work.

- "lack of work" with stereotypes. Emotional overloads can lead to an increase in stereotypical perception, simplifying the picture of the world and social relations. Sometimes the so-called "tunnel" vision effect is manifested, in which whole areas of reality fall out of the opponents' field of view, the visible loses its shades, becomes black and white.

- errors in the contract. The content of the agreement should be fixed in writing, regardless of the extent of the conflict. Work on the written text of the contract significantly transforms the negotiation process, makes it more rational and meaningful. We are talking about substantive errors in which the parties and intermediaries did not foresee any aspects of the situation.

- generalization of the conflict (lack of measures taken to limit it, localize it). The natural desire of the conflicting parties is to strengthen their positions. One of the directions of such strengthening is to attract strong supporters [11].

Based on this, it is important to develop and apply new highly effective conflict resolution technologies that allow to resolve conflicts with minimal losses for the organization [13]. However, unfortunately, so far there are no technologies that would connect the diagnostic process that identifies the main structural and procedural characteristics of conflicts with the choice of management methods that allow them to be resolved most efficiently and with minimal destructive consequences for the organization. This line of work seems to be the most promising. On the one hand, this kind of activity is based on theoretical constructions of a fundamental level (and thereby stimulates further research in this area), and on the other hand, the obviously applied, practical significance of this activity, which forms the scientifically based conflict management in organizations. At the same time, the development of the technological level can become the main direction that would stimulate fundamental research and form civilized practices of conflict management [14].

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组织的人事政策
PERSONNEL POLICY OF THE ORGANIZATION

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抽象。 本文讨论了该组织的人事政策，其特征和前景。 在本文主题的框架中，我们将揭示人员发展的主要方向，将其作为基于员工参与的有效人事政策的一个因素。 基于人事参与原则的人事管理政策的主要目标是制定和实施旨在发展和提高员工技能的公司计划，并对包括在人事储备中的人员进行培训。
关键字：人员，管理，人员，人员政策组织，系统。

Abstract. *The article discusses the personnel policy of the organization, its features and prospects. In the framework of the topic of the article, we will reveal the main directions of personnel development as a factor in an effective personnel policy based on staff involvement. The main goal of the personnel management policy, based on the principles of personnel involvement, is the development and implementation of corporate programs aimed at developing and improving the skills of employees, as well as training personnel included in the personnel reserve.*
Keywords: *personnel, management, staff, personnel policy organization, system.*

The relevance of the research topic is determined by the fact that in order to overcome the economic crisis it is necessary to make decisions on a number of issues related to a change in the personnel management system of the company. In this regard, productive personnel management is of paramount importance and practical importance.

Recently, the changes taking place in the political and economic spheres of life in Russian society are becoming more and more significant, having a huge impact on all social systems: organizations, social movements, regions, cities.

The transition to a mixed economy has fundamentally changed the view on the role of organizations in society. If earlier enterprises were closed systems regulated by the state, then modern organizations are open systems in which the role of the state is limited. Currently, enterprises have a lot of problems in the field of personnel management.

An important role is played not by economic indicators of the effectiveness of organizations, but by social indicators, the role of which is to fulfill social obligations to society. The current situation is characterized by a transitional stage, the acceleration of the dynamics of social systems, the emergence of new social relations, the change of ownership of the means of production. All these processes and phenomena of social life dictate new rules to Russian commercial organizations as the main social subjects of the market space, affecting the socio-economic situation as a whole. Innovative processes in organizational management systems are becoming a law of development of modern, state, municipal structures and business. The most important issues are related to personnel management, which play a significant role in the formation, development and prosperity of organizations.

Of particular importance are social and managerial problems associated with the application of certain practical actions for managing personnel and lack of knowledge of the mechanisms for implementing these actions, and the insufficient development of social management technologies. Classical primary indicators of organization success, characterized by material criteria, are gradually losing their former meaning. Currently, the most significant advantage of the development of organizations is their intellectual potential.

At the present stage of scientific and technological progress, the management of enterprise development is becoming closely related to the use of social potential, namely the human factor. The personnel management system increasingly affects the effectiveness of the organization and is one of the most important sources of socio-economic development of the organization [7].

In science, there is a variety of traditional and modern approaches to personnel management in organizations.

Within the framework of the economic approach, technical rather than managerial training of people in the enterprise dominates. The organizational approach draws attention to the human resource as the most important principle in the development of the organization. The humanistic approach proceeds from the concept of human management and the idea of organization as a cultural phenomenon. Management of the 80-90s of the XXth century as an object of managerial activity considered organizational cultures of various types, and not processes, people, their activities, etc.

The current conditions of the market economy in our country call for a change in the approach to personnel management from its awareness as well as the multifunctional component of the company's administrative and production link to research and optimization of it as well as a strategic resource with substantial and very effective potential that contains high-class competencies, the ability to the formation of creativity.

In order to successfully manage personnel, the manager must be able to recognize the creative potential and significance of the employee's person in innovative processes, to understand his motivational structures, to have the ability to create and direct them in accordance with the issues facing the enterprise. Multiple studies show that when employees focus only on income, they are not particularly prone to creativity. As a result of this, the manager must be able to assure employees that the desire to generate income is a dangerous goal of the innovative movement. There is only one way out of this situation, to not involve workers interested only in incomes in this process at all.

The essence of personnel policy lies in a system of rules and norms that are formulated in a certain way, which allows you to adjust the human resource in accordance with the organization's strategy.

As a result of the study, existing criteria for evaluating the effectiveness of personnel policy were classified. A model for evaluating the effectiveness of personnel policies was also proposed.

The theory of personnel policy and personnel management is developing along with the evolution of various schools and areas of the science of labor and management. It reflects a change in understanding the role of man in the enterprise, an increase in the human factor in production and management.

The theoretical, methodological foundations of personnel policy and personnel management are quite widely represented in the scientific developments of Western and Russian scientists (Volgina O.S., Vukovich G.G., Nikitina A.V., Kuznetsova A.M., Kokorev N.A., Molochnikov N.R., Kovalenko A.V., Filippovskaya A.A., Mongush O.N., Lopsan-Endan A.V., Sirchenko A.E., Smirnov A.B., Novikova P.P., Hojempo V.V.).

The theoretical aspects of the problem of personnel policy, its directions, tasks, principles, development stages, as well as personnel management, including strategic management, the place and role of personnel policy in it, have received significant development. Meanwhile, there are various approaches to understanding the personnel policy, its content, principles, requirements for it, place in the personnel management system.

Personnel policy should be viewed from two sides, firstly, as an integrated system of work with personnel potential, and secondly, as a complex social, political and legal phenomenon that has a systematic structure.

So, all the authors cited by us give different definitions of personnel policy, but each of them indicates that it is aimed at the development of personnel, and also determines the main direction and content of work with personnel.

In our opinion, the most accurate and deepest definition is given by V.V. Hojempo, since he determines that personnel policy is the general direction of personnel work, is aimed at determining directions, methods and forms of work, is a mechanism for developing goals and objectives, and It is also aimed at creating a qualified and highly productive team capable of responding to changes in a timely manner. This definition is most fully consistent with the essence of personnel policy [8].

From our point of view, in the presented definitions of other authors, not all aspects are disclosed that reveal this concept.

Definitions of Mongush O.N., Lopsan-Endana A.V. in general, differ from all the others, they determine in it that the personnel policy is a line of development that is designed for a long period of time that determines a certain development perspective [5].

In our opinion, these two definitions are not accurate and do not reveal the concept of personnel policy. The following functions of personnel policy are distinguished[3]:

- determination of staffing needs;
- providing advanced training, as well as analysis of the level of professional training and the development of training programs for personnel;
- organization of certification of employees and monitoring of their implementation in the prescribed manner;
- regulation of the personnel system and its basic tools;
- organization of work with the personnel reserve and its effective use, as well as the selection and rotation of personnel;
- management of the selection, training, placement and promotion of personnel.

The priority of personnel policy is the development of goals and objectives aimed at maintaining, strengthening and developing personnel potential. This definition of personnel policy shows the multidimensionality of this concept and means that personnel policy is associated with the strategy of the enterprise aimed at its development and increasing its competitiveness. It is competitiveness in the broad sense that preserves, strengthens and develops competitive advantages, including qualified, highly productive personnel. The dynamism of modern production due to the development of competition, its scale, severity requires updating the personnel policy, improving the efficiency of personnel management aimed at maximizing the use of the abilities of the employees of the enterprise, the creative potential of the staff. So, in the opinion of G.G. Vu-

kovich, A.V. Nikitina: "If we consider the enterprise's value system from the perspective of personnel management optimization, then the discipline and order requirements apply to the system of restrictions within which any employee should act. The criterion of optimality with this approach is to maximize the use of creative abilities of staff "[2]. Orientation to the development of employees' abilities, the use of creative potential in modern conditions is reflected in the value system, the style of personnel management, and the development of types of personnel policy.

The following criteria are used to evaluate personnel policy:

- number of certified specialists;
- number of specialists who have improved their qualifications.

When evaluating the effectiveness of staff training, attention is usually paid to:

- number of employees trained (advanced training, retraining, internship)
- average amount of development costs per person (by category).

So, the undoubted advantage of the integrated application of the technology of introducing key performance indicators when implementing personnel policies in organizations is that it contributes to the timely qualitative analysis of the effectiveness of the personnel service.

Today, the technology of key performance indicators of organizations is used in a number of ministries and departments in the implementation of personnel policy. At the same time, the fundamental factor in the assessment is the degree of participation of employees of the organization in the process of achieving its strategic goals and performing operational tasks.

Evaluation results often serve as final indicators of the degree of effectiveness of the personnel service with staff. This allows you to timely notice inconsistencies of the reference parameters with practical results and quickly correct the situation.

In our opinion, when conducting a comprehensive assessment of the effectiveness of the personnel management service for the development of human resources of state bodies, as well as to identify high-quality and effective work of the public service as a whole, firstly, it is necessary to develop human capital through investment, and secondly, periodically monitor key performance indicators of personnel departments.

The process of creating a personnel policy in an organization consists of the following stages: the formation of a personnel policy, the development of a personnel policy, the implementation of a personnel policy, the realization of a personnel policy.

At the stage of formation, taking into account the principles, taking into account factors of the external and internal environment affecting the enterprise, it is determined what the personnel policy of the enterprise will be in general.

At the development stage, the goals of the personnel policy are determined, taking into account the goals of the enterprise, the personnel strategy is determined, the resource provision is analyzed, based on this, personnel measures are developed and a personnel action plan is drawn up.

At the implementation stage, the personnel policy document is officially approved and then employees are notified.

At the realization stage, all planned activities are carried out, as well as receiving feedback from employees. From the formation to the implementation of the personnel policy, this process can be carried out by the head of the enterprise, line manager, as well as the personnel management service. The implementation of the process should be ensured:

Information and analytical - the use of new information technologies, the collection, processing and analysis of necessary information;

Material and technical - technical equipment, stationery;

Technologically - all the necessary regulatory and reference materials that establish the norms, rules and methods used in solving problems of organizing a personnel policy;

Methodically - the methodology of the process of formation and implementation of personnel policy;

Organizational and administrative - the organization of the process, the creation of conditions for conducting;

Financial and economic - financial assets of the enterprise [1].

The formation of personnel policy consists of the following points:

environmental analysis;

analysis of the internal environment;

staff involvement, namely, planning, recruitment, staff selection;

assessment of the development and career of staff;

HR improvement;

Effective personnel management is to maximize the use of the personnel potential of the company with optimal costs to achieve the goals of the company.

Modern personnel policy should take into account changes in society, therefore, its main principles should be flexibility and adequacy to change. The substantive personnel policy includes the following elements:

- providing quality personnel to organizations
- effective forms and methods of personnel policies;
- professional standards;
- system of measures aimed at improving the quality of personnel potential.

The current concept of human capital is based on the recognition of the need for investment in human resources, focusing primarily on economic feasibility. The purpose of such capital investments is the formation of a quality employee, the disclosure of his professional and personal potential, the creation of the necessary conditions for this [6].

Therefore, priorities in working with staff are changing. The emphasis is shifting towards the hidden abilities of man. However, there is a problem - it is people who are the most conservative part of the organization's resource potential, therefore, an adequate system of personnel adaptation to the new system of personnel potential development is needed. This system should include such elements as value guidelines and motives for work, organizational behavior, knowledge and skills.

Personnel potential can be defined as a set of abilities and capabilities of employees of the organization, allowing them to perform professional duties in a high-quality manner. The basic principles of personnel management are:

- compliance of the personnel potential with the content, complexity and volume of professional duties and activities;
- effective use of human resources;
- formation of conditions for the comprehensive development of human resources [4].

In terms of content, personnel potential is a complex system consisting of various interconnected elements, its psychophysiological component. Personnel potential is characterized by such indicators as: professionalism age, experience, employees, gender, state of health, performance. Given the specifics of civil service, it is also worth noting the personal characteristics of employees, namely: creativity, organizational skills, learning ability. The educational and qualification component reflects the level of professional training of employees (education, work experience, motivation for training and development), labor activity (volume and quality of work performed, meeting deadlines, rational use of working time).

The social and personal component focuses on the hidden capabilities of employees and is evaluated on such aspects as:

- communication skills, ability to work in a team;
- moral and ethical standards;
- socio-psychological climate in the team;
- non-production conditions (marital status, living conditions).

Analysis of the above elements of human resources and taking them into account in the personnel management system allows you to create the most favorable conditions for the disclosure of the reserves of each employee.

Thus, personnel policy is an important component of the overall strategy of the organization, directly affecting the success and competitiveness of the organization. The multidimensionality and ambiguity of the concept of the effectiveness of the personnel strategy of an enterprise make it possible to consider labor efficiency, the efficiency of expenses for the implementation of personnel strategy programs, and the efficiency of the personnel service as efficiency criteria.

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自我管理–个人发展的基础
SELF-MANAGEMENT-THE BASIS OF PERSONAL DEVELOPMENT

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抽象。 本文分析了“自我管理”的概念，考虑了目标，计划，自我管理对个人和谐发展的重要性。
关键词：自我管理，个性，技术，动机，效率。
Abstract. *The article analyzes the concept of “self-management”, considers goals, planning, the importance of self-management for the harmonious development of the individual.*
Keywords: *self-management, personality, technology, motivation, efficiency.*

Self-management is a certain system of methods that make it possible to use time correctly and rationally. It is also called time management. Self-management helps achieve better results by spending a minimum of effort. Self-management methods are very effective, as they help to save resources. [2]

Possessing the self-management technique, one can cope with work with minimal costs, take a more reasonable approach to organizing the work process and not only the work process, achieve better results, reduce workload and overstrain from work, minimize haste and stress.

The main task of self-management is to maximize the use of all resources at minimal cost. Self-management of a person means compliance with proven methods in daily work in order to more rationally use his time. The purpose of self-management of a person is to use all his abilities to the maximum, to consciously control his life and to overcome circumstances that affect the quality of his personal life and work.

How to motivate yourself and others if you lack strength and desire? For people with a wide variety of characters and personal characteristics, such concepts as self-discipline, control over their behavior, motivation in work are

important. All this can be learned by doing self-management. The concept of self-management implies the purposeful and systematic use of optimal methods for solving functional problems that allow you to perform the necessary amount of work, most efficiently and best using available resources. Mastery of self-management methods allows you to quickly and accurately achieve your goals, namely: to realize what exactly a person intends to achieve; to formulate a certain image of success; use the method of "big jumps"; gain a steady faith in what a person is able to achieve success; concentrate all your attention on clearly formulated goals, which should lead to the desired result; maintain confidence and motivation in case of failures, difficulties and problems, remain convinced and have an incentive to further move in the direction of success.

Personal self-management is based on the ability to act independently and the ability to manage oneself. All this is due to the characteristics of human nature, social management and organization. The essence of self-management is to temporarily ensure relations for the implementation of "assistance without dependence" or "mutual assistance in conditions of interdependence."

Self-management appeared and began to develop for the reason that not all people are able to navigate their lives and optimally organize a space for life. The consequence of poor organization of work is the inability to achieve the goals and results. Factors that may impede the achievement of results and which require the use of self-management by the individual: inability to optimally manage temporary and physical resources; inability to determine the main directions of development in business, in life, inability to formulate their goals; cessation of self-development at any stage of self-education, as a result, lagging behind the current pace of business development; inability to make managerial decisions; preference for pragmatic ways of solving problems instead of creative ones; lack of communication skills, inability to influence other people; lack of education in business management; insufficient attention not only to personal development and education.

The positive qualities of self-management are obvious: reduction of time and physical efforts to complete tasks; effective organization of life, improving the results of their activities; higher satisfaction from completed tasks; increase motivation to work; load reduction; increasing the level of personal competence; the opportunity to find the shortest way to achieve your goals (both personal and professional plan); implementation of effective methods of labor activity in business activity, which allows achieving better results than using old working methods; reduction in the number of situations of overvoltage and stress (up to their complete absence) arising due to fear not to cope with functional tasks on time.

The main goal of self-management is to learn to make the most of the opportunities that a person has: take control of one's life, cope with difficulties, achieve desired results, and improve the quality of one's life. If a person learns to manage himself and his life, then he can achieve the desired results and live a full life without missing out on anything important. Self-management is an excellent tool for anyone who wants to succeed in life, regardless of what social position he occupies.

Often, the concept of self-management is interpreted as an unquestioning adherence to a specific routine that needs to be developed, thought out, formed. Many justify their reluctance to gain clarity by not wanting to be limited in scope. Especially when it comes to remote work, freelance. Such people do not see the enormous benefits that self-management can bring. However, it is important to understand that the essence of self-management is not only the distribution of your time and scheduling. Self-management is a complex concept that includes the ability to control yourself and your time, the ability to take control of processes. Self-management teaches how to be organized, which means being well prepared for any situation. Self-management is able to teach you to be collected, to maintain control over what is happening to you, to be prepared for the most diverse manifestations of life, both pleasant and undesirable. To master self-management - this means not to depend on external and internal manifestations or circumstances, to be able to work with them and turn in your favor.

In the most ideal case, self-management becomes a person's lifestyle. However, this is not obtained at all. Indeed, self-management is perfectly applicable as a tool for urgent solution of any issue or problem. But if self-management works so efficiently, why not use it constantly? In addition, you need to understand that self-management is a skill that needs to be learned, it is not acquired in a short time. You can compare mastery of self-management with learning a foreign language: you either know the language or not.

A person does not automatically speak a foreign language by itself simply from meeting a foreigner. Another similarity in mastering self-management and a foreign language is that a language without practice is very quickly lost, and so is the skill of self-management: if you do not use it in practice, after a while it will be forgotten and disappear. [3]

Standards and techniques can be found in self-management theory books. They are devoted to practice, namely the history and biography of famous personalities who managed to achieve success in life, largely thanks to skillful self-management. Do not forget that self-management is a purely personal aspect. Among the many tips, it is important to select those that will correspond to the individual characteristics of the person. Only then will the self-manage-

ment technique become effective. Only a strong and strong-willed personality is capable of mastering perfectly self-management. When a life situation puts a person in certain conditions, then the question of the impossibility of this activity will disappear by itself. A strong impetus for development may be, for example, dismissal due to poor-quality work or its failure to fulfill according to the established deadlines. Of course, it's better not to wait. It is wiser to try to motivate yourself to start work on improving the quality of your life. Self-management is a great tool for this. Where to find motivation? It is necessary at the very beginning to ask ourselves the question: "Do I like the work that I do?". If you answer negatively, then no motivation will be found. However, you can try to look for a "fulcrum" [5].

You can remember that you really like to do or something you could do very well. One way to build yourself is to develop "beloved" competencies. There is another option: a person knows what he would like to do, but does not know how to do it. In this situation, you must return to the starting position and start from scratch. It would be more efficient to stay in the same place, but try to find resources for reorientation.

Self-management is a companion of not only business, but simply life: it helps in finding time for oneself. In this case, desires and dreams will become excellent self-motivation: to do what you love, travel, spend more time with friends. Even the desire to make an expensive present to your parents, which they have long dreamed of, can be an excellent factor in motivation. It is for this that you will need to master the methods of self-management and self-motivation, which allow you to manage yourself, which will lead to the intended goal.

There are rules for competent planning of working hours.

Setting goals in self-management is very important. The SWOT analysis, the ability to correctly formulate them and choose the appropriate behavioral strategies will help to understand your goals. These self-management methods will help identify weaknesses and determine which actions will eliminate them.

The following self-management tools will help in planning: making plans for the year, month and day in advance, developing strategic and operational plans, implementing the time management and Benjamin Franklin's time management system "Time Diaries", daily planning according to the Alps method. All of these self-management techniques are great helpers in learning how to make good use of their time. Using these self-management tools will release up to several hours every day. Decision making - In this case, the Pareto law, the Eisenhower method, prioritization and delegation of authority, ATV analysis will provide effective assistance.

Using these self-management techniques, you can avoid deadlines and solve the most important tasks on time and without stress.

For the organization and implementation of self-management, biorhythms are studied, and a productivity schedule is built. So the most productive hours for work are revealed, which are taken into account when scheduling for every day. Thus, you can learn how to rationally use a temporary resource, which allows you to achieve the best results.

The control. This aspect of self-management allows you to compare the planned amount of work with the actual final result. Such control will contribute to a more efficient and faster solution of work tasks, which is the main goal of self-management. [5]

Let us consider in more detail the following principles of self-management.

Spontaneity. This principle of self-management is one of the basic and providing effect in the conditions of system management. It allows you to take into account a large number of hidden opportunities in order to transfer to them a significant part of the functions, including self-management.

The focus of self-organization. This principle of self-management cannot be attributed to the guaranteeing principles of sustainability of a self-organizing process with the parallel development of oneself, society and the shadow sector of the market. [7]

Resource support. This principle allows you to successfully complete work processes without worrying about achieving final results..

The combination of spasmodic and evolutionary processes. As a result of structural changes, the value of self-management is reduced to a minimum. As a rule, spontaneous realization of jumps and system transformations of control channels occurs. Often this happens in parallel.

Parallelism. This principle of self-management implies the simultaneous development of aspects of self-privatization and self-organization along with relevant processes occurring in systems.

The implementation of planning contributes to the efficient and careful use of temporary resources, which is the main goal of self-management. Self-management specialists have proved that daily 10-minute planning saves 2 hours of manager's working time in real practice. Planning rules in self-management: When planning your working day, focus on the 60/40 ratio: allocate 60% of the working time to solve work problems, save the remaining 40% for emergency and unforeseen situations. Periodically analyze the types of work and the time spent on them. Cover the entire field of tasks with a single plan of action, make a list of all the necessary tasks and matters, classify them into long-term and short-term ones. Adhere to a realistic approach to planning: objectively assess your own capabilities and available resources to carry out the intended amount of work in accordance with the deadlines. If unforeseen time losses occur, try to compensate them immediately. Engage in writing temporary plans, which will visually determine the

amount of work and will motivate for action. If any tasks have not been completed and have not lost their importance, they are transferred to planning for the next period. Create a time limit for each task, based on how much time it takes to solve it.

Setting goals for every day of your life is one of the golden rules of self-management. [7]

Elephants and frogs.

Divide all your tasks into three groups: fast, medium and large (elephant-tasks). Quick tasks are those that can be solved in no more than half an hour. Medium-sized tasks require up to several hours to solve. Big tasks are global tasks, designed for a longer period of time. When working with large-scale affairs, it is important to be able to break them down into smaller tasks and to correctly allocate time for their execution. Thus, major matters are resolved gradually, step by step, day after day. It is important to understand what step you have to take tomorrow.

So, we came to the conclusion that one of the most valuable and scarce resources in human life is time. This is well known to those who seek to be independent and self-sustained, while using time resource rationally and optimally.

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在俄罗斯经济中打击犯罪收益合法化的方法

METHODS OF COUNTERING THE LEGALIZATION OF CRIMINAL PROCEEDS IN THE RUSSIAN ECONOMY

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抽象。 洗钱是一项特定的行动，其明确目标是将非法获取的财产和金钱引入经济的法律部门，以便合法拥有/使用/处置此类资产。 这种合法化对经济的稳定地位和国家安全都构成了巨大的威胁。

在俄罗斯经济空间中对犯罪收入合法化的抵制是一系列组织和法律措施，此外，具有联邦重要意义的州政府，法律实体和个人的职能也要防止实际的犯罪收入合法化。

关键词：犯罪收益合法化，俄罗斯经济，打击洗钱的方法，经济犯罪。

Abstract. *Money laundering is a specific operation with a clear goal of introducing illegally obtained property and money into the legal sector of the economy so that the possession/use/disposal of such assets is lawful. Such legalization poses a massive threat to both the stable position of the economy and national security.*

Counteraction to the legalization of criminal income in the economic space of Russia is an organizational and legal complex of measures, and in addition, the functioning of state authorities of federal significance, legal entities and individuals to prevent the actual legalization of criminal income.

Keywords: *legalization of criminal proceeds, the Russian economy, methods of combating money laundering, crime in the economy.*

The practical side of the economy determines that modern realities increase the growth of its insecurity in both the national and global arenas from legalization of criminal proceeds.

The said unlawful phenomenon is closely associated with the removal of capital outside the state, illegal trading with weapons, narcotic substances, the flourishing of corruption, the concealment of income sources and all kinds of tax evasion. Such legalization poses a massive threat to both the stable position of the economic complex and national security [2].

The urgency of the issue of money laundering is subject to wide discussion and ongoing consideration in the relevant research circles. Its specificity has a need for special regulations, that is, legislation that highlights aspects of countering the legalization of criminal income in the economic segment on the territory of the Russian Federation [3].

Recovered through criminal operations legalized income - is such a modification to the lawful form of possession/use/disposal of finances or property that was obtained through a criminal act.

According to experts, the annual profitability of various crime areas in the field of finance forms on average from 2 to 4.5% of the world gross product, equivalent to about 1-2 trillion US dollars annually. At the same time, at least 600 billion US dollars are legalized every year on the world stage [2].

Domestic experts note that on the territory of the Russian Federation in the economic segment up to 350 billion rubles are legalized on average each year, mainly by organized crime groups [2].

It is known that criminal operations have a predetermined selfish purpose, that is, they are associated with a desire to extract the greatest possible economic benefit.

Actually, the concept of "legalization of criminal proceeds" is quite new for the modern legal system, while the criminal operations themselves are rooted in the twentieth century, when the expression "money laundering" arose in the United States of America in the late 1920s, which dealt exclusively with the illegal drugs and alcohol trafficking business, which characterizes the process of transforming illegal funds into legitimate income [3].

Consolidated theses of Russian government regulations provide an opportunity to reveal the essence of the terminology of money laundering from two sides (Figure 1).

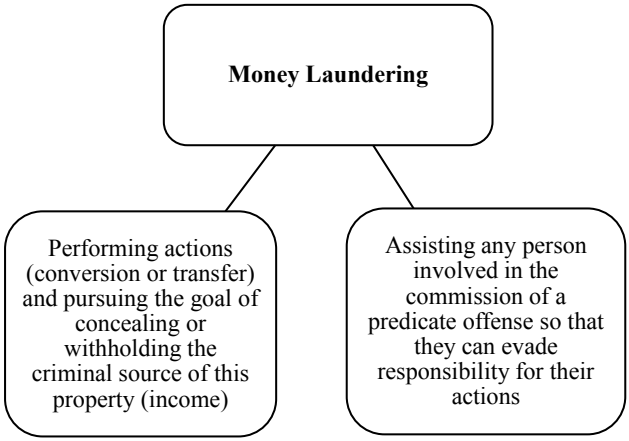

Figure 1 - *Disclosure of the essence of the terminology of money laundering*

Currently, within the framework of domestic legislation, there are three ways to finance criminal activity in the economy (Figure 2) [1].

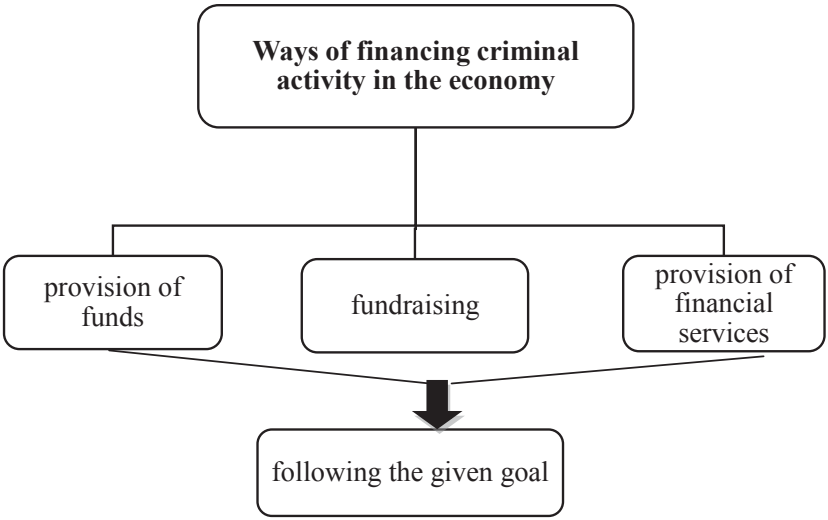

Figure 2 - *Three ways of financing criminal activity in the economy*

So, counteraction to the legalization of criminal income in the economic space of Russia is an organizational and legal complex of measures, and in addition, the functioning of state federal authorities, legal entities and individuals to prevent their own criminal income legalization, to find, eradicate, prevent, research and disclose such offenses that are associated with the previously indicated national problem [4].

It is necessary to highlight the basic parameters for the existence of money laundering (Figure 3).

Legalization appears to be a component of all criminal activity, a support apparatus of the economic cycle from the criminal point of view (the process of phasing out the separate stages required for the execution and uninterrupted flow of shadow economic functioning).

Figure 4 schematically reflects the grouping of factors affecting the legalization of criminal proceeds.

As a result, the opportunity is formed to defend interests for the development of regulatory legal acts relating to the formed criminal groups in the field of money laundering.

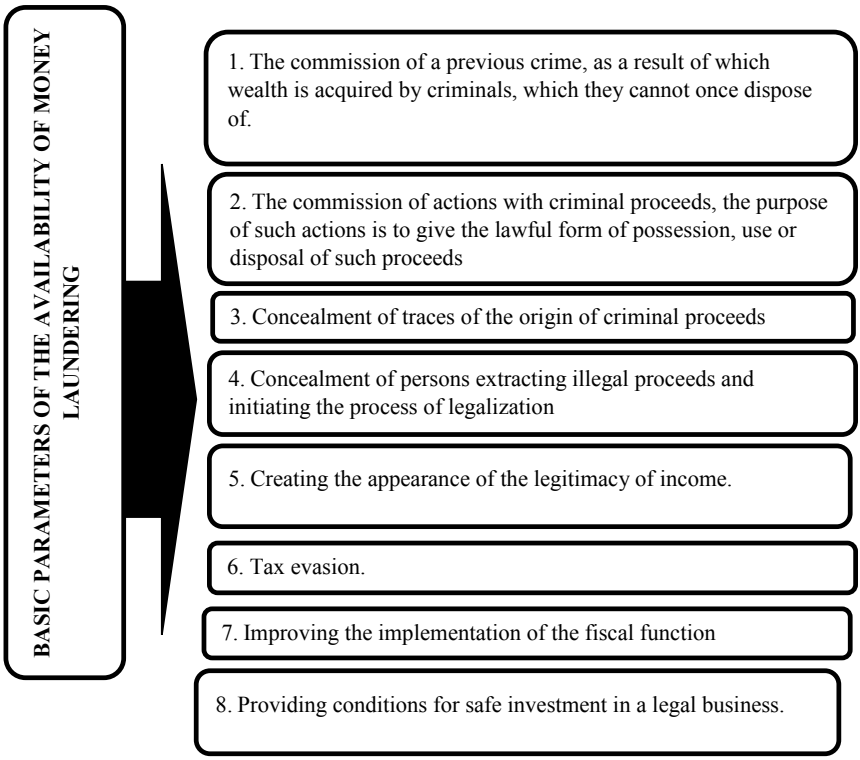

Figure 3 - *Basic parameters of the availability of money laundering*

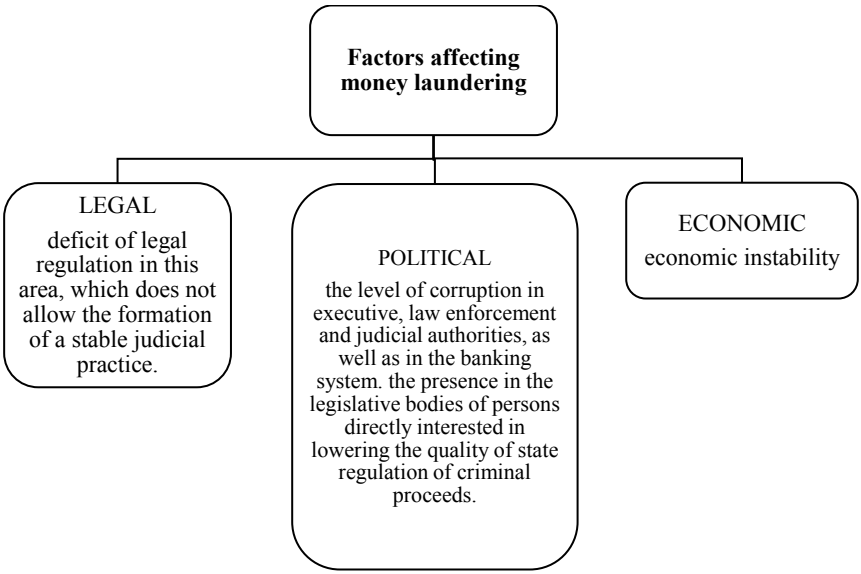

Figure 4 - *Factors affecting the legalization of criminal proceeds*

In a number of basic factors affecting the complex of counteraction to the legalization of money laundering, we distinguish:

1. The dimension of crime.

In crisis circumstances, the criminal scale and, consequently, the volume of the introduction of criminal proceeds in all kinds of branches of activity, including the banking segment, increase, since an ever-widening share of monetary resources is concentrated "in the shadow".

2. The functioning of government agencies associated with counteracting the investigated problem, as well as the Bank of Russia [2].

As the Federal Financial Monitoring Service estimates, the crisis situation is heating up the atmosphere of raiding, all kinds of frauds, etc. The planned "bankruptcies" and "hunting" for liquid assets through a raider bought up by criminal organizations appear to be a particularly "relevant" method of legalization.

3. The costs of functioning to combat money laundering.

According to expert judgment, the bank management often does not accurately interpret for itself the volume of risks associated with bank involvement in the process of criminal money laundering. Interest in retaining existing liquidity and, as a result,

the requirement to minimize costs determine the personnel reduction. At the same time, banks need highly qualified personnel in the direction of countering the criminal legalization of income. Irrational reduction of staff and increase in the volume of workload per unit of staff can lead to errors in work and violation of laws. Penalties, loss of goodwill, expenses for replenishment of violations can appear quite large in comparison with the savings made on an effective anti-money laundering system [2].

At the moment, all the required data on the amount of legalized proceeds from criminal operations is only approximate, since it is not possible to obtain accurate data. According to expert judgments, legalization is an enterprise, in terms of volume, which is located in the world ranking in third position. However, the damage suffered by the Russian economy by the considered outlawed operations is difficult to unambiguously assess due to their presence in almost all branches of crime within the economy.

The International Monetary Fund and the World Bank put the following figures on display: every year, "laundered" income in the world keeps about 1/5 of the total mass of the world's GDP, reaching $ 2 trillion or even $ 3 trillion, which is quite close to the previously quoted data from expert circles [3].

A significant amount of illegal operations is characterized, from one point of view, by insufficiently high-quality and clear control over capital, and on the other - by the internal circumstances of countries that export capital.

One way to resolve the issue, experts find an obstacle to the work of one-day companies, the true owners of which are virtually impossible to determine. These companies are the most popular lever to ensure that the legalization process is launched and it is possible to circumvent taxation.

The key goal of conducting dubious operations is precisely avoiding taxation and laundering income, including offshore schemes. The growing entrepreneurial interest in the field of offshore for tax cuts and implementation in criminal schemes proves the growing trend of introducing capital into the Russian Federation under the guise of investment from abroad [4].

In practice, it is claimed that more than 1/3 of the total investment in the Russian economy comes from offshore segments and jurisdictions with low taxation.

In this way, funds are separated from the criminal zone of formation and subsequently reintroduced into the legal economic share of Russia, which creates tremendous damage to state interests and economic security.

It is also possible to judge the magnitude of the threat by the number of banking licenses taken from credit institutions. When extracting significant amounts of criminal proceeds that are higher than personal needs, criminal groups ask themselves the question of reducing the risks of the economy and jurisdiction in the area of ownership of the assets sought, preventing them from being confiscated, as well as absorbing inflation.

We will evaluate the current situation of the Russian counteraction complex and methods of money laundering.

So, the criminal income established by law enforcement agencies is subject to verification through communication with Rosfinmonitoring, it is this service that is engaged in the detection and investigation of suspicious transactions. This interaction makes it possible to monitor the stages of legalization in a criminal investigation and timely identify companies that carry out suspicious transactions, thereby concentrating on the initial receipt [2].

The criminal proceeds that have been legalized are often determined during criminal investigations into the primary crimes, during which such proceeds were obtained. Moreover, the effectiveness of these aspects depends on the categorical affiliation of the crimes.

The concealment of the fact that property / finance was obtained by criminal means is carried out using an extensive list of transactions and operations with the finances themselves. As practice shows, mainly these transactions do not make sense from an economic point of view.

In order that the presence of criminally acquired property has been legalized, transactions are subject to documenting. In the course of legalization, such property appears as commodity values, property rights, securities and financial resources [3].

In order for the possession/use/disposal of criminal proceeds to have a legal form, a whole chain of shell companies is used, the number of which sometimes exceeds far more than one hundred, which helps transform legalization into business processes, circumvents personal identification conditions in banking structures.

The more difficult and multi-way relationships between firms, the greater the benefit is in the hands of those that legalize criminal proceeds. Companies that are nominally independent, through various schemes appear interconnected. Identifying criminal income of such companies is a difficult task [2].

Another method of concealing one's own belonging to a crime is the use of a fictitious power of attorney from a genuine or also fictitious company. For registration and functional operations of shell companies, the following are used: constituent documents, securities, seals, notarial signs, passports that are relevant to firms that are not currently functioning, i.e. completed business.

Thus, at present, methods of counteracting the legalization of criminal proceeds in the economic space of the Russian Federation are still poorly developed and extremely inefficient, despite the fact that such a criminal process as legalization has been taking place in Russia since the 90s of the last century and even then introduced into the criminal code of laws. However, existing legal practice is still not enough.

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该地区社会人口结构中“传统”中产阶级的增长策略

GROWTH STRATEGIES OF THE “TRADITIONAL” MIDDLE CLASS IN THE SOCIAL POPULATION STRUCTURE OF THE REGION

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抽象。作品讨论了社会中产阶级的重要性及其所发挥的功能，稳定了公共生活的政治，经济和社会领域。重点是中产阶级的“传统”部分，即业务代表。为了确认中小型企业这种中小型企业的重要性，列出了其职能，首先要在其所属的领域中发挥作用。本文介绍了由地区政府用来刺激企业家活动的中小企业发展战略。考虑了这些策略在俄罗斯沃洛格达州特定地区的潜力。特定区域的社会经济发展水平与该地区商业发展水平之间的关系得到了证实。

关键词：区域发展中小企业中小企业职能中产阶级。

Abstract. *The work talks about the importance of the middle class of society and the functions that it performs, stabilizing the political, economic and social spheres of public life. The emphasis is on the "traditional" segment of the middle class, that is, on business representatives. In order to confirm the importance of such a component of the middle class as small and medium-sized businesses, its functions are listed that it performs, first of all, in the territory to which it belongs. The paper presents development strategies for small and medium-sized businesses that are used by regional authorities in order to stimulate entrepreneurial activity. The potential of each of these strategies in a specific region of Russia –Vologda Oblast is considered. The relationship between the level of socio-economic development of a particular region and the level of business development in it is substantiated.*

Keywords: *development of the region, small and medium-sized businesses, functions of small and medium-sized businesses, middle class.*

The basis of the modern society of economically developed countries is the large middle class, which provides opportunities for the stable development of the state as a whole and a region in particular.

The middle class is heterogeneous in structure. In modern scientific literature within the middle class distinguish [1]:

1) "traditional" middle class - representatives of the business, which includes owners of small and medium-sized businesses, farmers;

2) the "new" middle class, which consists of employees, such as managers, teachers, doctors, government employees, engineers and other workers with higher education and a profession requiring this level of education.

The functions performed by the middle class of society are extremely important for the effective socio-economic development of the region. The investment activity of the population, the level of aggregate demand, the state of the budget, the stability of the entire socio-political system as a whole and other important socio-economic processes depend on the quantity of the middle class in the region.

Of particular interest is the "traditional" segment of the middle class. It should be noted that based on the specifics of our country, this segment is a new middle class for Russia, but we will use the standard classification of the middle class and entrepreneurs as the “traditional” middle class of society.

Representatives of small and medium-sized businesses as representatives of the middle class, in addition to the functions of the middle class, perform their positive, traditional functions in the region’s economy: they satisfy the population’s demand for goods and services in the local market; create competition to restrain inflation; diversify the local economy. This function is especially relevant for single-industry towns. Due to small business there is a more even distribution of production and human resources across the territory; employment is ensured; new technologies are being introduced. Incomes from entrepreneurial activity are a source of income generation of economically active population [2; 3; 4; 5 p 196-215; 6 p 378-382; 7; 8 p 112] The indicated functions do not exhaust the list of specific economic functions of small business.

The share of the middle class as a whole is also directly dependent on the level of development of small business, therefore business development in the region is not only the result of an increase in the share of the middle class, but also a factor of its increase [9 p. 276-281; 10 sec 378-382].

Regional authorities are more responsible for the efficiency of development of small and medium-sized businesses than federal, as they are in direct contact with business representatives. In addition, regional authorities are more interested in its effective development, which is due to the functions that small and medium-sized businesses perform in this territory.

In this regard, the study of business development in a particular region is of interest. As an example, we consider the dynamics of the development of the number of small and medium-sized enterprises (hereinafter referred to as SMEs) in the Vologda Oblast (see Fig. 1)

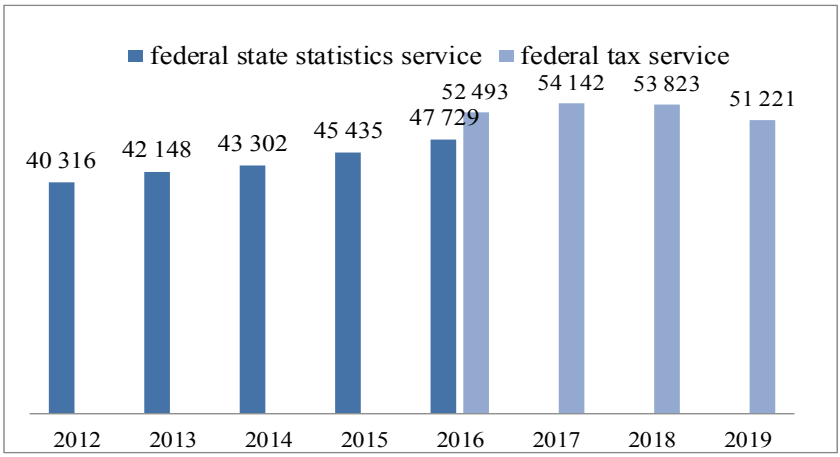

Figure 1. *The number of enterprises and organizations of small and medium-sized businesses in the Vologda Oblast, including individual entrepreneurs (at the end of the year) in accordance with the data of the Federal State Statistics Service [11] and the Federal Tax Service [12]*

Source: calculated and compiled by the authors based on official statistics [11; 12]

Until 2017, these indicators were provided by the Federal State Statistics Service. Since 2016, the statistics of small and medium-sized businesses has been dealt with by the federal tax service, with each of the departments applying its own calculation methodology, which leads to incompatibility of indicators. This contradiction is seen when comparing the number of small and medium-sized enterprises in 2016 obtained from various government bodies in the region (see Fig. 1).

On the whole, a tendency toward an increase in the number of small and medium-sized enterprises can be traced over the period under study, although in the past two years, a decrease has been noted in the federal tax service. To clarify the dynamics, we turn to the income structure of the Vologda Oblast. These data make it possible to determine the share of citizens receiving income from entrepreneurial activity and, accordingly, to clarify the development trends of the "traditional" middle class in the region (see Table 1). Moreover, to analyze the level of business development, not only its quantitative indicators are important, but also qualitative

Table 1. *The composition of the cash income of the population of the Vologda region, in% of the total*

Source of income	2012	2013	2014	2015	2016	2017
Wages	48,7	46,0	42,3	37,6	36,8	40,3
Business income	9,7	8,4	8,2	6,9	6,5	6,5
Social payments	24,7	24,8	22,8	22,4	22,4	24,9
Property Income	3,9	5,0	9,9	5,8	8,7	5,1
Income from the sale of currency	0,6	0,6	1,0	1,1	0,8	0,6
Other incomes	12,3	15,2	15,8	26,2	24,8	22,7
Total income (rub.)	262200,0	294106,0	326198,0	365403,0	389119,0	375175,0,0

Source: calculated by the author based on official statistics [11]

As can be seen from the table, the proportion of citizens who receive income from entrepreneurship in the Vologda Oblast is systematically declining, and in 2017 it was 6.5%, while in developed countries this indicator is 10-12% [13, p. 4-8; 14, p. 20-23]. This leads to the conclusion that there is a tendency towards the reduction the share of the "traditional" middle class in the region, as well as the need to develop a strategy for its growth.

The growth of the "traditional" middle class in the region is directly related to the increase in the number of entrepreneurs. Small and medium-sized businesses and regional economic systems are closely interconnected and interdependent [15]. And here it is important to determine what is primary: the degree of development of SMEs in relation to the level of socio-economic development of the region or vice versa, the effective development of the regional economy in relation to the development of SMEs.

Therefore, there are three growth strategies for the "traditional" middle class in the region. In accordance with the first strategy, state authorities, hoping that the region's economic success will depend on indicators of small business development (number of enterprises, number of employees in small businesses and its contribution to GRP) [16], stimulate the development of entrepreneurship using various forms of its support (more details below).

In accordance with the second strategy, state authorities first of all solve issues related to the growth of GRP and increase in incomes of the population, hoping that then the business will begin to develop independently without state stimulation. In other words, here the primary level of socio-economic development of the region (the level of real GRP or GRP per capita; the level of per capita income, aggregate demand, etc.) which determines the development and effectiveness of SMEs.

The third strategy is a harmonious combination of both approaches.

Consider each of the strategies separately.

Currently, at all levels of government, the need is declared to pay special attention to small business. As mentioned above, regional authorities have more administrative and real competencies in this matter than federal, as they are in direct contact with small business. Small and medium-sized enterprises occupy a niche of economic activity that is maximally oriented to regional and local markets; for the region, the quality of small business development is one of the main factors determining its sustainable socio-economic development.

There are various forms of state support for entrepreneurship: legal - the adoption of regulations that meet modern challenges to the functioning of entrepreneurship; tax - the establishment of a tax system that stimulates business development; financial - soft loans in order to preserve and develop specific types of activities; information - the provision of information services; personnel support in the field of training and advanced training of the labor potential of the territory in order to ensure the development of business entities in the region; moral - public recognition and promotion of performance; organizational - the creation of foundations and institutions necessary for managing small businesses, etc. [18; 19; 20 p. 191-198]

State authorities of the Vologda Oblast also use various methods to support and stimulate small business in the region.

We have analyzed the structure of small business management in the Vologda Oblast [21]

The subjects of small business management in the region are: the governor, his deputy and a number of Departments: economic development, the Department of labor and employment, the Department of agriculture and food resources.

The Department, which is more concerned with issues of small and medium-sized enterprises, is the Department of Economic Development, namely the Department for the Development of Small and Medium Enterprises, which is its integral part.

The infrastructure for supporting small and medium-sized businesses in the Vologda region under the Department of Economic Development of the Vologda Region includes: The Agency for Urban Development (Cherepovets); Resource Support Fund for Small and Medium Enterprises; Public Coordination Council for the development of small and medium enterprises of the region; Business incubator; Regional Center for Entrepreneurship Support in the Vologda Oblast. In turn, the Regional Center for Entrepreneurship Support in the Vologda Oblast has its own structural units (Fig. 2):

Figure 2. *The structure of the regional center for entrepreneurship support in the Vologda region*

Source: compiled by the authors based on data [21]

The region hosts various celebrations dedicated to the day of the entrepreneur. These include, for example, “Awarding of the Chamber of Commerce and Industry of the Russian Federation”, the annual regional competition “Silver Mercury”, the citywide competition “We choose - we are chosen”, the Assembly of entrepreneurs of the Vologda region, the Conference on problems and prospects of protecting the rights and legitimate interests of entrepreneurs [21].

Such events form a positive image of an entrepreneur in society, increase his business credibility and activate the business.

In the Strategy of socio-economic development of the Vologda Oblast for a period up to 2030 (hereinafter 2030 VO) in clause 6.6. in the "sphere of entrepreneurship and the business climate" a number of tasks and goals are set that contribute to the development of entrepreneurship "[22].

Based on the above, it can be concluded that significant attention is paid to the development of entrepreneurship in the region, as can be seen from the official governance structure and from the provisions of the 2030 VO strategy, and when organizing festive events, the regional authorities want to emphasize their respect and recognition of entrepreneurship, its contribution to the region's economy.

Nevertheless, despite all the efforts of the regional authorities, the incomes of the Vologda Oblast population from entrepreneurial activity are declining in relative terms (see Table 1).

In absolute terms, income from entrepreneurial activity for 6 years does not increase, but has a spasmodic development trend (Fig. 3)

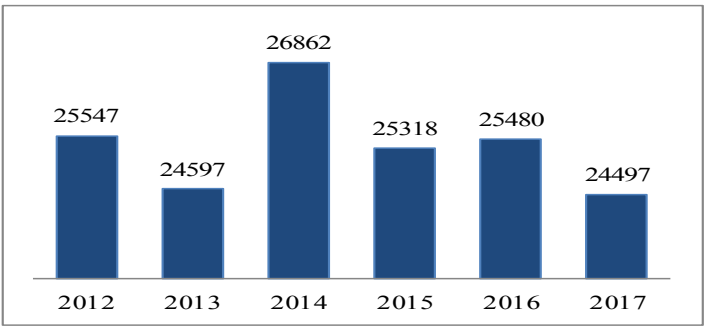

Figure 3. *Incomes of the Vologda Oblast population from entrepreneurial activity (mill. rub.)*
Source: compiled by the authors based on official statistics [11]

Thus, the connection between the stimulation of business by the regional authorities and the level of its development in the region is very weakly traced. Statistics show that other factors influence the development of business in the region.

Consider the second growth strategy of the "traditional" middle class in the region. For this, we turn to the socio-economic indicators of the development of the Vologda Oblast (see table. 2)

Table 2. *Socio-economic indicators of the Vologda region [23]*

	2012	**2013**	**2014**	**2015**	**2016**	**2017**
GRP physical volume index,% of the previous year	104,8	95,7	103	101,3	100,1	100,6
Real cash income of the population, in% to the previous year	110,6	105,6	102,4	97,1	99,7	93,6

To determine the relationship between the levels of socio-economic development of the region and business development, a correlation analysis was used. In particular, an analysis was made of the close relationship between the dynamics of socio-economic indicators of the Vologda Oblast and the level of business development.

At first, the data on the dynamics of the population's income from entrepreneurial activity in relative terms were used as the dependent variable (x) (Table 1). As a result, a direct and very high correlation was found between business development in the region and the growth rate of real incomes of the population (the correlation coefficient is 0.937). We can say that the development of business is strongly influenced by the dynamics of real incomes of the population.

There was also a direct and moderate relationship between business development in the region and the index of physical volume of GRP (the correlation coefficient between the indicators was only 0.313).

Comparison of the dynamics of the development of real cash incomes of the population

in the Vologda Oblast in absolute terms (x) (Fig. 1) with the dynamics of the development of money incomes of the population from entrepreneurial activity (y) (Table 2) shows that the relationship between the studied attributes is direct and weak (the correlation coefficient is 0.259). The weakness of the connection can be explained by the fact that the reaction to a change in the factor indicator — real cash incomes of the population — is delayed in business representatives.

The relationship between the index of physical volume of GRP (x) (see Table 2) and the dynamics of the Vologda Oblast cash income from entrepreneurial activity (y) (Table 1) is direct and noticeable (the correlation coefficient is 0.608).

For clarity, we summarize the data obtained from the close connection between the development of business in the region and its socio-economic indicators in table 3

Table 3. *Correlation coefficients between the development of small and medium-sized businesses in the region and socio-economic indicators of its development in 2012-2017*

Indicators	**Income from entrepreneurial activity, in% of the total amount of income**	**Incomes of the population from entrepreneurial activity, rub.**
The growth rate of real cash income of the population,% to the previous year	0,937	0,259
The growth rate of the physical volume of GRP,% to the previous year	0,313	0,608

Thus, the analysis shows that the level of socio-economic development of the region has a direct and fairly strong impact on the development of entrepreneurial activity, which cannot be said about the influence of forms and methods of state support for entrepreneurship.

A logical conclusion: business develops when the income of the population of the corresponding territory increases and its socio-economic indicators improve, although the effect in some cases is not immediately noticeable. Therefore, ensuring the accelerated growth of the “traditional” middle class in the country's regions will be facilitated by the use of the second strategy, according to which the business, as a little-managed system, will begin to develop automatically with its inherent speed following the growth of incomes. However, there is no doubt

that the successful development of small and medium-sized businesses needs state support [20, p. 191-198], therefore, at the regional level, the first growth strategy of the "traditional" middle class should also be used.

In connection with the foregoing, in order to ensure the accelerated growth of the “traditional” middle class, public authorities should use the third strategy, which implies a harmonious combination of the first and second strategies, giving priority to increasing the incomes of the region’s population as a whole and the comprehensive development of its social and economic sphere.

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塔吉克斯坦投资环境共和国信息部门的交易成本降低
REDUCED TRANSACTION COSTS IN THE INFORMATION SECTOR OF THE INVESTMENT CLIMATE REPUBLIC OF TAJIKISTAN

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本文讨论了存在健全的市场环境，经济体系和确保可持续的经济增长的重要条件，这是降低共和国经济中交易成本的水平。 这种减少可以通过解决以下问题来实现：确保经济体系的最佳物质结构； 建立新的信息系统，并引入最新的市场机制作为自由竞争。

关键词：交易，竞争，交易成本，交易部门，投资环境，创新。

Annotation. *The article discusses the important conditions for the existence of a sound market environment, the economic system and ensuring sustainable economic growth is to reduce the level of transaction costs in the economy of the republic. Such a reduction can be achieved by solving the following problems: ensuring the optimal material structure of the economic system; the construction of new information systems and the introduction of the latest market mechanisms as free competition.*

Keywords: *transaction, competition, transaction costs, transaction sector, investment climate, innovation.*

There are new costs that Ronald Coase in his work, The Nature of the Firm (1937), gave them the concept of transaction costs. He called "transactional" (from the word transaction - transaction). These include the cost of collecting information about prices, consumer preferences and competitors' intentions; negotiation, conclusion and legal support of transactions.

Transaction costs, as you know, are the costs of resources for fixing, changing and protecting property rights to various factors (resources) of economic activity. This is not a fee for the resources themselves, but a fee for the right to use them. Thus, various ob-

stacles and barriers to obtaining rights of use and create transaction costs.

Since the best incentives for the efficient use of resources are created under the conditions of clearly defined and well-protected property rights, the costs of society's resources that are incurred to specify and protect such rights represent a necessary part of the total transaction costs; obviously, they have a productive, socially useful character. The same transaction costs that economic agents have to bear in order to ensure that their activities comply with the rules introduced by the state that do not contribute to the growth of social wealth - these are the rules that constitute administrative barriers - are unproductive, leading to the aforementioned losses in the welfare of society.

The unproductive transaction costs faced by domestic entrepreneurs can be grouped as follows:

- obtaining access to resources and property rights to them (company registration, registration of changes in the status of the enterprise, its charter documents, obtaining the right to rent premises, access to loans, equipment leasing, etc.);

- obtaining the right to carry out economic activities (licensing of activities, jobs, certification of products manufactured and imported from abroad);

- maintaining business relations and applying sanctions (coordination of decisions with regulatory organizations, obtaining various benefits).

Transaction costs can occur only under certain conditions. We are talking about the relations of counterparties regarding specific assets, limited rationality and opportunism.

Specific assets are of particular value for the implementation of a specific project and at the same time tie counterparties in such a way that the refusal of one of them to fulfill the terms of the contract can cause great losses to the other.

Limited rationality does not allow one to predict in advance the necessity of adapting the terms of the contract to new circumstances, and the danger of opportunism forces us to look for "appropriate contract guarantees". Thus, there are always weaknesses in the contract in terms of its potential flexibility. When the changed circumstances give an occasion to one of the counterparties to abandon the course of transactions outlined in the agreement, for the second this means losses associated with the non-compliance of the course of the transaction outlined in the contract with its specific implementation. This type of cost relates to transactional, and reveals the very essence of why there are institutions in the economy. Their function is to provide transaction management in such a way as to minimize the possibility of incurring costs of the type described above.

It should be noted that in the modern Tajik economy, the conditions for the existence of transaction costs are particularly pronounced in comparison with developed countries. The specificity of assets in the Republic of Tajikistan is manifested in the close dependence of suppliers and consumers, as well as in the narrow subject specialization of enterprises, which was inherited from the planned system of economic reforms in the Republic of Tajikistan.

Limited rationality is particularly pronounced due to the instability characteristic of

the Republic of Tajikistan in transition.

Obviously, under such conditions, transaction costs must be very high. In developed market economies, "minimization of transaction costs is achieved by differentially consolidating transactions. . . for their governance structures. "Williamson O.

Such governance structures include vertical integration and credible commitments. However, in the modern Republic of Tajikistan, where there is no developed legal framework, the institutions described by Western economists could not function effectively. Therefore, in the Tajik transitional economy, money surrogates, namely barter and non-payments, acted as a kind of institution aimed at minimizing transaction costs.

Saving transaction costs in developed countries is carried out within the framework of institutions that require developed legislation governing economic activity. Since there are no conditions for the emergence of civilized institutions in the Republic of Tajikistan that contribute to minimizing transaction costs, institutions that are specific to the transition period spontaneously arise. These include money surrogates.

The reduction of transaction costs, not related to direct costs for the implementation of specific projects, is carried out by the development of the information infrastructure of the investment market, the regulation of tariffs for the services of monopolies, and the protection of the property and personality of the investor from the criminal sphere.

The interests of investors are supposed to be taken into account when preparing legislative and regulatory acts of the Republic of Tajikistan, as well as departmental instructions on pricing in the electric power industry, communications, and railway transport. For small investors, limiting the rent for industrial premises is of utmost importance.

Regarding the protection of investor property, it is necessary to develop a unified procedure for determining the extent of damage caused by embezzlement and theft, as well as unfair competition.

To ensure the personal and property safety of investors, it is necessary to develop special state crime prevention programs in the criminal areas of the economy, as well as in the regions of the Republic of Tajikistan with a high level of offenses.

A decisive fight against corruption is an important condition for the formation of an atmosphere of mutual understanding in society and people's confidence in government structures and bodies.

On this basis, the Agency for State Financial Control and the Fight against Corruption, the Accounts Chamber, the Prosecutor General's Office and other authorized entities in this area should better work with the population and take effective measures to effectively combat corruption. [5]

For these purposes, it is necessary to provide material, technical, informational strengthening of the corresponding operational services, investigative bodies and courts.

In terms of information support for investment activities, state assistance is required for existing and emerging commercial consulting organizations, business plan development firms, and design institutes. The specific tasks of information support of investment

activities are: collecting, processing and updating information on legislation, market conditions, prospects for the development of the economy and individual industries, plans of enterprises interested in attracting investments, privatization, sale of shares, and conversion of production.

Under the Ministry of Finance of the Republic of Tajikistan, a unified state-owned enterprise, the Center for Deposit Financial Reporting Services, has been created.

The Ministry of Finance of the Republic of Tajikistan and the State Committee for Investments and State Property Management "Center for Deposit Services of Financial Reporting" in accordance with the legislation of the Republic of Tajikistan solve the legal and financial issues of state enterprises. [1]

Depository - a professional participant in the securities market that provides services for the storage of securities certificates and / or provides services for recording the transfer of ownership of securities.

The main objective of the Deposit Reporting Services Center for Financial Reporting is to ensure a constant dialogue between the Government of the Republic of Tajikistan and large foreign investors with the aim of developing specific recommendations for improving the investment climate in the Republic of Tajikistan, tax and customs legislation of the Republic of Tajikistan, and creating an attractive image of the Republic of Tajikistan as a country that accepts investments .

For the development of the economy of the Republic of Tajikistan and the promotion of private foreign direct investment, cooperation of the Republic of Tajikistan with leading international financial organizations, primarily with the International Monetary Fund, the International Bank for Reconstruction and Development, the European Bank for Reconstruction and Development, etc., is important.

In modern conditions of the Republic of Tajikistan, enterprises operate in an environment of high profitability, both economic and legislative. The profound transformations that have occurred in the domestic economy in recent years, the specifics of our transition to market conditions, have created additional difficulties for the survival of enterprises in this situation.

Full risk development manifests itself in such trends as market saturation, the desire for concentration and internationality of enterprises, the reduction of technological and product life cycles, and the removal of barriers to competition.

Considering the theory of transactional and fixed costs, we came to the conclusion that, in principle, transaction costs are the same fixed costs, part of them.

Transaction costs are costs (monetary and non-monetary) that appear when making management decisions on the sale of goods (information costs regarding sales markets, customers, suppliers, competitors, sales prices, advertising costs, etc.).

I think that without the concept of transaction costs, it is impossible to understand the work of the economic system, it is impossible to usefully analyze many problems. The existence of transaction costs will push those who wish to trade to introduce various

forms of business practice that will reduce transaction costs in the case when the costs of developing such forms are less than saving on transaction costs. The choice of partners, the type of contract, the choice of products and services offered can all have an impact on reducing transaction costs.

Modern economic textbooks mainly analyze the process of establishing market prices, but the market itself is not considered. But this is understandable, because markets are institutions that exist to facilitate exchange, i.e. they exist to reduce transaction costs. In economic theory, which assumes that transaction costs do not exist, markets have nothing to do.

Summarizing the above, we can conclude: in a market, it is not only possible, but always necessary to manage costs. There is a restructuring of economic thinking, and the following logical chain is traced: a change in the theory of costs entails the need for training specialists and the use of these new theories at enterprises of material production with the goal of progressive management.

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认知或知识社会的形成
FORMATION OF COGNITIVE OR KNOWLEDGE SOCIETY

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抽象。 作者考察了认知社会的本质和主要特征，其中认知工作是在人类活动的各个领域中取得高成果的主要因素。 在本文中，我们研究了知识作用日益增强的原因，以及与知识广泛传播相关的风险。 在知识社会的框架内，人们对人力资源的使用和开发问题给予了极大的关注。

关键词：认知社会，知识社会，信息社会，知识，知识管理，知识工作者。

Abstract. *The authors examine the essence and main characteristic features of a cognitive society, where intellectual work is the main factor in achieving high results in various fields of human activity. In this paper, we study the reasons for the increasing role of knowledge, as well as the risks associated with its wide dissemination. Considerable attention is paid to the problem of the use and development of human resources in the framework of a knowledge society.*

Keywords: *cognitive society, knowledge society, information society, knowledge, knowledge management, knowledge worker.*

At the end of the XX and beginning of the XXI centuries, global changes took place in production, science and technology. In recent decades, knowledge and intellectual property have become the leading driving force of the new economy - the "third wave" economy, which is considered to be the main factor in the stability and development of society. This was the basis for the emergence of several synonymous names of the concept of a post-industrial society: "technotronic society", "knowledge society", "information society". Today, intellectual labor is becoming the dominant means of achieving high socio-economic results. Traditional factors of production - land, labor, material capital - act only under the condition of efficient use of intellectual capital and knowledge as one of its main components.

Traditionally, it is customary to distinguish the epochs that form the triad of "pre-industrial - industrial - post-industrial" society, where the latter is contrasted with the previous ones by to the most important parameters [4]:

- by the leading production resource (in the post-industrial society - information, knowledge);
- by type of production activity (in a post-industrial society - automated, computerized processing);
- by the nature of the technologies used (in a post-industrial society - high technology);
- by the nature of personal relationships (in post-industrial society - complex interpersonal interactions).

Thanks to the information revolution and the formation of a new type of society, collective and personal knowledge has become the main source of innovative development and the competitiveness of organizations in any industry. In this context, "knowledge" is understood to mean both knowledge that is opened and formed by scientific and pedagogical workers, and ideas about how production should be organized, how the product is manufactured, and for which goods demand will increase. Knowledge manifests itself in the skills and abilities of personnel and is fixed in the form of inventions, licenses, organizational structures, and methods of interaction between enterprises. The increasing role of knowledge for the information society is explained by a number of reasons, among which the following are distinguished [4,10,6]:

- development of science and technology;
- emergence of new high-tech products, innovative production technologies;
- increase of the availability of information for the general population, the widespread use of information technology based on convenient computer technology;
- the growth of the general level of education and the intellectual potential of society;
- depletion of natural energy resources;
- shift of economic activity towards the production of services;
- acceleration of globalization processes.

Today in developed countries 25% of the workforce is in the field of science and high technology. In the United States, 8% of the population creates more than 20% of GDP, while research and development (R&D) accounts for 40% of all costs. At the same time, about 66% of employees already have higher or incomplete higher education. Intellectual work, special knowledge and communications are becoming factors not only in the competitiveness of organizations, but also in creating added value for goods or services. For many types of products, most of the cost includes not so much material production as marketing costs, R&D, logistics and transporta-

tion costs, maintenance, design and quality control. For example, in his research A.V. Glichev notes that since the beginning of the 70s of the XX century, the share of intellectual labor costs on product quality has grown by 20% over 35 years, and the subsequent increase of 20% has already occurred twice as fast [1,2].

The knowledge society is characterized by a significant increase in the share of R&D expenditures in the total expenses of enterprises and the state, a steady increase in the capitalization of highly scientific firms, a significant increase in the value of intellectual capital, which is not directly related to material values and is determined primarily by human and structural capital (availability registered patents, instructions and work methods, etc.). The shift of production towards solving intellectual problems clearly illustrates the creation of automatic design systems that accelerate processes in all industries. Analyzing the work of modern researchers, we can distinguish the following characteristic features of the knowledge society:

- solution to the problem of the information crisis, the adequacy of high-quality information and the availability of the necessary funds for its use;
- the priority of information and intellectual capital over other resources;
- consideration of the main resources of a cognitive society as unique, inexhaustible and universal;
- increase in the knowledge component in products and services;
- determination of the value of manufactured products not so much with raw materials, components and energy, as with intellectual labor;
- automated knowledge life cycle using the latest information technology;
- global nature of information technology, covering all areas of human activity;
- possibility of a significant reduction in enterprise costs not only for transformation, but also for interaction;
- formation of the informational unity of mankind;
- unhindered access of every person to the information resources of the whole civilization;
- dominance of humanistic principles of social management;
- acknowledgment of human capital as the main national wealth.

It should be noted that a multiple increase in the speed and scale of the dissemination of information and knowledge not only contributes to solving a wide range of existing problems, but also increases the risk of new ones, among which researchers state:

- manipulating the consciousness of society through targeted filtering and metered delivery of information to the public;
- use by certain groups of persons of destructive information for conducting information sabotage, which can lead to disruptions in the life of society and major technological disasters;

- creation of weapons of mass destruction based on the impact of information on human intelligence;
- increase in the number of people who are immersed in virtual space and excluded from public life

In order to prevent and minimize these risks, it is proposed to create equal conditions for access to knowledge of all segments of the population, to strengthen the socio-psychological and humanitarian components of knowledge. A serious task for resolving the identified problems is the design and implementation of methods to increase the effectiveness of training, the awareness of the need to form the population's willingness to become a participant in knowledge management (to conduct research, evaluation, generation of new knowledge), to change the paradigm of functioning of society from material to spiritual.

The main focus of this work is focused on the features of the information society that affect human resources management, which is due to the determination of the pace of development of the organization and the state by the creativity of not individuals and elite layers of society, but the possibility of creative participation of wide social groups. On the one hand, the role of such an intangible asset as the knowledge and skills of each individual employee, the ability to solve various tasks assigned to him, is growing. Material production becomes secondary to the production of knowledge, which entails significant changes in the structure of the population's employment - the main productive force is the "knowledge workers", who are more active, creative and adaptive, ready to accept innovations faster. On the other hand, special attention is paid to the problems of forming a labor collective and project teams, where the level of knowledge of employees is not cumulative, and the result of joint intellectual work obeys the law of synergy. These changes require modernization not only of production, but also of its management, where new approaches to management come to replace autocratic management, which are characterized by delegation, participatory management, continuous training and staff development [1,5]. Despite the fact that at the enterprises the staff is still staffed by profession, category and level of education, these criteria are not always sufficient to adequately characterize the level of knowledge, skills and abilities of an employee. The leading one is the employee's ability to work with existing knowledge and generate new ones. The specificity of the new economic system also consists in the fact that the most effective are investments in the workers themselves, while the paradigm of material wealth is replaced by a knowledge-intensive paradigm [3,9].

Modern high-tech production processes suggest that the personnel involved in them perform elements of complex creative and intellectual work. This ex-

plains the demand for universal workers, whose functions can only be realized by comprehensively developed people with the need for continuous training and formed metacompetencies. Therefore, the main characteristic of a successful organization in society is the willingness to regularly train employees, the intentional formation of structures and strategies to increase and maximize organizational knowledge, which is reflected in the provisions of the P. Senge concept of the learning organization. In his book "Fifth Discipline", the author focuses on the need for each employee to recognize the dependence of the overall results on individual achievements and the implementation of group training through joint activities, solving specific problems and tasks to increase their effectiveness. The emergence of the concept of a learning organization became the initial basis for the emergence of a new branch of management strategy - cognitive management, which aims to create new significant competitive advantages for the organization on the basis of mastering new knowledge and stimulating its growth. The proposed strategy provides for the selection and accumulation of relevant knowledge from external sources, its storage, formalization and transformation [7,8].

Thus, in the present and future of our society it is impossible to deny the leading role of knowledge resources, which raises the question of the effective interaction of cognitive, information and social technologies. In this regard, there is a need to study the potential capabilities of all subjects of society to generate, use and disseminate knowledge; the need to determine the role of knowledge management as one of the success factors for the created scientific, social and economic projects and technologies.

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根据校内管理对体育教师方法学协会的工作进行分析
ANALYSIS OF THE WORK OF THE METHODOLOGICAL ASSOCIATION OF PHYSICAL EDUCATION TEACHERS AS A FUNCTION OF INTRASCHOOL MANAGEMENT

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抽象。 本文致力于分析普通教育组织中体育教师方法协会的工作。 考虑了关于“方法关联”，“健康管理”，“校内管理系统中的分析”类别的科学观点。 揭示了在普通教育组织运作的现状下，体育教师的有条理的协会的工作特点。 证明了在评估普通教育组织的方法学协会的有效性方面的分析功能。

关键词：方法协会，分析，管理职能，校内管理，体育教育，指导。

Abstract. *The article is devoted to the problem of analyzing the work of the methodological association of physical education teachers in a general educational organization. Scientific points of view on the categories of “methodological association”, “health-creating management”, “analysis in the system of intraschool management” are considered. The features of the work of the methodical association of physical education teachers in the current conditions of the functioning of general educational organizations are revealed. The analysis function in assessing the effectiveness of the methodological association of a general educational organization is substantiated.*

Keywords: *methodological association, analysis, management functions, intraschool management, physical education, mentoring.*

Introduction

Ensuring the quality of the educational process in a general educational organization largely depends on the quality of the methodological training of teaching staff. In turn, the very above-mentioned quality of methodological training of personnel is directly dependent on the effectiveness of the methodological association of all levels, starting from the basic - local level of a particular educational organization.

E.V. Litvinenko considers the analytical activity of a manager as the most important component of education quality management since "not only the organization's development strategy in the field of quality, but also the adoption of operational management decisions depends on a sound analytical review" [3].

N.V. Gladik notes that the technology of self-assessment of the quality management of scientific and methodological work in the school is based on four components: "internal motivation of the subject for self-esteem; definition of clear standards, indicators and assessment criteria; correlation of indicators and evaluation criteria with the control object; the implementation of self-esteem, interpretation of the results and management decisions on improving the management of scientific and methodological work" [2].

The work of the methodological association of teachers at the present stage, from the position of V.E. Tsibulnikova, must be considered in a historical and pedagogical context, it is noted that as early as 1947, the regulation on methodological work in a school obliged a school principal to supervise the methodical work, attend the lessons of each teacher, approve the work plans of the methodological commissions, etc. [5].

The issues of organizing the work of the methodical association of physical education teachers became even more relevant in 2019 at the final stage of the implementation of the "Strategy for the Development of Physical Education and Sports in the Russian Federation for the Period Until 2020" and, above all, the practical interest in the problem of the development and application of control and measurement and evaluation methods that could help summarize the work done and analyze its performance and effectiveness was increased. This article is devoted to this problem.

The analysis of the activities of the methodological association of physical education teachers is recommended to be carried out following the problem-functional approach that characterizes the "value-oriented management as a continuous process, including the management cycle (analysis, planning, motivation, organization, regulation and control) aimed at solving the problem of values and goals of the general educational organizations" [7].

It is emphasized that the regulatory and legal approach to managing the health conservation of participants in the educational process is associated with the activities of the school administration, and an important role is given to the head of the school, his deputies and the head of the methodical association of physical education teachers [6].

The methodological association, functioning in the format of instructive and methodological meetings, creates an environment of formative professional communication, which allows to effectively and quickly increase the level of professional competence of a teacher [1].

As already noted, the number of urgent tasks of the work of the methodological association includes personal development and improving the skill of teachers. The successful solution of this problem is facilitated by the use of HR mentoring technology, due to which there is a direct transfer of practical skills from a more experienced employee to a less experienced one. Mentoring technology has successfully established itself in many areas of labor practice [4].

Purpose of the study – analysis of the activities of the methodological association of physical education teachers.

Research methods and organization

The main form of work of the methodological association is the instructive and methodological meeting. The work plan of the methodological association is drawn up for a period of one academic year, respectively, and it is advisable to use the annual time interval as the reporting unit.

The activities of the methodological association in the general educational organization are regulated by a number of regulatory acts of the federal, city and local level (federal state educational standards, the Law of the Russian Federation "On Education", article 32, paragraph 20 - "Promoting the activities of teacher (pedagogical) organizations (associations) and methodological associations", clause 4 - "Competence and responsibility of an educational institution. Promoting professional development of members of the teaching staff", clause 5 - "Competence and responsibility educational institution - the organization and improvement of the methodological support of the educational process", local regulations on methodological association, etc.).

The analysis of the effectiveness of the methodological association is expressed in the form of an assessment and involves the identification of the degree of correlation of the achieved results of work with its original tasks.

Such tasks for the methodical association of physical education teachers in a general educational organization are: improving the overall methodological quality of the classes, increasing the practical results demonstrated by students (participation in competitions, work in the framework of the implementation of the All-Russian Physical Education and Sports Complex "Ready for Labor and Defense" (GTO Complex) and the successful delivery of its standards) improving academic performance in the subject; personal development and improvement of teachers' skills (advanced training, obtaining the next pedagogical category, being assigned a rank, receiving gratitudes).

These tasks in order to assess the effectiveness of the methodological association, can be reformulated into criteria.

Thus, the research methodology that most fully meets its goals and objectives is a formative experiment consisting in the application of personnel technology of mentoring in the framework of methodological integration with the subsequent assessment of the effectiveness of the work done.

The achieved results can have their quantitative and qualitative expression. One of the methods used in assessing performance is *performance analysis*. This analysis is an effective method for monitoring activities, using which the results of educational and professional activities are evaluated according to a pre-determined scheme.

The tangible results of pedagogical activity, in addition to teaching and educating students, are documents that invariably accompany the educational process. Subject to assessment are the methodological development, keeping journals and reports, records for the corresponding calendar period. The criteria to be analyzed are: the completeness of the reflection of the necessary information, its timeliness, the logic of the presentation of the material, its design and structuring, the correct use. A collective result is the sum of the individual results of all participants in the pedagogical process.

The collective result indicators give a general idea of the effectiveness of the methodological association of physical education teachers in a general educational organization.

Research results and discussion

The direct research base for writing this article was the State Budgetary Educational Institution of the City of Moscow "School № 2006".

The methodical association of physical education teachers in this general educational organization unites 15 people with different length of service, work experience in the specialty and sphere of professional interests. Their experience, the pedagogical category, the presence of distinctions and/or state awards, the completion of advanced training courses and/or professional retraining allow us to evaluate the real human resources of a particular educational organization, and the increase/decrease of indicators within the reporting unit of time - its positive or negative dynamics. The following is a qualitative and quantitative analysis of the starting indicators for assessing the personnel potential of the State budgetary educational institution of the city of Moscow "School № 2006".

At the beginning of the study, 100% of employees (physical education teachers) involved in the pedagogical process had higher education. 7 people were awarded with state awards, various insignia and honorary titles (46.6% of the total number of participants in the methodological association). Of the 15 people, only two (13.3% of the total number of employees) had a minimum pedagogical experience (up to 3 years), work experience in the specialty exceeding 20 years - 4 people (26.6%). According to the results of the reporting period (from September 2018 to September 2019), the staff turnover phenomena in the team were not recorded, as a result of which the average length of service of teachers in the specialty increased from 13.3 years to 14.3 years. Following the results of 2018, three teachers took advanced training courses, two - upgraded the category.

Conclusions

1. Methodological associations of physical education teachers allow to quickly respond to current changes that affect the content of the teacher's work, take into account the current achievements of the relevant field of knowledge and timely include their work, adjusting the course of the pedagogical process. Due to the fact that physical education acts as the only general subject aimed at developing physical qualities, preserving and strengthening the physical health and functional state of students, it becomes necessary to analyze the activities of the methodical association of physical education teachers as a function of health-building management.

2. An analysis of the work of the methodological association of physical education teachers in a general educational organization suggests the existence of a certain reference point that gives an idea of the starting indicators of the study. Under the *analysis of the activities of the methodological association* of teachers of physical education we understand the management function aimed at studying the status and development trends, an objective assessment of the results of the educational process with the subsequent development of recommendations for streamlining or transferring the system to a higher quality level [8].

3. Personnel technology of mentoring is widely used in the pedagogical environment, however, its use among teachers is limited by the pedagogical tradition and often has a weakly reflective character, while the application of this technology in the field of public civil service is much more developed from the methodological side. Having achieved high results in sports and having the opportunity to broadcast the best sports samples by personal example, sometimes physical education teachers need to seriously improve methodological training. It is this need that helps to satisfy the application of the staffing technology of mentoring in its most progressive forms.

When evaluating the work of a methodological association, in addition to analyzing objective indicators, it is also advisable to use self-and mutual assessment techniques as auxiliary.

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运动量来找到作为增加运动量和吸引学生参加运动的一种方式
CROSSFIT AS A MEAN OF INCREASING PHYSICAL ACTIVITY AND ATTRACTING STUDENTS TO SPORT SECTIONS

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抽象。 文章讨论了学生体育锻炼的重要性以及使用运动量来找到其作为吸引青少年参加体育运动的手段的教学问题。 描述了运动量来找到作为一般身体素质训练系统的特征。 经过开发和测试的作者问卷调查表，可以引起体育教师和学童对在学校体育部门的排球课中使用运动量来找到其训练系统的意见。 已经确定，运动量来找到对青少年来说是一种有吸引力的体育锻炼类型，它可以增加学生在体育课上的兴趣，从而提高他们的体育锻炼水平（PA）。

关键字：体育活动，体育锻炼，运动量来找到，学校运动部分。

Abstract. *The article discusses the pedagogical problem of the importance of physical activity of students and the use of crossfit as a mean of attracting adolescents to sports sections. The features of crossfit as a system of training in general physical fitness are described. The developed and tested author's questionnaire made it possible to elicit the opinion of physical education teachers and schoolchildren about using crossfit as a training system in volleyball classes in the school sports section. It was determined that crossfit is an attractive type of physical activity for adolescents and can increase the interest of students in classes in sports sections, thereby increasing their level of physical activity (PA).*

Keywords: *physical activity, physical performance, crossfit, school sports sections.*

Introduction

Given the *shortage* of PA for modern schoolchildren, the issue of popularizing school sports sections and finding innovative educational technologies in ensuring the functional state, general physical development and general physical fitness of the younger generation is particularly relevant.

V.E. Tsibulnikova emphasizes that “A person has a *genetically programmed individual volume of PA* in the form of a need for movement ... the individual volume of PA of each person is formed under the influence of society, the environment in the process of human life and professional activity” [6]. Thus, when rationing PA, biological, socio-environmental and intrapersonal factors should be taken into account.

It is noted that "A sedentary lifestyle and *low physical activity of the young generation* are one of the factors negatively affecting the formation of a general society culture in which human health becomes not only a medical, but also an economic, social, psychological and pedagogical problem" [4].

In pedagogical research, the relationship between the health-oriented style of professional activity of class teachers and the level of PA students is determined. It is noted that students where class teachers are teachers with a functional type with a high PA "42.76% of schoolchildren are involved in physical education and sports activities (attend sports clubs, engage in tourist groups, have a health-oriented lifestyle, accept participation in physical-sports events and competitions)" [3].

The relevance of the study lies in the need to increase the PA of adolescents and the popularization of school sports sections by introducing new popular types of physical activity.

In every educational organization in Moscow, school sports sections function, but they are not always popular among the younger generation. Due to the popularity of fitness, many teenagers have a desire to have a beautiful slender body, to be well physically developed. In recent years, crossfit as a system of physical fitness, similar to the system of general physical preparation, has become especially popular in our country. This training system developed by Greg Glassman is similar to the already proven circular training method [2]. All tasks are carried out "in a circle", while the task can be considered completed only when the student will complete the required number of circles. Both men and women can train by the crossfit system; at present, there is also a children's direction of crossfit [1].

CrossFit is aimed at optimizing a person's physical abilities, improving and developing all physical qualities - strength, speed, endurance, flexibility and coordination abilities, while this type of training helps increase adaptive abilities to change physical activity [5]. The crossfit exercise complex should be divided into 3 blocks: gymnastics; cardio load and strength training.

The first gyms for training on the CrossFit system opened in California in 2001. Every year, the popularity of crossfit is growing among all generations. Extensive propaganda is underway, advertising banners lure people at every step, offering to try themselves in this training system, motivate us with a beautiful physique and high physical fitness. A logical question arises: how to increase the PA of schoolchildren and attract them to sports sections?

Purpose of the study: reveal the opinion of schoolchildren and physical education teachers about the use of crossfit in volleyball classes in the school sports section.

Research objectives:

1. Analyze the scientific and methodological literature on the research problem.

2. Develop and test the questionnaire "Attitude of physical education teachers and schoolchildren towards the introduction of cross-fit into sports sections".

3. Interpret the results obtained, draw conclusions.

Research methods and organization

During the study, we used the following methods: analysis of scientific and methodological literature, comparison, the method of mathematical statistics, analysis of the data.

Research base – general education organizations located in Moscow WAO.

Research Sample: 130 people, among which:

- 30 physical education teachers;
- 100 students (adolescents 14-16 years old).

The study lasted for 3 months and took place in 3 stages.

At the first stage (September 2019) the study of scientific and methodological literature was carried out, the goal, tasks and research methods were determined. Schools were selected for the study.

At the second stage (October 2019) a questionnaire was compiled and a survey was conducted of the study participants.

thirdthird stage (November 2019) analysis of the data was carried out, mathematical calculations were performed, conclusions were drawn.

Research results and discussion

At the beginning of the study, we developed a questionnaire "Attitude of physical education teachers and schoolchildren to the implementation of crossfit in sports sections", which included seven questions, four answers were offered to each question. All survey results were anonymous. The survey results are presented in tables 1 and 2.

Table 1

Results of survey of teachers in physical education

№	Question	Yes	Rather yes than no	Rather no than yes	No
1.	Have you heard about the crossfit training system?	100%	0%	0%	0%
2.	Are you interested in crossfit system?	66,6%	10%	3,4%	20%
3.	Would you like to know more about the crossfit system/try it?	63,3%	20%	6,7%	10%
4.	Do you think crossfit can be combined with other types of physical activity/other sports?	76,7%	3,4%	10%	10%
5.	In your opinion, is crossfit possible at school?	73,3%	10%	13,3%	3,4%
6.	Do you think that the use of crossfit in volleyball classes in school sections for young men will be able to attract more people who want to start studying in the volleyball section?	86,6%	3,4%	10%	0%
7.	If crossfit were introduced in the volleyball section, would you like to work on the new program/come to study in the volleyball section?	80%	10%	6,6%	3,4%

Table 2

Students survey results

№	Question	Yes	Rather yes than no	Rather no than yes	No
1.	Have you heard about the crossfit training system?	71%	13%	6%	10%
2.	Are you interested in crossfit system?	68%	11%	18%	3%
3.	Would you like to know more about the crossfit system/try it?	56%	21%	11%	12%
4.	Do you think crossfit can be combined with other types of physical activity/other sports?	85%	3%	2%	10%
5.	In your opinion, is crossfit possible at school?	83%	6%	7%	4%
6.	Do you think that the use of crossfit in volleyball classes in school sections for young men will be able to attract more people who want to start studying in the volleyball section?	80%	6%	7%	7%
7.	If crossfit were introduced in the volleyball section, would you like to work on the new program/come to study in the volleyball section?	79%	4%	2%	15%

After analyzing the data obtained, we made the following conclusions, which are presented in Fig. 1.

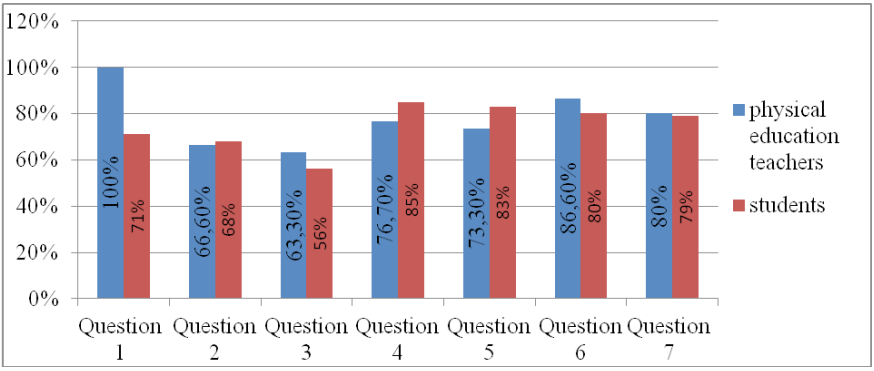

***Fig. 1** Analysis of positive responses of respondents*

After analyzing the results, we can draw the following **conclusions**:

1. Physical education teachers, schoolchildren are familiar with the crossfit training system, they are interested in this area of physical activity. Most of the respondents answered that it is quite possible to combine the crossfit system with other sports and apply at school.

2. Most students and physical education teachers believe that the introduction of the crossfit system in school volleyball sections will increase interest among students in classes from the ports and, thereby, increase their PA.

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外语教学中法学学生的爱国主义教育
PATRIOTIC EDUCATION OF LAW STUDENTS IN THE PROCESS OF TEACHING FOREIGN LANGUAGES

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抽象。 本文讨论在外语学习过程中为法学院学生培养道德和爱国主义价值观的多种可能性，有关外语老师的主题问题以及英语在国际交流中的特殊作用。

关键词：道德和爱国价值观的培养，宽容，宗教宽容，种族宽容，跨文化交流。

Abstract. *This article is about multifold possibilities in cultivation of moral and patriotic values to law students in the process of foreign languages learning, about topical problems for foreign language teachers and special role of English in the international communication.*

Keywords: *cultivation of moral and patriotic values, tolerance, religious tolerance, ethnical tolerance, cross-cultural communication.*

In a constantly changing world under the influence of social, political and economic relations, Patriotic education of young people has become the most important in the state policy of the country.

The education system also still has a lot of matters to study in this field. First of all, these are issues of Patriotic education of the younger generation. The student youth is that huge social layer which, first of all, has to become the object of Patriotic education for teachers.

Patriotic education of students currently attracts and merits serious attention in Russia. The state and public need for Patriotic education of citizens is fixed in the state programs of Patriotic education of citizens of the Russian Federation [1] and supports continuity of the process on further development of Patriotic civism of the Russian youth.

The resulting effect of implementing these programs have to become a move in the right direction of patriotism in the country, increase in social and labor activity of young people, especially, their contribution to the development of the main spheres

of life and activities in the public interests of the state, elimination of extremism of certain groups of citizens and other negative phenomena, the revival of spirituality, socio-economic and political stability and strengthening of national security [1].

Many public figures and educators of different periods of time and countries paid their attention to the problem of Patriotic education of youth V. G. Belinsky, N. A. Dobrolyubov, K. D. Ushinsky, N. G. Chernyshevsky, Sukhomlinsky, V. A. and many others noted the need to educate citizens who love their homeland and are ready to protect its interests. Their ideas found their development in modern concepts of Patriotic education of the younger generation.

The basis of Patriotic education is moral upbringing of the youth. Outstanding professional teachers, writers and public figures of the past and present - the German pedagogue I. Herbart, the Swiss democratic teacher G. Pestalozzi, the outstanding pedagogue A. S. Makarenko and many other great personalities – played an important role in discussing the issues of moral education.

The scientific works of modern authors (Meshcheryakov V. S., Kokova E. I. , A. I., Tsiulin, M. V. and many others) are devoted to the problems of cultivation of patriotism among University students in the process of learning a foreign language.

Provision of Patriotic education and moral development of Russia citizens is the most important task of the current state policy of the Russian Federation. Law-abiding, law and order, economic development, quality of work and social relations - all this directly depends on the adoption by a Russian citizen of national and universal values and following them in the personal and public life.

The draft "National Doctrine of Education in the Russian Federation "emphasizes that" the education system is designed to provide education...> education of patriots of Russia, citizens of the legal democratic and social state respecting the rights and freedoms of the individual, possessing high morals and showing national and religious tolerance". The doctrine reflects the sums up and will of the state to take responsibility for the present and future of national education, which is the basis of socio-economic and spiritual development of Russia [2].

Issues of Patriotic and moral education of young people are urgent tasks facing teachers of educational institutions at all levels. This task is dictated by the needs of modern society in the education of spiritual and moral, socially active, Patriotic and tolerant personality. Pedagogues face the vital tasks for developing feelings of Patriotic and ethnic identity, training stable immunity to all forms of chauvinism and nationalism**.**

A foreign language occupies a special place among all other academic disciplines, as it has great opportunities for the education of patriotism, internationalism, the formation of moral qualities of a person, gives students direct access to the vast spiritual wealth of another nation, increases the level of their moral education, forms their love for the Fatherland.

A distinctive feature of teaching foreign languages is that in the process of forming the skills and abilities of using a foreign language as means of communication, means of obtaining new and constructive information. For today, a foreign language and, in particular, English is the language of international communication, an important mean of dialogues among cultures, unity of different nationalities and religious traditions. During the study of a foreign language the discussing topics offer students to correlate their views with the norms of public morality. Such topics include environmental and family issues, issues of national culture, holidays, customs and traditions, media, tolerance, outstanding persons, etc.

Modern life is simply impossible without knowledge of foreign languages, and first of all English - a tool for dialogues among all nationalities on the earth. True understanding of foreign cultures is possible only with sufficient knowledge of the culture and customs of the home country**.** It has been said that any language is a mirror of culture. The process of teaching foreign languages to present-day students contains a unique pedagogical potential of spiritual and moral, ideological and political, aesthetic, labor education of the younger generation. Students should be able to represent their country and its culture in terms of intercultural communication and discuss with representatives of other peoples and countries various pressing issues.

Patriotic education and moral development - one of the main tasks in teaching foreign languages when working with such topics as" My Native City "(«Мой родной город»),," Our University " («Мой родной город»)," Russian Federation" (Российская Федерация»)," Moscow - the Capital of our Country («Москва – столица нашей Родины ")," Ecological Problems of our Country " (Экологические проблемы нашей страны).

In particular, when working with law students, such topics as "The Court System of Great Britain"," the Court System of the USA"," Higher Education in the UK"," Legal profession in GB"," the American Legal Profession" and many others are touched on the themes. As a result, there is some kind of dialogues between cultures out of the mouths of students.

Compared equal in aged foreign and Russian students, different countries, legal systems of English-speaking countries and Russia, our students identify common and specific issues. All this contributes to the unification, rapprochement, development of understanding and tolerant attitude to the traditions, customs of other peoples, to persons of different nationalities and religions.

True Patriotic values, while teaching a foreign language are possible only through comparison with Russian culture; love to the home land and native language**;** cultural awareness; sense of national pride; devotion to the Motherland, the ability to understand and appreciate the culture of other peoples.

Students should feel and understand that we have something to respect and be proud of, but at the same time there is something to learn by experience of others**.** Each foreign language lesson is a cross-cultural experience, a practice of intercultural communication, because every foreign word reflects a foreign world and a foreign culture, view of the world conditioned by national consciousness. Thanks to a complete understanding of the traditions, customs, language of their own and other cultures it is formed a whole picture of the world as one big house in which different peoples live, differing from each other and at the same time united by common aspirations for peace, good, happiness [3].

The communicative orientation of the subject – a foreign language - provides wide field for the education of patriotism, citizenship, morality, legal culture, as the training is based on familiarization with the culture, legal culture, political system, history, literature of other peoples and countries and this is one of the main goals and principles of the entire process of learning a foreign language.

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在儿童音乐学校和艺术学校的附加教育系统中引入现代计算机技术
INTRODUCTION OF MODERN COMPUTER TECHNOLOGIES IN THE SYSTEM OF ADDITIONAL EDUCATION IN CHILDREN'S MUSIC SCHOOLS AND ART SCHOOLS

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抽象。 本文讨论了在对儿童进行额外教育的条件下，在教育过程中引入现代计算机技术以实现计算机创新领域中的创造性自我实现和职前培训的问题。
关键词：现代计算机技术的创造力，在儿童艺术学校教孩子，计算机创造力的工作室。

Abstract. *The article discusses the issues of introducing modern computer technologies for creative self-realization and pre-vocational training in the field of computer creativity in the educational process in the conditions of additional education of children.*

Keywords: *modern computer technologies in creativity, teaching children in children's art schools, computer creativity studio.*

Today, the urgent problem is the formation of a creatively active personality, capable of independently making choices, setting and fulfilling goals, and analyzing their activities. A creative person should be ready not only for constant changes, but also for the adoption of these changes as an opportunity to meet the need for solving creative problems.

Orientation to the formation of empirical, reproductive thinking leads to the fact that many of the students are not able to use their knowledge in a non-standard environment, do not use creative thinking.

Only where there is an independent search for a solution to problems is a search for new, original ways to solve them, a truly creative activity of students is manifested. For successful and productive work with students in CMS and CAS, the creation of conditions for realizing the creative potential of students is of great importance. Modern music education has shown an increasing interest in computer technology. Musical computer science, using computer tools to develop the necessary knowledge, skills, is not as widely practiced in music education as the traditional classical or folk direction.

In musical life, a new class of musical instruments is gaining popularity, which includes keyboard synthesizers, samplers, workstations, multimedia computers, etc. Being one of the many products that have embraced the modern world of the industrial revolution, these electronic instruments are rapidly improving along with the development of computer technology.

The need to introduce this computer direction in the process of further education in Russia is due to the presence of a wide scope for creativity. In the process of computer creativity, knowledge is mastered, which form the basis of scientific ideas about information, information processes, systems, technologies and models; mastering the skills to work with various types of information using a computer and other means of information and communication technologies (ICT), organize your own information activities and plan its results; development of cognitive interests, intellectual and creative abilities by means of ICT; etc. Various types of activities in the classroom of computer creativity stimulate in children not only the development of psychophysical processes, sensory abilities, but also develop a creative imagination and broaden their horizons. The conducted surveys, questionnaires of parents and children revealed the relevance of studying this direction in the educational institution of additional and special education (for children with disabilities).

To implement this computer direction, which can be integrated into the process of additional education of children in institutions CMS and CAS, the author's program "Computer Creativity Studio" was developed (by A.D. Bunkova).

The purpose of the program: the education of a socially active, informationally developed creative person through computer creativity.

Tasks: form a knowledge system in the field of musical culture based on music and computer technologies; use the possibilities of computer creativity and elementary music making; contribute to the activation of the student's individual and creative abilities through involvement in musical and computer creativity and the development of communicative skills in the process of personal interaction in the conditions of collective creativity and the information space (Internet).

To achieve the required quality of education in the classes under the program "Computer Creativity Studio" the following areas are implemented:

Artistic culture is traced through:

- formation of a knowledge system that allows you to freely navigate in the information space;
- development of aesthetic perception of reality, associative-shaped thinking;
- formation of key competencies in the fields of musical culture and computer science, readiness to use the acquired artistic knowledge, skills and methods of activity in solving practical problems.

Socio-legal culture is traced in:

• study of moral, ethical, aesthetic values and relations in society expressed in musical language in works of art;

• formation of a sense of responsibility for the preservation and development of the spiritual, moral, cultural traditions of society;

• formation of an understanding of the need to respect the culture, traditions of other peoples, their and other people's rights to free expression in the field of culture and art.

Information culture is carried out through:

• formation of ideas about mega - cultural information, its main sources;

• mastering of artistic information as a source of self-knowledge and creative self-realization;

• formation of ideas about knowledge and its value in everyday life;

• mastering the methods of searching for the necessary information in the INTERNET, its evaluation and inclusion in the solution of various educational and creative tasks;

• acquaintance with the work of artists, composers and performers of the city of Yekaterinburg and the Ural region, the study of modern trends, features of creativity;

• acquaintance with modern leading computer directions in the field of arrangement in Yekaterinburg and Sverdlovsk region;

• study of modern hardware of a musician arranger and sound engineer.

Ecological culture is carried out through:

• understanding of the relationship "man-nature", expressed by means of art;

• mastery of moral standards of behavior in the system "man-society-nature" and self-awareness as part of it;

• development of an empathic - emotional attitude to the surrounding reality.

Health culture is traced in:

• activation of the functioning systems of the most important acts of the body through musical and creative activity;

• the use of art - therapeutic capabilities of musical instrumental, performing and creative activities in the development of a student;

• compliance with sanitary and hygienic norms and rules that are mandatory for all training sessions and their correlation taking into account physical capabilities;

• acquaintance with cultural ideas about the connection of spiritual, moral and physical health.

Activity - communication direction is traced in:

• embodiment by the means of musical visualization and musical expressiveness of the author’s artistic intent, reflection of the era and features of composer writing when arranging the works of the “golden fund”, independent analysis of not complicated musical songs, their selection by ear and improvisation;

• meaningful perception of works of art, including musical work and its general analysis;

• development of practical skills and abilities: phrasing, the most rational selection of style, for arranging, etc.

• development of creative abilities and skills: transposition, hearing selection of melodies of famous songs and harmonization with chords (simple harmonic figures), re-harmonization and genre variation of the melody, selection of musical sound accompaniment to videos, films, performances, mastering and mixing of multimedia products;

• awareness of the importance of personal participation in collective musical creativity.

At the first stage of training (grades 1-4), students try to realize their creative ideas in various programs and master electronic musical instruments. Particular attention is paid to the development of musical skills in playing electronic and electric musical instruments, the creation of computer presentations, the mastery of the initial graphic skills in a simple software environment, and music slide shows. The use of sound and music files and compliance with the video image. During the training, techniques are mastered for recording audio and video information.

Classes are held both individually (1 hour per week), and in small groups (5-6 people) - 1 hour per week.

At the second stage (5-8) of instruction, children are encouraged to become more active in the most successful artistic activities, focusing on a specific artistic direction (performing music (playing in various ensembles using digital and electric musical instruments, creating graphic works, musical compositions, linear and non-linear video editing, web design, etc.)

Classes are held, as well as at the 1st stage of training and involve both theoretical classes and practical (creative works), for example:

• arrangement of musical materials

• creation of an author's composition using digital tools

• installation of video clips, animated films, music videos, etc.

At stage III, pre-vocational training in the areas of musical art education is meant (musical performance on digital or electric musical instruments, computer and musical technologies, screen arts, etc.

The use of computer programs in the process of additional musical education makes it possible to facilitate and improve creative musical activity. With the advent of educational computer programs, the study of musical notation and the development of basic knowledge of music becomes more exciting and accessible for all groups of students, including those with disabilities.

Educational resources used in electronic form combined digitally presented photographs, video clips, sound recordings, text documents and other educational materials necessary for the organization of the educational process. These also include bibliographic and encyclopedic information stored on computer hard drives or on removable media. Existing modern programs for creating compositions and arrangements not only develop creative abilities, but also provide opportunities to acquire professional skills, which are the prerequisites for the professional activity of a modern musician.

The use of information and communication technologies in music education, taking into account the age characteristics of students, helps to form and instill musical and historical knowledge, contributes to the active perception of music, enriching the musical experience of adolescents, and developing a musical and general culture.

Interest in musical creativity is formed due to various impressions. Therefore, it becomes an important task for the teacher to advise the student and assist in getting acquainted with new developments of various computer programs for creative projects, in attending various events, excursions, which allows him to expand his horizons and provide an opportunity for further creative growth.

And in conclusion, I want to note that any creative searches and results of students should be encouraged, especially if they participate in various events, perform at concerts, festivals and competitions, and so on. Each of these types of creative practice closely connects creative learning with everyday life. This practice becomes an effective incentive for musical and creative self-improvement of each student in the system of additional education of children.

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为特殊医学群体开设的体育和体育选修课
ELECTIVE COURSES OF PHYSICAL EDUCATION AND SPORTS FOR STUDENTS OF SPECIAL MEDICAL GROUPS

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抽象。本文介绍了体育和体育选修学科的结构和内容。在大学的1至3门课程中，三分之一的学生是健康状况不佳的学生，参加特殊医学组的体育课。考虑到需要为学生提供选择和增加大学中残疾人的数量的必要，选修学科是必不可少的，它允许您使用灵活的系统进行体育锻炼和体育实践课，以提供深层次的吸收体育教育和健康指导类型所提供的技能，以促进对这项运动的组织和设备的了解。这有助于学生更好地适应社会环境；改善健康状况，防止慢性病恶化，这对残疾学生尤为重要，这可能是劳动力市场对毕业生的需求增加的一个因素。

关键字：选修学科，体育教育，学生，特殊医疗团体，有限的健康机会。

Abstract. *The article presents the structure and content of elective academic disciplines in physical education and sports. One third of students from 1 to 3 courses at the university are students with health deviations, attending physical education classes in special medical groups. Given the need to provide students with a choice and increase the number of people with disabilities at the university, elective disciplines are a necessity, allowing you to use a flexible system in conducting practical classes in physical development and sports, to provide a deep level of assimilation of the skills offered by the types of physical education and health orientation, to facilitate acquaintance with the organization and equipment of the sport. This helps students to better adapt in the social environment; improve health, prevent exacerbation of chronic diseases, this is especially important for students with disabilities, which may be a factor in the greater demand for graduates in the labor market.*

Keywords: *elective academic disciplines, physical education, students, special medical groups, limited health opportunities.*

The introduction of innovative technologies in modern domestic education has led to the emergence of a new form of training. The elective course, which first appeared at the main and senior levels of education, is now compulsory in higher education. The student chooses elective disciplines according to his interests, abilities and capabilities. In 2002, the Russian Federation adopted the Concept of specialized education at the higher level (10-11 grades), approved by the Ministry of Education of the Russian Federation. It was during this period that elective courses appeared in individual academic subjects, as well as interdisciplinary courses [1; 10].

According to the dictionary, elective disciplines (from lat. *Electus* - elect) are disciplines whose content allows you to satisfy professional interests (deepen your qualifications) in accordance with personal inclinations (elective disciplines). Disciplines selected by the student become mandatory for study. Together, the national-regional component of vocational training and elective disciplines provide knowledge, skills in a specific field [6].

Of the total number of children with a disability group, 176 thousand were registered at school age. At the same time, in the 2017–2018 school year, about seven thousand applicants with physical disabilities were enrolled in Russian institutes and universities. Many of them have disabilities since childhood. To master the basics of professional education in the same period, more than eight thousand such young men and women of about 15 years old have been enrolled. Previously, these indicators were significantly lower [11].

In this regard, the purpose of this work was to compile a curriculum on "Elective disciplines in physical education and sports" for students of the main medical group, including students with disabilities. In total, 640 students study at physical education classes in the 2018/2019 academic year, of which 423 students belong to the main medical group of health. At the same time, 217 people are students with health deviations, attending physical education classes in special medical groups, and this is a third of all students from 1 to 3 courses [8].

The curricula of the main educational programs in the direction 07.03.01 Architecture, 03.03.03. Design, 03.07.04 Urban planning at the Novosibirsk State University of Design Architecture and Arts (NSUDAA) presents sections of the modules for the curriculum "Elective disciplines in physical education and sports" FSES HE for full-time, part-time and full-time-distance learning students, for students - disabled people and people with disabilities. In the process of training, questions of general physical preparation, hygiene, nutrition, a healthy lifestyle are revealed. We study the main types of sports and physical activi-

ties, techniques, training rules for such sports: athletics, gymnastics, swimming, volleyball, basketball, table tennis and fitness: Nordic walking, water aerobics, corrective exercises and more. Students in practical classes receive recommendations for physical education classes in the implementation of the main types of sports activities, as well as for independent physical education, sports and fitness activities [3; 4].

Elective disciplines in physical education and sports are aimed at the formation of competencies: the ability to use the methods and means of physical education to ensure full social and professional activity; possession of the means of independent use of physical education and health promotion methods, readiness to achieve the proper level of physical fitness to ensure full social and professional activity [10].

The goal of mastering the elective disciplines in physical education and sports is the formation of the physical culture of the individual and the ability to use various means of physical education in order to maintain and strengthen health, psychophysical preparation and self-preparation for future life and professional activity.

In the learning process, the following tasks are solved: mastering the system of practical skills that ensure the preservation and strengthening of health, mental well-being, development and improvement of psychophysical abilities, qualities and personality traits, self-determination in physical education and sports; the acquisition of personal experience in improving motor and functional capabilities, providing general and professionally-applied physical fitness for a future profession and life; creating the basis for the creative and methodologically sound use of physical education and sports; activities for the subsequent life and professional achievements [7].

Requirements for preliminary training of a student are: to know the basic concepts in the field of physical education, the rules of safety and injury prevention during physical exercises: to have practical experience in sports and/or fitness activities according to general and/or additional education programs; the ability to work independently with literature, methodological publications.

According to the curriculum, as a result of mastering the discipline, the level of knowledge of the student must correspond to the competencies of the three level ranking. Students should know: level 1 - scientific and methodological foundations of physical education and healthy lifestyle; level 2 - social significance of physical education, its role in personality development and preparation for professional activities; level 3 - methodological foundations for the organization of physical education classes of various kinds, methods of monitoring the functional state and physical fitness. Teachers should be able to: level 1 - compose and perform sets of physical exercises of various kinds,

based on the characteristics of professional activity, stages of professional growth, individual and personal characteristics; level 2 - make individual programs of physical self-improvement based on the characteristics of professional activity, stages of professional growth, individual and personal characteristics; level 3 - exercise self-control of physical fitness, functional state. Students must be proficient in: Level 1 - skills of the motor actions technique of program types of physical education and sports activities; level 2 - system of means and methods of physical education that ensure the preservation and strengthening of health, the development and improvement of psychophysical abilities and qualities; level 3 - means of identifying and evaluating individually-personal, professionally significant qualities and means of improving psychophysical preparedness [4].

The content of the curriculum "Elective disciplines in physical education and sports" begins with the module Athletics as adaptive forms and types for students of special medical groups. In practical classes, the principles of general physical training (GPT) are studied and implemented: motor actions are formed, physical qualities are improved. In the learning process, the main and at the same time affordable GPT tools and methods are used: drill exercises, general development exercises without objects, with objects. To develop strength, we teach students exercises with weights corresponding to their own weight, partner's weight and its resistance, with resistance to elastic objects (expanders and rubber shock absorbers), with weights (dumbbells, stuffed balls). Stamina training exercises: exercises or elements with a gradual increase in their execution time.

From the first practical lessons with students, we master breathing exercises - one of the most important methods of strengthening the respiratory system, physical development, recovery and rehabilitation. We use dynamic and static breathing exercises in the classroom. Dynamic breathing exercises are combined with movements of the arms, shoulder girdle, and torso. Static (conditionally) are carried out only with the participation of the diaphragm and intercostal muscles. Depending on the use of gymnastic objects and equipment, we use exercises: a) without objects and equipment; b) with objects and sports equipment (sticks, balls, dumbbells, etc.); c) on sports simulators.

In practical exercises, we use physical exercises in voluntary muscle relaxation, which are used: as special exercises that help optimize the functions of the circulation apparatus; as a means of expanding the range of motor skills, abilities and qualities of students; as a means of reducing the level of general and special load in the procedure of physiotherapy exercises [2].

Therefore, it is advisable to use exercises in voluntary muscle relaxation immediately after exercises associated with the effort and tension of muscle groups.

We use stretching exercises in the form of various movements with an amplitude that provides a slight increase in the mobility available in a particular joint. The intensity of their specific action is dosed by the magnitude of the active tension of the muscles that produce stretching, pain, inertia arising from fast swing movements with a certain amplitude, and initial positions that allow lengthening the lever of a moving body segment. This type of exercise is used for stiff joints, lowering the elasticity of tissues and skin.

We use balance exercises to improve the coordination of students' movements, improve posture, and also to restore impaired functions (for diseases of the central nervous system, impaired cerebral circulation, diseases of the vestibular apparatus, etc.).

Corrective exercises are used for some diseases and after injuries of the locomotor apparatus. The task of corrective gymnastics is to strengthen weakened and stretched muscles and relax contracted muscles, i.e., restore normal muscle isotonia (for example, with scoliosis, osteochondrosis and other orthopedic diseases).

For coordination exercises, unusual or complex combinations of various movements are characteristic. They improve or restore overall coordination of movements or coordination of movements of individual segments of the body. These exercises are of great importance for students who were on long bed rest, with disorders of the central and peripheral nervous system.

The development of flexibility in practical exercises is carried out by active (simple, springy, swing) and passive (with self-grips or with the help of a partner) methods. The use of outdoor games and gymnastic exercises helps in training to develop dexterity. To improve such a physical quality as speed, tasks with motor reactions are used in the classroom by re-reacting to various (visual, sound, tactile) signals.

An integral part of the educational process in physical education for students of special medical groups is teaching methods of assessing the level of the functional and physical condition of their body. Using methods, standards, anthropometric indices, nomograms of functional tests, exercise tests to assess the functional state, physical fitness and physical development of the body, taking into account the data of medical control and self-monitoring, allows you to determine the level of development of many systems of the student's body, the state of his physical and functional health. Starting from the first classes in physical education, students will receive recommendations on maintaining a self-monitoring diary.

Nordic walking is used in practical classes in the disciplines: "Physical Education and Sports", "Elective Courses in Physical Education" and is actively used in physical education classes with students of the main, preparatory and special medical groups, disabled people and students with disabilities [1].

In walking classes (Nordic walking), students gain knowledge about its varieties. It uses a combination of walking with breathing exercises, relaxation, with a change in the time taken to complete the distance. The students study the methodological features of sports walking, Nordic walking [9]. Walking with special sticks, which has become popular in Europe and in Russia, is called Scandinavian or Nordic, Northern, Finnish (from NordicWalking). This is a relatively new type of health-improving physical education, which was patented by the Finn Mark Kantan in 1997 under the name “original Nordic walking”. The idea of walking with sticks belongs to skiers who used ordinary ski poles as a means of training in the summer [2].

For students with disabilities and related to health reasons, preventive gymnastics and wellness gymnastics are offered to special medical groups. With this category of students, corrective exercises of purposeful action are learned; techniques for performing special exercises for the prevention of various diseases are improved: disorders of the musculoskeletal system; gastrointestinal tract and kidney; visual impairment; hearing impairment; cardiovascular system and central nervous system; respiratory organs. Students learn sets of exercises for the prevention of various diseases. The formation of proper breathing skills during exercise. In practical classes, students learn breathing exercises (according to the method of yoga, body flex, A. N. Strelnikova, K. P. Buteyko), aimed at activating the respiratory and cardiovascular system; get acquainted with the principles and recommendations for hardening the body (sun, air and water). Therapeutic gymnastics, aimed at restoring and developing body functions, fully or partially lost by the student after illness, injury, etc are applied.

It is important to use therapeutic exercises for the development of compensatory functions, including motor, in the presence of congenital pathologies; prevention of the progression of the disease or physical condition of the student. In practical exercises, elements of wellness systems are used: yoga, Pilates, body flex, stretching, adaptive gymnastics according to S.M. Bubnovsky.

One of the modules of the curriculum "Elective disciplines in physical education and sports" is relaxation, auto-training. Students are taught how to relieve psychoemotional stress (general relaxation to music, auto-training); methods for analyzing the psychoemotional state of the body using relaxation techniques. Students master the methodology of compiling individual wellness programs, taking into account deviations in their state of health; instructor practice of preventive gymnastics complexes.

Adaptive types and forms of such sports games as basketball, volleyball are offered to students of special medical groups. Students learn the elements of basketball technique. Perform general and special player exercises. Master the basic techniques of mastering and controlling the ball, exercises in pairs, triples.

In the swimming section, students learn the basics of safety in swimming classes, master the initial swimming lessons (crawl on the chest, crawl on the back, breaststroke, dolphin); starts and turns; rules of behavior on water; rescue of drowning, first aid; general and special exercises on land). In the classroom, outdoor games in water are used. Students learn corrective exercises of targeted action in therapeutic swimming complexes in case of posture problems and scoliosis. At these lessons, elements of water aerobics are used.

Since in our institution the majority of students with poor health are students with diseases of the musculoskeletal system and impaired posture, for independent exercise we suggest that students include exercises to strengthen the muscle corset in morning exercises (according to T.A. Fonareva, 1980) [Conducted in accordance: 5, p. 592-594].

In conclusion, it is important to note that the proposed model of the organization and structure of elective disciplines in physical education and sports for students, the main medical group and for students attending special medical groups allows you to take into account the interests, abilities and capabilities of students of NSUDAA. This provides a systematic attendance of classes in physical education and sports at the university.

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现代公共行政质量管理方法
MODERN APPROACHES TO THE ASSESSMENT OF THE QUALITY OF PUBLIC ADMINISTRATION

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In international practice, the following levels of regulation exist: international, regional and national. At the international level, such organizations as the UN, OECD, and the World Bank are involved in evaluating public administration. Evaluation of the effectiveness of public administration is carried out for compliance with the goals of international agreements. At the regional level (integration level), supranational bodies are involved in evaluating public administration. At the national level, public administration evaluations are carried out by national government organizations, private commercial and non-profit organizations. National government organizations monitor compliance with standards of administrative procedures, assess the degree of achievement of national goals.

Private commercial organizations include various rating agencies, in particular, S&P, Fitch Ratings, Expert RA. These agencies provide information to business entities on the business climate. Non-profit organizations include universities, as well as other organizations. These organizations measure the achievements and level of problems in individual areas of activity.

An important element is the assessment of the quality of public administration. The main elements of the quality of public administration are the following principles:

1) The principle of "Rule of Law", which implies the existence of equality, justice and compliance with the same rules for all;

2) “Development of the role of the state”, which implies the optimization of state functions, the organization of interaction with civil society, as well as the development of self-regulatory mechanisms;

3) “Involvement of civil institutions in the work of the state”, which implies the development of a system of civil liability, as well as the independent monitoring of the performance of state functions;

4) “Modernization of the performance of public functions”, which implies the strengthening of their digitalization, as well as the creation of standards for the provision of public services;

5) “Decentralization and deconcentration of power”, which involves strengthening information interaction between government bodies.

6) “The constancy of change”, which implies the existence of permanent mechanisms, incentives for development.

Thus, public administration must be considered as a system of various elements, institutions, each of which has a significant impact on the functioning of the state as a whole. For a more detailed study of public administration, it is necessary to focus on the consideration of indicators evaluating the quality of public administration.

Comparative assessments of quality help to compare the level of countries in terms of efficiency and quality of public administration. For the state, the position in the ranking is an important indicator, especially in the context of globalization and increasing competition in the international arena. A less effective system of government in comparison with other countries can lead to a lag in the world market due to the loss of potential investments, lower quality of human capital. The state is forced to constantly increase its competitive advantages in the struggle for internal (emigration, allocation of production capacities) and external (external investments, capital inflows) resources. To assess the quality of public administration at the level of specific countries, both international monitoring methods to assess the quality of administration, and national methodologies that take into account the particular state are used.

Studies of public administration systems are usually conducted for countries that show similarities in a number of characteristics. For example, the World Bank introduces classification features and compares countries that are in the same range of variation of the selected characteristic. This characteristic is most often per capita income. All countries are divided into three groups: low-income countries, middle-income countries and high-income countries in terms of per capita GDP. Often countries are classified into countries with developed, developing and countries with transition economies.

The second important element in conducting an assessment is setting a goal. The index used should clearly determine the purpose of the assessment in order to correctly interpret the result. In transition economies, government regulation is associated with the phenomenon of rent seeking, thus giving public administration a negative connotation. (Buchanan, 1980). At the same time, a modern state can be effective only if there is a developed and efficiently functioning state apparatus. The key prerequisites for this are the existence of state autonomy (relative autonomy) from the ruling elite, as well as a powerful bureaucratic apparatus capable of implementing the transformations so necessary to ensure compliance with the requirements of modern society (Evans, 1985 p. 47). The high quality of public administration also determines the country's economic and social successes and allows for the formation of additional competitive advantages (Fukuyama, 2014, p. 49). In this case, ratings and indices calculated in the framework of studies by international non-governmental organizations serve as evaluative indicators. Among them, the World

Bank, the Organization for Economic Cooperation and Development (OECD), the United Nations (UN), the International Labor Organization, the World Economic Forum, the World Health Organization and others are especially significant.

Assessments are also made by national and government organizations. In the USA, for example, the assessment of the quality of public administration is organized as a competitive non-commercial project funded by donor organizations. The level of financial management and the overall results management system, personnel management, information technology, capital expenditures are subject to assessment. By these parameters, different states are compared. In Sweden, the Financial Management Agency builds financial management quality ratings in executive bodies in order to monitor the implementation of standards established in this area. This rating is used by the Ministry of Finance to form its negotiating position when considering budget applications of departments.

Assessments in different areas are also made by private rating agencies. The most famous of them are Mood's, Standard and Poor's, Fitch, MsKinsey and others. For example, the Moody's Agency assigns ratings and publishes independent credit reports. S&P calculates and publishes credit ratings of organizations and entire states. Among the less well-known private organizations engaged in international assessment, one can cite the example of The Global City Competitiveness Index - calculated for the largest megacities of the world by the British research center The Economist Intelligence Unit.

The mission of these organizations is not only to provide an objective and comprehensive assessment of the differentiated indicators characterizing the quality of life in the country from different perspectives, but also to accumulate and disseminate the best managerial, socio-economic practices. The goals of comparative quality assessments are to inform the general public about the state of various aspects of life in different countries, cross-country comparison of living conditions of people, accessibility of social benefits and infrastructure, features of doing business, and managerial effectiveness. The place of a particular country in the international ranking is an indicator of positive or negative changes in society and allows you to make decisions about adjusting the managerial course.

All collected indicators of the quality of public administration can be divided into two key groups - these are monitoring indicators and impact indicators. Monitoring indicators should be understood as meaning that are not subject to deliberate influence from the state. Changes in these indicators occur under the influence of external factors. Impact indicators are directly affected. Influence indicators are most often laid down in strategic documents.

An indisputable advantage of the international system of assessing public administration is its openness, general accessibility and breadth of coverage, which makes such ratings convenient indicators of ongoing reforms. For example, the Doing Business regulation indicator of entrepreneurial sphere, calculated annually by the World

Bank, from 2012 to 2018 was included in the list of resulting indicators of the May Decrees of the President of the Russian Federation. In particular, in 2012, the goal was set to increase Russia's position in the Doing Business ranking to the 20th level in 2018[1]. However, it should be noted that at the end of 2017, Russia occupied the 35th place in the Doing business rating, and in 2018 the goal of increasing Russia's position in the rating disappeared from the "May decrees"[2]. It was replaced by the goal of Russia becoming one of the five largest economies in the world.[3] Despite all the external breadth of the format and universality of most international indices, it should be understood that each country has individual economic, political, religious and sociocultural characteristics, which imposes restrictions on the interpretation of ratings and the use of their results. For example, the low proportion of women in power in Iran[4] can be considered a natural consequence of the country's cultural characteristics.

In addition, a limitation on the use of indicators is a certain proportion of their subjectivity. This is especially true for indices built using expert survey data. For a number of indices, the democratic system is a priori value. History has many examples where authoritarian leadership proved its effectiveness in difficult historical periods, and the democratic system was defeated and led to disastrous economic consequences for the country. Thus, the orientation of a country to a specific international index or rating has its limitations. However, the totality of many diverse international assessments gives a relatively objective idea of the level of development of the country, the dynamics of its development, individual aspects of the life of the state and society.

The origins of national assessments of public administration in Russia date back to the mid-2000s, when it became necessary to monitor the effectiveness of the ongoing reforms - administrative, budget, tax and other reforms. The directions of the assessment are directly related to the directions of the ongoing reforms, and the indicators themselves were created in accordance with international principles of assessment - objectivity, comparability of results in different periods of changes, transparency of methods. Despite the absence of normatively fixed methods for assessing the effectiveness of transformations, each of the reform concepts, as a rule, contains a list of indicators, the improvement of which should be guided. For example, the Concept of Administrative Reform of 2006-2010[5] included indicators of satisfaction with the quality of public services from 14% in 2004 to 70% since 2010, a reduction

[1]Package of Decrees of the President of the RF of May 7, 2012

[2]In turn, international indices do not always correctly reflect the situation in the country, because the principle of comparability is often violated.

[3]Decree of the President of the RF of May 7, 2018 № 204 "On national goals and strategic objectives of the development of the Russian Federation for the period until 2024"

[4]According to Bird In Flight, the percentage of women in Iran's parliament does not exceed 3%, https://birdinflight.com/ru/infografica/zhenskaya-dolya-kak-raspredeleny-mesta-v-parlamentah-mira.html, Appeal date 24.03.2019

[5]Order of the Government of the RF of October 25, 2005 N 1789-r

in business costs for overcoming administrative barriers from 8.5 in 2004 to 3% of revenue enterprises by 2010, improving the performance of Russia on the GRICS index. According to the report of the Higher School of Economics "Administrative Reform and the Reduction of Control and Supervisory Functions" prepared in 2016, it was possible to achieve the stated goals only in terms of public satisfaction with the quality of public services. Later[6] the focus of the assessment of public administration in Russia shifted to the service direction, and the indicators themselves were reoriented from international ratings to internal data, excluding the previously declared orientation to international ratings, such as GRICS or Doing Business.

On the whole, an analysis of Russian practices of comparative evaluations in the field of management and related fields indicates the need to develop continuity, an integrated approach and systematic character in assessment projects. Often, the assessment is carried out on an irregular basis (sometimes in the wake of increased political activity in a particular issue), the methodology undergoes frequent changes, and the results are published irregularly, which makes them lose their relevance. It is also worth noting that the regional and municipal components of the assessment system are worked out in the least way. Only some large federal subjects carry out their own assessments; economically weak and subsidized regions often have neither aspiration nor resources for a qualitative assessment. We should also dwell on the relevance of the results of evaluations and the nature of their use. A high-quality assessment system is a reliable management tool that ensures the achievement of the strategic goals of the socio-economic development of entities, municipalities, individual authorities and the country as a whole.

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了解职业人格主体性的概念
UNDERSTANDING THE CONCEPT OF PROFESSIONAL PERSONALITY SUBJECTIVITY

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抽象。 根据个体社会文化需求的认同发展原则，提出了对现代教育发展趋势的反思。 人格发展的主观性在社会关系系统中得到描述。 文化和教育空间的特征是一种确保个体轨迹形成的完整性的现象，结合了未来教育领域专家的自我表达的独特性和专业活动的标准。

关键词：职业人格主体性，文化教育空间，学生自我表达情境，人格自我决定。

Abstract. *The reflection of the development trend of modern education is presented on the basis of the principle of identity development of the individual socio-cultural requirements. The subjectivity of personality development is described in the system of social relations. The characteristic of the cultural and educational space is given as a phenomenon that ensures the integrity of the formation of an individual trajectory, which combines the uniqueness of self-expression of a future specialist in the field of education with the standards of professional activity.*

Keywords: *professional personality subjectivity, cultural and educational space, student self-expression contexts, personality self-determination.*

The possibilities of satisfying the needs of personality development in the education system in a dynamically changing space of life are associated with the fact that the existing conditions for the transformation of a person, the impact of social institutions on this process, changes in the personality education system itself give rise to the need for theoretical reflection on the influence of these circumstances on the process of strategy formation of a human life. [1] In this regard, the existing mechanisms of personality formation experience difficulties in their functioning, since they cannot fully master the changes that are taking place, and adapt to them. [2] In turn, educational reality puts forward the task of a holistic review of the existing conceptual framework for substantiating human integration in the socio-cultural space of the development of society. [3].

The birth of a new strategic trend in modern society affects many areas of relations, involves the search for other ways of personality formation. [4] The scientific and theoretical relevance of addressing the problem of personality education at a certain age level, it is about students, requires a search for identical meanings, what is happening: adequate methodological-orientational foundations from which it is possible to describe sociocultural changes. It is this idea of understanding the education of a growing personality within the cultural diversity of its existence, the variability of ways to comprehend the world, self-organization and self-determination of a person - that can be the leitmotif of such an understanding of the concept of development of the subject. The genesis of the phenomenon of personality formation in socio-humanitarian knowledge is presented in various descriptive characteristics. On the one hand, the historical contexts of the development of education both in Russia and abroad are considered; on the other hand, based on the specifics of the systematic approach, modern research practices of educational organization are considered. [5]. Reliance on these sides allows us to predetermine the choice of a certain model of the development of education, which is based on a design-constructive approach to cognitive action. [6] The relevance of this guideline is manifested on the basis of the fundamental position on the methodological, theoretical and axiological pluralism of considering the content and organization of the educational process. A common starting point, ensuring the integrity of a methodological foundation of this kind, is an understanding of the characteristics of the subject of regulation of the educational process, which allows one to identify goals and patterns, as well as describe the principles of education in the context of social requirements. Even the objectively established situation of changes in the field of education requires not a spontaneous, but a controlled attitude towards it. The integration of conditions and factors describing the educational process in the modern regulatory system can be declared as a connection between training, education, development and socialization. From this point of view, among the main methodological principles underlying the concept of designing and organizing the educational process can be the variability of the content of education and subjectivity, as a form of self-realization of the essential forces of personality. The identification of the features of the content and organization of the educational process, according to a number of researchers, allows us to consider the existing potential of subjectively developing personality socialization based on a combination of personal and professional in the teacher's activities, where his basic characteristics are mission, professional competencies and labor functions. [7] Educational practice shows a certain correlation of the professional culture of a specialist and his personal qualities, which, in turn, based on the previously indicated position, allows a certain degree of personality, in the conditions of kaleidoscopic transformation processes in the field of education, to satisfy the

need for natural development. [8] This predetermines the next step in the logic of considering education as a space for the formation of subjectivity, which consists in determining the substantive-procedural side of transformative actions in the personality education system. A reflection of this position can be represented in the description of the forms and methods of organizing various areas of development of the student - communicative, cognitive, artistic and aesthetic, physical and social. In this approach, we can note that the totality of the indicated directions of formation and manifestation of the uniqueness of the personality leads it to self-determination, as the most important indicator of the influence of the educational space, in its technological, procedural and instrumental “face”, on the process of the general development of the personality. Such an understanding of the disclosure of the "self" of a person just provides the possibility of realizing the initial moment of acquiring the human characteristics of a person in a particular period of development. Obviously, this has a pronounced social orientation, since the uniqueness of a particular person can only be recognized in the public importance.

In this regard, the interaction between the subjects of education can be built on various grounds. Analysis of varied programs of education, training, development and socialization of the student’s personality allows us to assert the possibility of social partnership between the subjects of education. The presence of relations and cooperation between the subjects of education, as confirming the effectiveness of indicators of interaction between the educational organization and institutional educational practices, is a reflection of the semantic purpose of not just an educational space, but as a space with three basic characteristics. The first characteristic is the social space of personality education. The second characteristic is educational space, involving the subject-subject interaction of all participants in the educational movement of the individual. And, finally, the third characteristic is the cultural space that determines the student’s personality development strategy. In essence, this space is a cultural and educational space.

Thus, the subject, being in the cultural and educational space, has the opportunity to carry out the process of self-determination - as a starting point in the formation of his own uniqueness arising from the system of relations that prevail in this space.

The above can serve as the basis for the formation of a holistic professional and pedagogical position of future specialists in the field of education. This is the basis of their self-expression in the field of education, there is a guarantee of the formation of students' ideas about such relationships in the professional sphere that form the value-based, understandable and accepted norm of professional activity. Fundamental, in this regard, is to cultivate the professional position of future teachers based on a systematic view of the processes occurring in education. The content, structure, logic of this study allows us to identify three contexts, the formation of the above

position, acting as a result of the student-subject. The first of them - historical and system-active, allows you to create a system of views of the future teacher on the objective and subjective reasons for the formation and development of education both in Russia and abroad. The second is reflective-designing, when a student forms an attitude to the system of activities and, on the basis of familiarization with varied educational practice, provides a formation of ideas about the design and organization of the educational process. The third context is related to the explanation of the need for subject-subject relations and the specific form of their implementation, where social partnership and cooperation between participants in education are dominant.

As components of a holistic understanding of the concept of the development of professional subjectivity of a person, as a subject, it is possible to attribute those that are already updated by modern educational practice and require consideration in the process of preparing a future professional:

a) emerging and developing institutional and educational practices as factors in the education, training, development and socialization of a student can be supplemented by a correctional component, as this is one of the manifestations of the modern cultural and educational situation: in this regard, the student's possession of this component of activity is a necessary condition of formation and development in the profession;

b) the space of intersubject interaction, where the teacher and the student are dominant, can be expanded through descriptions of other subjects whose actions in the information type of society affect the subject: this means, first of all, the media, for the interaction with which it is necessary to prepare for the future educational specialist;

c) the organization of training, development, upbringing and socialization of the student can be considered in accordance with the rhythms of the future, which requires a description of the individual's life strategy in a different type of social relationship: an individualizing society puts forward its requirements for the activities of the teacher, who must find identification options with them;

d) the meaning-forming educational context assumes the existence of identical communications, when the need for describing not only the theory, but also the technologies of the directed translation of meanings in the education of the individual increases: we are talking about the formation of a system of relations between its participants.

Thus, educational practice with a vision of different guidelines for its development provides opportunities for theoretical reflection of reality in the formation of personality subjectivity. It is the constantly changing reality of personality education in the contours of the cultural and educational space that acts as a sign of compliance with the requirements of not only the real, but also the projective future in the process of its professional formation and development.

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小学生情绪智力调查
INVESTIGATION OF EMOTIONAL INTELLIGENCE OF PEDIATRIC STUDENTS

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抽象。 这篇文章描述了KrasSMU儿科系学生对球体，情商的实证研究。 对同一样本中的第一年和第四年的情商指标进行了比较分析。 积极的动态表现在量表上："情感意识"和"对人的情绪的管理"。 在"自我动机"，"虚心"，"管理其他人的情绪"的量表上，未发现统计学上的显着变化。

关键词：情绪智力，自我激励，同理心，管理他人的情绪，管理自己的情绪，情绪意识，学生，健康。

Abstract. *The article describes an empirical study of spheres, emotional intelligence among students of the pediatric faculty of KrasSMU. A comparative analysis of indicators of emotional intelligence in the first and fourth year in the same sample of students is given. Positive dynamics were revealed on the scales: "Emotional awareness" and "Management of one's emotions". On the scales "Self-Motivation", "Empathy", "Managing the emotions of other people", no statistically significant changes were found.*

Keywords: *emotional intelligence, self-motivation, empathy, managing other people's emotions, managing your emotions, emotional awareness, students, health.*

The relevance of the study of emotional intelligence in medical students is due to the characteristics of their future profession. For a doctor, especially for a pediatrician, it is professionally important to be able to recognize emotions, understand the motivation of patients as well as develop the ability to manage their own emotions and the emotions of other people. This, on the one hand, ensures high-quality

professional communication, on the other hand, it helps to preserve and strengthen one's own mental and somatic health. The concept of "emotional intelligence" as a set of cognitive abilities structured through the interaction of emotions with thinking, which includes the ability to control not only one's own feelings and emotions, but emotions and feelings, and other people, distinguish between them and use this information to control thinking and behavior, as well as the relationship of emotion with personal growth and interpersonal relationships was introduced by D. Mayer and P. Salovey. Considering that EI characterizes the concept of "intelligence" more accurately than the ability to think logically, D. Goleman included in a number of abilities that comprise it, social competencies such as self-regulation, empathy, etc. [7]. D.V. Lyusin defines emotional intelligence as the ability to understand and control strangers and their emotions [4]. Such a focus on the ability of a person to realize their own emotions and understand the emotions of other people, manifested in the value differentiation of emotional states and emotional self-regulation of activity and communication, represents EI ensuring the preservation of mental balance, spiritual integrity and health of a person.

The definition of EI as a system of socially accepted ways of expressing emotional states, the totality of a person's personality, suggests the role of emotional competence in stabilizing and maintaining the psychological health of a person as an integrative system of personal well-being. In this regard, the author's claim that the structure of emotional competence is a more detailed structure of emotional intelligence, taking into account social influences on its development, is interesting [1].

Research results

An experimental study of EI in future pediatricians was carried out in 2 stages.

At the first stage in 2016, a diagnosis of the level of emotional intelligence in freshmen students was carried out. The test was performed by students of the pediatric faculty of KrasSMU 102 girls, aged 17 to 19 years. The second stage was a repeated diagnostic study conducted in 2019 in the same sample of subjects at 4 years of study, the age of the participants in the repeated survey was 20–23 years. The choice of this age category is due to the fact that the period of youth is "sensitive" for the development of emotional skills, which in mature years will form the foundation of personal potential.

As a diagnostic method, N. Hall's questionnaire was used, which was designed to identify the ability to understand the personality relationships represented in emotions and manage the emotional sphere based on decision making. The questionnaire contains 5 scales:

– emotional awareness;

– management of one's emotions (rather emotional plasticity, emotional non-rigidity);

– self-motivation (rather arbitrary control of one's emotions);

– empathy;

– recognition of other people's emotions (rather, the ability to influence the emotional state of other people) [6].

In the course of working with the technique, the subjects (using the Lakert scale) are asked to evaluate 30 statements in accordance with the degree of agreement (disagreement) with them.

Let us turn to a detailed examination of the obtained results of stages 1 and 2 of the experiment for each component of the procedure.

The analysis of the results of the experiment respondents showed that 41.2% of the respondents during the first stage of the study (freshmen) in the component "Emotional Awareness" ("EA") showed (Table 1.) a low level of severity of the studied trait. The average level for this component was found in 47.1% of freshmen, 11.8% showed a high level.

At the second stage of the study, the following indicators were diagnosed for the same sample: 14.7% of respondents maintained a low level of trait development, 29.4% of respondents showed a "high" level, and an average level was 55.9%.

Table 1. *Comparative analysis of experimental data for the component "Emotional Awareness"*

Level	Results (%)		Level changes (%)		Statistical analysis
	At the 1-st stage of the experiment	At the 2-nd stage of the experiment	Low to medium level	Medium to High level	Student's t-criterion value
Low	41,2	14,7	26,5	17,6	5,90*
Middle	47,1	55,9			
High	11,8	29,4			
*- significant if p≤0.01, t-Cr (n=102) (p≤0.01) =2,58					

A quantitative study of the data of the 2-nd stage of the study showed that the development of "EA" in 26.5% of respondents (medium level), and in 17.6% - to "high".

Differences in the results obtained in the first and second stages of the study are statistically significant from the position of the t – student criterion for dependent samples ($t_{Cr\ (n=102)(p\leq 0.01)}=2,58$, $t_{Emp\ (n=102)}=5,90$, ($t_{Emp} > t_{Cr}$). This is completely consistent with the data of the results of scientific research [5,6,7], devoted to the study of the basic parameters of emotional maturity in adolescence (students), and emphasizing the unevenness, the formation of emotional maturity, the development of its main features and levels of their manifestations.

Table 2. *Comparative analysis of experimental data for the component "Managing your emotions"*

Level	Results (%)		Level changes (%)		Statistical analysis
	At the 1-st stage of the experiment	At the 2-nd stage of the experiment	Low to medium level	Medium to High level	Student's t-criterion value
Low	64,7%	47,1%	17,6	2,9	6,20*
Middle	32,4%	47,1%			
High	2,9%	5,9%			
*- significant if p≤0.01, t-Cr (n=102) (p≤0.01) =2,58					

Positive changes are evident in the "Managing your emotions" parameter (Table 2.): in 17.6%, the development of this parameter increased to "average" level, and in 2.9% - to "high". That is, basically, fourth-year students began to more easily tolerate pressure from the outside, carefully monitor how their feelings and emotions are reflected in their communication partners, and become less obsessed with negative emotions.

At the same time, we did not find (based on paired Student's t-criterion) statistically significant dynamic shifts for such professionally important areas of emotional intelligence as: "Self-motivation", "Empathy", "Management of other people's emotions" (tab. 3.4,5).

Table 3. *Comparative analysis of experimental data for the component "Self-motivation"*

Level	Results (%)		Level changes (%)		Statistical analysis
	At the 1-st stage of the experiment	At the 2-nd stage of the experiment	Low to medium level	Medium to High level	Student's t-criterion value
Low	38,2%	29,4%	8,8	-2,9	1,10
Middle	41,2%	52,9%			
High	20,6%	17,6%			
*- significant if p≤0.05, t-Cr (n=102) (p≤0.05) =1,96					

Table 4. *Comparative analysis of experimental data for the "Empathy" component*

Level	Results (%)		Level changes (%)		Statistical analysis
	At the 1-st stage of the experiment	At the 2-nd stage of the experiment	Low to medium level	Medium to High level	Student's t-criterion value
Low	26,5%	18,6%	7,8	5,9	1,70
Middle	58,8%	60,8%			
High	14,7%	20,6%			
*- significant if p≤0.05, t-Cr (n=102) (p≤0.05) =1,96					

Table 5. *Comparative analysis of experimental data for the component "Management of other people's emotions"*

Level	Results (%)		Level changes (%)		Statistical analysis
	At the 1-st stage of the experiment	At the 2-nd stage of the experiment	Low to medium level	Medium to High level	Student's t-criterion value
Low	20,6%	14,7%	5,9	8,8	1,90
Middle	64,7%	61,8%			
High	14,7%	23,5%			
*- significant if p≤0.05, t-Cr (n=102) (p≤0.05) =1,96					

The results obtained indicate the scope of attention in the process of training of pediatrician students, in particular, in the aspect of the communicative competence of the future doctor: a well-developed ability to demonstrate the necessary emotions in various situations is an extremely important quality of medical workers whose professional activity is associated with emotional overload and stress.

Based on the analysis of the empirical study, it was concluded that a timely study of the emotional intelligence of future doctors is necessary, followed by the implementation of psychological assistance in identifying disorders in the emotional sphere.

In our opinion, when training pediatricians, it is necessary to pay attention to the development of students in all spheres of emotional intelligence; and especially problematic, according to our data, areas - self-motivation, empathy, and managing the emotions of other people.

Further study and practical research, in our opinion, requires formulation of models for the development of emotional intelligence of a future pediatrician.

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梅特兰中世纪英格兰研究中的法律观念和单一历史概念
THE IDEA OF LAW AND THE CONCEPT OF THE ONE HISTORY IN F.W. MAITLAND'S STUDIES OF MEDIEVAL ENGLAND

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抽象。 这篇文章的作者在其关于中世纪英格兰的著作中研究了法律观念和梅特兰大学的一个历史。 揭示了历史学家对法律观念作为欧洲文明和世界历史的守护者的意义的理解。 中世纪英国历史的统一是通过“一国一法一史”的模式来追溯的。 梅特兰(F.W. Maitland)指出，历史是历史，它是过去的整体科学，应该由不同领域的专家研究，历史学家应首先研究。

关键字：FW梅特兰，法律观念，单一历史的概念，中世纪英格兰的研究，“一个国家-一条法律-一段历史”的模式，历史的整体和关系的视野，跨学科的历史，比较的方法， 整体方法，欧洲框架，英国的元历史。

Abstract. *The author of the article studies the idea of law and the concept of the one history of F.W. Maitland in his works on Medieval England. The historian's comprehension of the significance of the idea of law as the guardian of European civilization and world history is revealed. The unity of Medieval English history is traced through the pattern "one country– one law – one history". F.W. Maitland showed that the history is the one, it is the holistic science of the past and it should be studied by specialists in different fields, historians the first.*

Keywords: *F.W. Maitland, the idea of law, the concept of the one history, studies of medieval England, the pattern "one country – one law – one history", holistic and relational vision of history, the interdisciplinary history, the comparative approach, the holistic approach, a European frame, a metahistory of England.*

The idea of law and the concept of the one history reveal the essence of scientific approach of F.W. Maitland (1850–1906), the greatest historian in the age of great historians, the equal of the greatest lawyers of his day [22, p. 322], to his study of medieval England.

F.W. Maitland's work, consisted about five thousand pages, written more than a hundred years ago, was highly appreciated by many distinguished historians and lawyers from different countries. The "bulk of Maitland's edifice still stands", and we can understand why he has "an almost god-like status among historians who know the problems he faced and the elegance of his solutions" [26, p. 21]. P. Vinogradoff shortly after F.W. Maitland's death wrote of him as "the greatest legal historian of the law of England" and as a man to whom lawyers, historians and sociologists were equally indebted: "lawyers because of his subject, historians because of his methods, sociologists because of his results" [28, p. 288-289]. J.H. Hexter referred to F.W. Maitland as "the greatest of English historians" in his book on modern historians [7, p. 156]. R.G. Collingwood referred to the "best historians, like Mommsen and Maitland" [4, p. 127]. D. Hay in his overview of western historiography describes him as a "giant' who, with M. Bloch, is one of the 'two greatest historians of recent times" [5, p. 169]. M. Bloch himself referred to "the great English jurist Maitland" [2, I, p. XXI]. Lord Acton described him as the ablest historian in England, even while Stubbs, Gardiner and Creighton were still living [8, p. 4]. The medievalist H. Cam ends her preface to his Selected Essays by concluding fifty years after his death: 'Let us say with Powicke, "Maitland is one of the immortals" and leave it at that' [14, p. XXIX]. "He is also one of very few historians. Alongside Maitland are ranked only Thucydides, Bede, Gibbon, Kemble, Carlyle, Burckhardt and Bemont," – P. Wormald wrote [29, p. 1].

F.W. Maitland came to theoretical jurisprudence from the bar, where he had a reputation as a well-trained modern lawyer [8, p.4; 18, p. 407], at the age of 34, too late, as it may seem, to achieve a successful career in the field new for him and undeveloped in British universities. But in less than a quarter of a century of studding of his main subject – the history of English law – there appeared the astonishing series of books, each of them a capital contribution to some fundamental and different subject. So F.W. Maitland, a man with a genius for history, who turned its light upon law [18, p. 407], leaved such an immense and versatile legacy, that in order to evaluate it one must call the legal, constitutional, economic, ecclesiastical, civilian and other experts, and let them survey their own province; "it would need a committee or an academy to do it" [19, p. 179, 187].

As professor of law of Cambridge University and the historian of ideas and institutions, he brilliantly lectured on a wide range of issues of law and history and "supplied the student with an ideal of law. He gave him an idea of the importance, of the magnificence, of the splendor of the study in which he was engaged, so that it was impossible at any time thereafter for one of his pupils to regard the law merely as a means of livelihood. The law remained something to be loved and studied for itself " [3, p. 301]. Among those F.W. Maitland's students were M. Bateson, E. Jenks, H.A. Hollond, G.M. Trevelyan, W. Whittaker, who later became an outstanding statesmen, legal scholars and historians.

What was the idea of law in F.W. Maitland's view? According to British historian, the idea of law has been at the heart of Western civilization since its beginnings in Ancient Greece. It is the abstract expression of the essence of law, which forms the ideal aspect of entity of law. The idea of law predates law, that is, initially there is the view of law, which should be institutionalized, and later the real law system is forming. "…what Maitland wanted most was to trace ideas to their embodiment in facts, to sketch their ramifications and complications in practice" [28, p. 282]. He effort to "reconstruct the ideas and motives of the ages that he studied" [1, p. 7]. "Law, such as we know it in the conduct of life, is matter of fact; not a thing which can be seen or handled, but a thing perceived in many ways of practical experience" [17, I, p. XXXIII].

But the law was not born spontaneously in the absence of the social subject, thus the idea of law was based on human nature, human mind, the order of values, common will and common interest. So law in F.W. Maitland's view is not only the set of rules governing social relations on property rights and personal non-property rights, but also a form of social consciousness. In the world, recreated and described by F.W. Maitland in his works, the most important role was played by people and cultural traditions. History and law for F.W. Maitland were concerned with real people in real places [18, p. 409], and he had such a vivid imagination of them, that students spoke of his power to create historical atmosphere and "made dead bones live" [21, p.16; 23, p. 203].

The basic idea in the historical process he reckoned the idea of law as a way of comprehension of the sense of history. "…he was using medieval law as the tool to prise open to our view the mind of mediaeval man" [27, p. 16]. In his studies of medieval history of England F.W. Maitland relied on legal documents considering them the best, inexhaustible and "often the only evidence that we have for social and economic history, for the history of morality, for the history of practical religion" [15, p. 220].

So the idea of law in F.W. Maitland's mind, as I understand it, was the law itself as the operating system and the thought about it. "The history of law must be a history of ideas. It must present, not merely what men have done and said but what men have thought in bygone ages". People's thoughts deserve in-depth study. "…by slow degree the thoughts of our forefathers, their common thoughts about common things, will become thinkable once more. There are discoveries to be made; but there are habits to be formed" [13, p. 520].

The idea of law in F.W. Maitland's studies was not the mere abstract thought of law, but the concrete vision of history through the prism of operation of law and its institutions in the medieval history of England, that is, its illumination through emphasizing of the history of law in historical process. For him the law and its history were not a mere intellectual exercise. The law was the guardian of civilization: its practice was for him, as for T. Madox, a kind of priesthood. To F.W. Maitland mediaeval law was not something in a book, but the life-blood of a living people. That was the attraction of the Year Books to him. There and there only, as he held, was the

real life of the law and of the people to be studied at first hand. For him that law was a living system, and in his pages he makes it live again for his readers, in a way which few other scholars have approached [3, p. 299-300]. That's why, it is very natural for him to use metaphor from Mr. Justice Holmes to emphasize the value of English law in history: "When I think thus of the law, I see a princess mightier than she who once wrought at Bayeux, eternally weaving into her web dim figures of the ever-lengthening past, - figures too dim to be noticed by the idle, too symbolic to be interpreted except by her pupils, but to the discerning eye disclosing every painful step and every world-shaking contest by which mankind has worked and fought its way from savage isolation to organic social life" [24, p. 18; 16, I, Introduction, p. XX].

The idea of law and the concept of the one history in F.W. Maitland's works were very closely connected, because he realized the essence of history through the development of English law, in which he highlighted the value of the Common law as basis of nation law in general. Realizing the majesty of history, F.W. Maitland did not judge history, did not give it verdicts, but deeply investigated the actions of people. His an enquiring mind turned to the past to imagine it and to comprehend in the form, in which it existed.

By the British historian, history was the holistic science of the past, and the division of labor among specialists of different fields of historical knowledge was a conditional one. It was expedient only from the point of view of convenience for more detailed study of individual sections of history, each of which couldn't be explained regardless of the others. He thought, that scientific specialty, "departmentalization of knowledge" including legal, does not correspond to anything in history, considered as the flow of facts and events in the past. On the contrary, it tends to obscure relationships, which have always existed in that process as an undivided whole [21, p. 21-22]. F.W. Maitland did not recognize any artificial boundaries within the historical process and historical science, did not consider them sacred and inviolable. As his teacher L. Steven, he overthrew them [9, p. 22] and boldly invaded the non-legal spheres – economic, politic, religion, social.

Long-term, painstaking work with legal texts, which F.W. Maitland considered the main records in studying of history, brought him to conclusion, that, firstly, "in legal documents and under legal forms are the social and economic arrangement of times made visible to us" [25, II, p.3] and, secondly, that the idea that "legal history is not law, but history and that all history is one" [19, p. 192]. In the Preface to "The History of English Law before the Time of Edward I" he emphasized, that the history of law was the integral part of the history of England and of course "the key to the whole story" [17, I, p. X]. Considering the history of English law a part of a single stream of life in Medieval England, he brought legal history into close relationship to political, constitutional, social, economic and religious history and enlarged its bounds [6]. So it became clear, that the English law can only be understand historically.

According to F.W. Maitland, only a historian can create and write history, only a historian can see the interconnectedness of different aspects of social development: "A historian can do more than a pure lawyer". "Once the professor of law embarks upon history he has become a historian" [20, p. 96; 19, p. 190].

F.W. Maitland's vision of history was both holistic and relational. As the English historian, he studded and wrote the English history or rather the history of English law, which was not written, as he said in his an Inaugural lecture bore the challenging title "Why the History of English Law is Not Written" [15]. It really was not written before his, as the principle contributor, and F. Pollock's monumental "The History of English Law before the Time of Edward I" appeared in 1895, and since then it can be argued that it was written [19, p. 183]. But he was certainly no "Little Englander", and, as P. Wormald notes, "would bend over backwards to disabuse Englishmen of misplaced faith in the uniqueness of their Island Story" [10, p. 13]. F.W. Maitland was "a true Englishman and west-countryman" [18, p. 419]. A European minded and European educated scientist, he traveled a lot in Europe, excellently knew European historical science and European history of law (Maitland's knowledge of German and French law was very extensive and he was deeply knowledgeable about Roman law) [11, p. 217]. F.W. Maitland read a lot, his knowledge was encyclopedic and his learning was anything but insular. He followed with keen interest and unfailing judgment the main currents of legal and historical literature on the Continent [28, p. 288]. F.W. Maitland was a true citizen of the universal world of letters [18, p. 419]. He corresponded much with his European and American colleagues and by scientific contacts, friendships and numerous letters created "the invisible college", a kind of informal multidimensional intellectual community, consisted of scientists of different countries and schools, among them – historians, lawyers, economists, linguists, philosophers [23, p. 258-260].

F.W. Maitland was a supporter of a comparative study of the history and the history of law. His input to the study of history, a revolutionary one, is that the English legal history can be only studied in comparison with that of other systems, because "history involves comparison" [25, I, p. 488]. Thus, he brought the national legal history into the mainstream of European history and finally threw down all professional barriers [19, p. 193]. So we should not to be set his work within too small frame, but we should set him within a European frame or a great tradition of intellectual endeavor [26, p. 90].

The unity of history was F.W. Maitland's philosophy of history. As I understand it, his vision of the unity of history was based on conviction, that the history of England, with all its uniqueness, was a part of European history, as well as the history of English law, and moreover – the part of the world history, because the English law is the native law and the English history is the native history not only in Oxford and Cambridge, but also in New York, Boston, Quebec, Montreal, Cape Town and Melbourne. The specialists on the English history and the English law were and will be in Paris, Milan, Heidelberg, Moscow, Tokyo and Calcutta [20, p. 91]. That is really so.

F.W. Maitland's vision of the unity of the English Medieval history was also based on the pattern "one country – one law – one history". The system of historian's argumentation is as follows: a) special geographical location of England – "the small size, the plain surface, the definite boundary of our country"; b) the unity of English law – "England is small: it can be governed by uniform law"; c) the unity of kingship – "the kingship of England, when once it exists, preserves its unity: it is not partitioned among brothers and cousins"; d) the union between church and state in England, which "prevented the development of a body of distinctively ecclesiastical law, which would stand in contrast with, if not in opposition to, the law of the land" [17, I, 20-21].

England became more homogeneous and united in the effect of the Norman Conquest and subsequent development of Angevin kingship. A crucial role in this process was played by the strong royal power, the early centralization of justice and the Common law, which united the country and gave its history "a wonderful unity": "the king is above all and has a direct hold on every individual", "the king is ... below God and the law ... the king is bound to obey the law", "our system is a single system and revolves around Westminster Hall" [17, I, p. 688, 515-516; 15, I, p. 219; 12, p. 100, 198-199]. Studding the history of England within the European context, F.W. Maitland had shown that it was peculiar [26, p.51] and the divergence between England and the Continent became clear only from the thirteenth century. He emphasized the importance of royal power, which was the powerful, highly centralized, legal system focusing on the Crown and that began to differentiate England. The Crown in England was both, yet not absolutist. The British historian considered, that political absolutism did not develop in England, because "the English Common law was tough, one of the toughest things ever made" [25, II, p. 484-485].

Historically minded, acutely aware the brevity of human life and the infinity of law and history, their indissoluble unity, F.W. Maitland finished his lectures on the Constitutional history of England with these words: "Life I know is short, and law is long, very long, and we cannot study everything at once; …all parts of our law are very closely related to each other, so closely that we can set no logical limit to our labours" [12, p. 539].

I dare say that history in F.W. Maitland's mind was also very long, it was infinity and all its parts were very closely related to each other, because he, being a historian of the medieval period, "taught on the whole period from the Anglo-Saxons to the nineteenth century". Therefore, ahead of his time, F.W. Maitland wrote interdisciplinary works and created a metahistory of England from the seventh to nineteenth centuries, the one history of the extended temporal frame of the one country, "the first great, document-based, analysis of the patterns or spirit of English culture over the thousand years leading up to the industrial revolution" [26, p. 90, 21].

Thus, in F.W. Maitland's view the idea of law has been at the heart of Western civilization. The idea of law – law itself and the thought about it, – not only the set of rules but also a form of social consciousness, was the main centralizing factor in the English Medieval history, which provide the sense of human life in full – social, economic, politic, moral, religion. Based on legal documents F.W. Maitland traced ideas to their embodiment in facts and practice of the people.

The unity of history was F.W. Maitland's philosophy of history. The history is the one, it is the holistic science of the past, which should be studied by specialists in different fields – historians, lawyers, economists, philosophers, historians the first. F.W. Maitland's vision of the unity of the English Medieval history was based also on the pattern "one country – one law – one history": England is small and it can be governed by uniform law (Common law); the unity and powerful kingship, not absolute, of England; the union between church and state in England.

The history of Medieval England and its history of law were studied by F.W. Maitland within the European context, in comparison with France and Germany of the same time. The historian came to conclusion that the divergence between England and the Continent became clear only from the thirteenth century and increased by the sixteenth century.

F.W. Maitland was ahead of his time. In the age of narrative history he wrote interdisciplinary works and created a metahistory of England from the seventh to nineteenth centuries. "It is no exaggeration to say that we have known and lost the greatest historian of the law of England, one who not only surpassed all predecessors in this domain but is not likely to be surpassed soon in the course of succeeding generations" [28, p. 288].

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绝经期患者阴道念珠菌病的治疗
THERAPY OF VAGINAL CANDIDIASIS IN PATIENTS IN THE MENOPAUSAL PERIOD

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Abstract. For candidal colpitis in patients in the menopause, treatment is effective, including both the systemic administration of antimycotics (fluconazole in a dosage of 150 mg), and their local use in the form of a drug that gives both an effective antifungal and topically anesthetic effect - Neo suppositories - Penotran Forte L. In order to prevent recurrence of the disease, restore normal biocenosis of the vagina, it is advisable to prescribe estrogen-containing preparations to improve the trophism of the vaginal wall and increase the effectiveness of awn specific antimycotic therapy - ovestin vaginal suppositories.

Keywords. Candidiasis colpitis, therapy, Neo - Penotran Forte L, ovestin.

Candida fungi are facultative anaerobes and are single-cell microorganisms that multiply by budding and can exist in two morphological forms - spore and vegetative (pseudomycelial). The pseudo-domicidal form of the fungus has the property of exerting a pronounced damaging effect on the host cells, since it has a perforated organ that determines the pathogenic potential of the fungus. Moreover, the complex multilayer structure of the cell wall of Candida fungi prevents the penetration of drugs into the cell, and proteolytic, lipolytic and other enzymes produced by fungi cause intense histopathological changes in tissues [6].

The ability of Candida to adhere creates the possibility of persistent attachment to epithelial cells, while the adhesion index of fungi and their toxicity increase with a change in hormonal levels, the state that accompanies the menopause.

Fungal invasion can be impeded by physiological bacterial normobiota, with the prevalence of lactobacilli in the vaginal biocenosis [3].

The pathogenesis of candidal infection can be represented in the form of successive stages: pre-invasive (providing conditions for the development of infection) - adhesion - colonization - invasion [4].

There is evidence of the presence of correlation between violations of the microecology of the genital and gastrointestinal tract.

It has been proven that in 60% of women with vaginal candidiasis, intestinal dysbiosis is detected, which is accompanied by increased proliferation of fungi [5].

The wide, uncontrolled administration of antibiotics entails a violation of the evolutionarily developed microbial ecosystems of the macroorganism, which contributes to the development of "chemotherapeutic" dysbiosis and the propagation of conditionally pathogenic fungi [2]. Semisynthetic penicillins, cephalosporins, lincomycin have the most pronounced eliminating effect, kanamycin, gentamycin, polymexins are less pronounced [1].

The aim of this study was to substantiate the management tactics of patients with candidal vaginal lesions in patients in the menopause. The high incidence of this pathology in this age group of women may be due to general and local immunodeficiency, a decrease in the oestrogen-producing function of the ovaries, a change in the nature of the vaginal biocenosis, accompanied by a decrease in the number of lactobacilli, as well as an increase in fungal flora. The factors aggravating this pathological process are antibacterial therapy for patients, the presence of concomitant extragenital pathology, such as diabetes mellitus, as well as chronic recurrent diseases of the gastrointestinal tract.

Materials and research methods. We examined 89 patients with candidal vaginitis, aged 47 to 60 years. A comprehensive clinical and laboratory study was carried out, including general clinical methods, such as assessing the gynecological status in a bimanual examination and using an ultrasound examination of the pelvic organs, methods aimed at identifying the accompanying extragenital pathology, as well as evaluating the vaginal flora bacterioscopicly and bacteriologically as well as using PCR diagnostics.

Results of the study. All patients previously received topical treatment on an outpatient basis without effect. Concomitant diabetes was observed in 32 patients, gastrointestinal tract diseases in 46, 11 received antibiotic treatment for inflammatory diseases. The diagnosis of genital candidiasis has been confirmed in a laboratory. Specific therapy with fluconazole, 150 mg once. Locally, Neo-Penotran Forte

L suppositories were prescribed for seven days, once, for the purpose of both local therapy of fungal infection and relief of the clinical manifestations of candidal colpitis. Lidocaine, which is part of this drug, provided a local anesthetic effect and quickly eliminated the clinicals of local manifestations of vaginal candidiasis. To correct the hormonal balance of the vaginal wall, we used ovestin in the form of a vaginal suppository, prescribed 1 time per day for three weeks, and in the subsequent 1 suppository 2 times a week for 4-6 weeks. After the therapy we carried out according to the method described above, all patients noted the disappearance of the symptomatology of the disease by the 7th day of therapy, and the laboratory control that we carried out on the 8th day after the start of treatment did not reveal the causative agent of candidal colpitis in the vaginal flora. Subsequently, the patients did not reveal a relapse of the disease during our ovestin therapy.

As a result of our study, we can draw the following conclusions that with candidal colpitis in patients in the menopause, treatment is effective, including both systemic administration of antimycotics (fluconazole in a dosage of 150 mg), and their local use in the form of a drug that gives an effective antifungal and locally anesthetic effect - Neo-Penotran Forte L suppositories. In order to prevent relapse of the disease, restore normal vaginal biocenosis, it is advisable to prescribe x estrogens drugs to improve the trophism of the vaginal wall and increase the effectiveness of specific antimycotic therapy - ovestin vaginal suppositories.

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超声波法诊断真皮中与年龄相关的病理变化

ULTRASONIC METHOD IN THE DIAGNOSIS OF AGE-RELATED AND PATHOLOGICAL CHANGES IN THE DERMIS

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抽象。 超声技术在诊断皮肤癌，炎症变化以及美容皮肤病学中的应用前景广阔。 皮肤超声成像正成为一种越来越流行的诊断工具，并且是一种非侵入性的诊断方法，可以详细评估皮肤各个区域的表皮，真皮和皮下组织的状况和厚度。

关键词：皮肤超声检查 皮肤科超声检查，皮肤超声检查； 超声波美容。

Abstract. *The use of ultrasound techniques in the diagnosis of skin cancer, inflammatory changes, as well as in cosmetic dermatology is promising. Ultrasound imaging of the skin is becoming an increasingly popular diagnostic tool and is a non-invasive diagnostic method that allows to evaluate in detail the condition and thickness of the epidermis, dermis and hypodermis in various areas of the skin.*

Keywords: *ultrasound examination of the skin; Ultrasound in dermatology, ultrasound of the skin; Ultrasound in cosmetology.*

The skin consists of 2 interdependent layers, the epidermis and dermis, which are located on the subcutaneous fat (hypodermis) [1, 2]. Derma is the main part of the skin and consists of the association of collagen with glycosaminoglycans, which are able to hold a large amount of water, thus maintaining skin elasticity, and a network of elastic fibers keeps the skin stretched and restores it after stretching [3]. Hair follicles, sebaceous glands, blood vessels and nerve endings of the skin are also located directly in the dermis [3, 4].

It has been proven that after 50 years the quality of the dermis is gradually deteriorating, there is a progressive weakening and loss of fiber of the dermal-epidermal compound [5, 6]. Moreover, the age-related change in the papillary region of the dermis was confirmed using ultrasound imaging of the skin [5]. The physical properties of ultrasound are used to study the skin and its appendages:

both high-frequency (>7 MHz) and very high-frequency ultrasound (>20 MHz) can provide a detailed diagnostic analysis of skin layers [7, 8]. In the ultrasound image of mode B, the skin is seen as a series of lines and stripes of different shades of gray that correspond to different layers of the skin; the epidermis is visualized as a hyperechoic line or in certain places, in the form of a bilaminar hyperechoic line; the dermis also looks like a hyperechoic line, but it is less echogenic than the epidermis [7, 8].

Currently, age-related skin changes can be slowed down or prevented using appropriate clinical procedures: dermatological, surgical and cosmetic interventions [9]. Despite the fact that cosmetic fillers are increasingly used to improve the aesthetic characteristics of facial skin, a number of authors note an increase in the complications associated with their use [10, 11]. At the same time, sonography was successfully used to detect and identify common types of fillers and became the first-line visualization method for working with these exogenous components [10].

The aim of this study is to identify the relationship between the anatomical changes in the skin, the age of the patient and the use of injection cosmetic procedures using the ultrasound diagnostic method.

Materials and methods

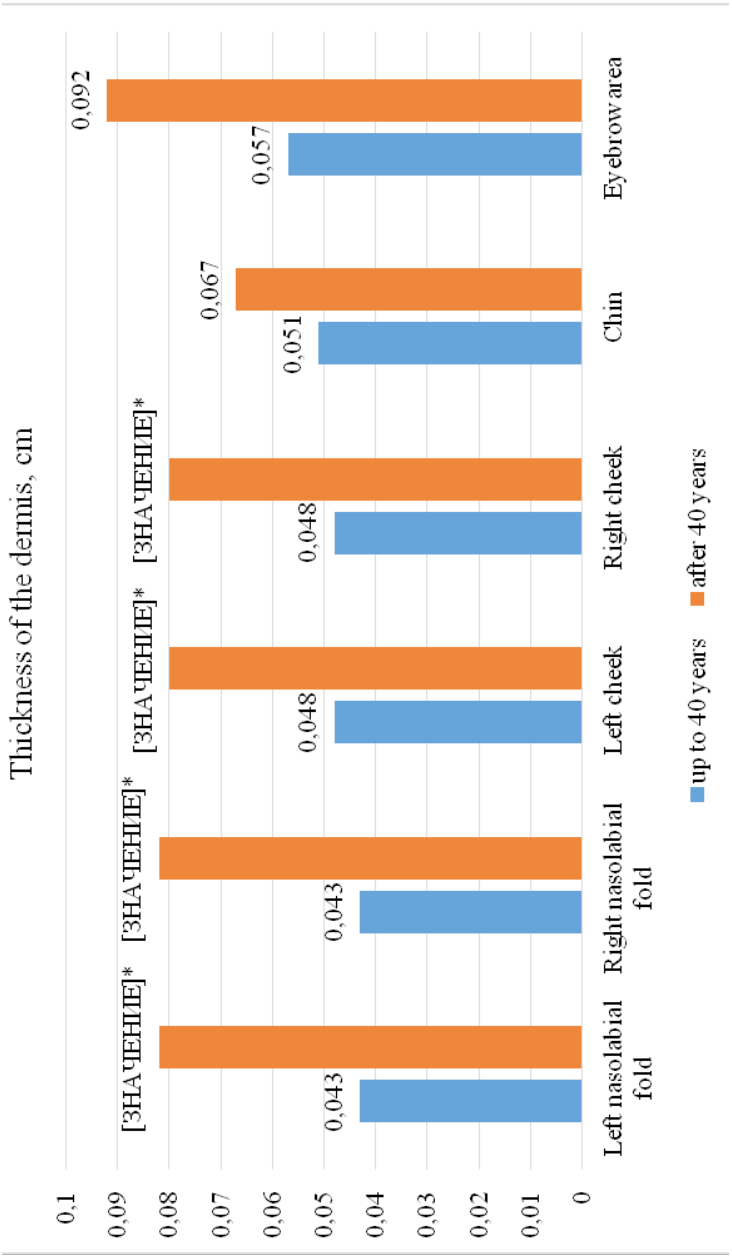
The thickness of different skin layers (epidermis, dermis, hypodermis) was measured in the area of the interbrow zone, chin, nasolabial fold and cheeks in 43 patients aged 15 to 75 years (average age 44.3 ± 11.9 years) using an ultrasound scanner Mindray DC-8. The study was carried out on the basis of the Department of Fundamental Medicine of the Immanuel Kant Baltic Federal University. Statistical processing of the obtained results of the study was carried out in Microsoft Excel 2017 using average values (M), the reliability was determined using Student's criterion.

Results and discussion

At the first stage of our study, we studied the thickness of the skin layers of the face in different anatomical areas, the results of which are presented in table 1.

Table 1. *The thickness of the layers of the skin of the face, depending on the anatomical region, M*

Skin layer	Skin layer thickness (cm) and anatomical region					
	Eyebrow area	Chin	Left nasolabial fold	Right nasolabial fold	Right cheek area	Left cheek area
Epidermis	0,040	0,043	0,039	0,039	0,040	0,040
Dermis	0,081	0,062	0,069	0,069	0,069	0,070
Hypodermis	0,126	0,119	0,128	0,131	0,137	0,136



*- $p<0.05$

Fig. 1. *A comparative analysis of the thickness of the dermis of different anatomical zones of the skin of the face in patients younger and older than 40 years*

Using the ultrasound method, we found that the thickness of the epidermis was minimal in the nasolabial fold and amounted to 0.039 cm, and the maximum - 0.043 cm in the chin area.

Analysis of the thickness of the dermis indicates its largest size in the area of the interbrow zone - 0.081 cm and the smallest in the chin area - 0.062 cm.

The thickness of the hypodermis was the largest in the cheeks and amounted to 0.136 cm and 0.137 cm to the right and left, respectively, which confirms published earlier results of a morphometric study of facial skin features [12]. The smallest hypodermis thickness, according to the obtained data, was registered in the chin area - 0.019 cm.

It is noteworthy that in the studied patients, the thickness of the dermis and hypodermis was the smallest in the chin area in comparison with other studied areas of the face, and the thickness of the epidermis was the largest. According to the morphometric study of facial skin features by O. N. Karymova et al. [12], the thickness of the epidermis in the chin area is significantly greater ($p < 0.05$) than other anatomical zones.

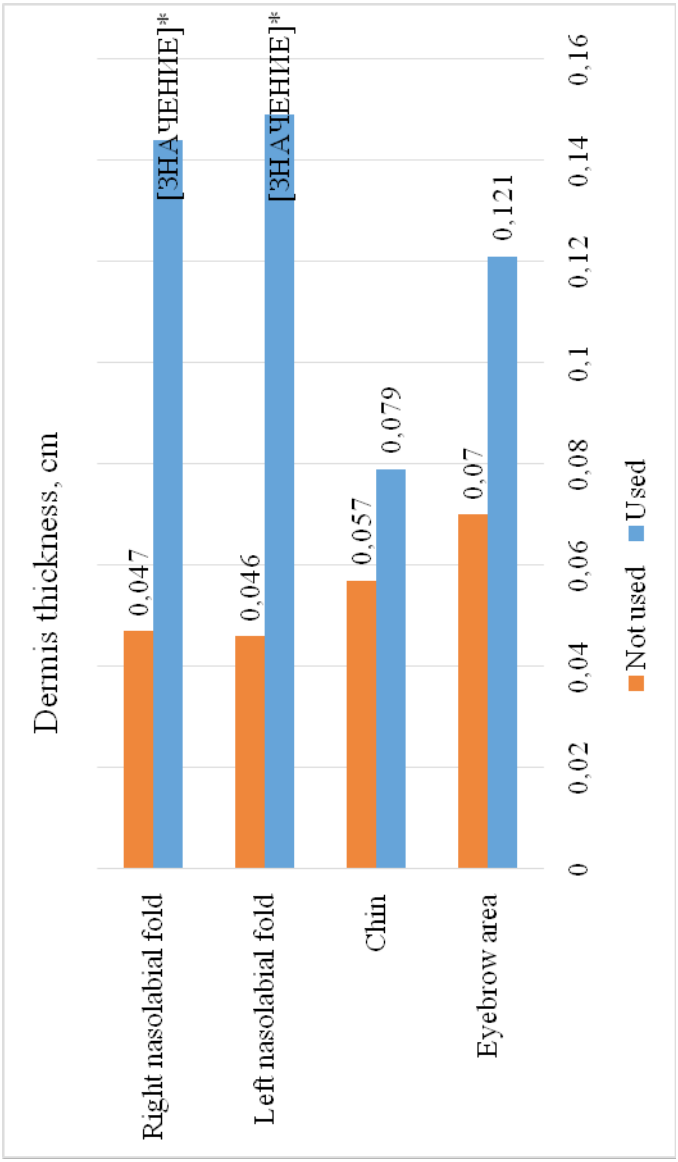
At the next stage of our study, we analyzed the changes in the thickness of the skin layers depending on the age of the patients. We found thickening of the dermis in patients after 40 years in all anatomical areas of the face with a statistically significant ($p < 0.05$) difference in the nasolabial folds and cheeks (Fig. 1). The findings are consistent with the results of a study by V. Haydont et al. [5], which, using ultrasound, revealed a thickening with age of the subepithelial non-echogenic band, which, according to the authors, corresponds to the papillary region of the dermis.

It is noteworthy that in patients under 40 years of age, the smallest dermis was diagnosed in the nasolabial folds area - 0.043 cm, and after 40 years - the chin was 0.067 cm. The largest dermis thickness was documented in the interbrow zone, regardless of age.

Considering the literature that dermal fillers used to treat age-related atrophy of the skin lead to a thickening of dermis by neocollagenogenesis, it was of interest to assess the presence of changes in the thickness of the skin layers depending on the use of injection cosmetic procedures by patients.

Using the ultrasound method, it was found that the dermis was thickened in patients who use injection cosmetology (fillers and threads) in all anatomical areas of the face with a statistically significant ($p < 0.05$) difference in the nasolabial folds (Fig. 2)

It should be noted that the thickness of the dermis in the region of nasolabial folds in patients using dermal fillers was more than three times greater than the skin of women without them. The data obtained are comparable with the results of studies of Kim JS. [13] and Kim JA. et al. [14], who, after histological examination of biopsy specimens of the dermis, established its thickening after intradermal cosmetic injections with polycaprolactone-based preparations, which last up to 4 years or more.



*- $p<0.05$

Fig. 2. *Comparative analysis of the thickness of the dermis of different anatomical zones of the skin of the face in patients, depending on the use of injection cosmetic procedures*

Conclusion

Thus, using the ultrasound diagnostic method, we revealed thickening of the dermis in patients older than 40 years who were using injection cosmetology methods. The results obtained in relation to the difference in the thickness of the skin layers depending on the anatomical region of the face confirm the morphometric measurement of the skin carried out earlier, and the revealed changes in the dermis as a result of the use of fillers are histological studies of its biopsy specimens, which indicates the reliability of the ultrasound method for assessing the state of the organ under discussion. The advantages of this method are its non-invasiveness, the possibility of re-examination, mobility. However, at present, there are no standards for evaluating the state of healthy skin and its pathological conditions. Therefore, the further development of the method with its subsequent standardization is promising.

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医科大学智力活动成果的保护
PROTECTION OF RESULTS OF INTELLECTUAL ACTIVITY IN MEDICAL UNIVERSITY

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注解。 本文讨论了保护医学院校智力活动成果的问题。 医科大学是教育机构，可以开展基础研究和应用研究，实验和临床认可，以及随后在教学过程和临床医学中取得积极成果的研究。

关键词：知识产权，专利，发明，实用新型，教育，医学。

Annotation. *The article discusses the problem of protecting the results of intellectual activity in medical school. Medical universities are educational institutions in which the development of fundamental and applied research, their experimental and clinical approbation, with the subsequent introduction of positive results in the pedagogical process and clinical medicine can be carried out.*

Keywords: *intellectual property, patents, inventions, utility models, education, medicine.*

Training of specialists with higher education in modern conditions requires certain knowledge in the field of intellectual property protection. One of the main factors of successful professional, scientific and pedagogical activity of medical universities is the formation of a strategy in the field of protection of industrial property and in the field of copyright. The progressive strategy for the development of innovative potential of the University is largely associated with the active participation of employees of departments in innovative scientific activities, the direction of the development of high-tech technologies and protection of intellectual property. The development of innovative potential of the University is aimed at providing conditions for the commercialization of the results of intellectual property created as a result of innovation and scientific and technical activities, and assisting their promotion in the sphere of real production for practical application. Medical universities are educational institutions in which the development of fundamental and applied research, their experimental and clinical approbation, with the subsequent introduction of positive results in the pedagogical process and clinical medicine can be carried out.

Intellectual property is one of the main reserves of progressive innovation processes in the University. The main source of creation of modern technologies in the University are scientific topics. In the process of actual scientific research, new methods of treatment, medical devices, software products are developed. The Department of intellectual property of Dagestan state medical University provides employees with a full range of Advisory and methodological assistance, there are electronic databases for information patent search, Internet access. The University conducts a cycle of classes with graduate students " Protection of intellectual property in medicine". In teaching the basics of intellectual property protection in medicine, multimedia technologies are used: video presentations, posters, educational films, which allows to increase the efficiency of assimilation of the material. For postgraduates it is offered to use such multimedia forms of training as information transfer by e-mail, on electronic carriers, placement of lectures on the website of higher education institution, carrying out consultations according to the individual schedule. Electronic forms of communication with graduate students, staff and students are actively used. Inventive activity is an important factor of active scientific activity in the University. Traumatology and orthopedics are areas of medicine where a large number of new designs and methods for the treatment of the musculoskeletal system are traditionally created.[1]. Thus, the Dagestan state medical University in the field of traumatology and orthopedics developed new technologies and are protected by patents for inventions of more than 100 methods and devices, and about 70 devices - patents for utility models. "Device for the skeletal osteosynthesis of long tubular bones" (patent 2655108) reduces the time of intraoperative manipulation and the entire operation of submerged osteosynthesis. "Device for the treatment of fractures of the great humerus tubercle" (patent 2614097), provides an increase in the effectiveness and reduction of treatment of patients with fractures of the great humerus tubercle. This invention was exhibited at the international innovation fair IENA, in Nuremberg, where it received a silver medal. The development of "Method of surgical treatment of congenital dislocation of the hip in adolescence" (patent 2614101), by bringing the distal part of the hip restores the biomechanical axis of the limb, the method allows to reduce the patient's stay in the hospital, reduce the risk of deformation in the long term. He was awarded a Diploma at the innovation exhibition in Serbia. "Method of autoplasty of false joints of tubular bones" (patent 2614882). "A method for the prevention of fat embolism syndrome in victims with polytrauma with fractures of long tubular bones" (patent 2620858), the invention makes it possible to increase the effectiveness of the prevention of fat embolism syndrome in victims with polytrauma with fractures of long tubular bones. "Method of local hemostasis in explosive wounds" (patent 2583138). The technical result is a rapid stop of external bleeding in explosive wounds. The method prevents the onset of traumatic shock due to massive blood loss, provides General isolation of the wound site, reduces the

trauma of soft tissues. "Method of osteosynthesis in fractures of the head and neck of the radius" (patent 2405493). The method provides anatomical restoration of the elbow joint, holding the fragments in the correct position and a state of constant unilateral compression for the entire period of treatment, the possibility of early movements in the joint, reducing postoperative complications, reducing the duration of treatment. Of interest is the "Device for the reposition and retention of bone fragments" (patent 2410054), as a result of the use of this invention, the effectiveness of the treatment of orthopedic and traumatic patients who perform open osteosynthesis surgery is increased. "Device for reposition of bone fragments" (patent 183868 utility model) the Purpose of this device is to improve the efficiency and reduce the time of treatment of patients with fractures of long tubular bones of the lower extremities skeletal traction. "Device for training the ankle, knee and hip joints in contracture" (patent 168955 utility model) the Purpose of this device is to improve the efficiency of the device design by reducing the number of units and assemblies, and to ensure the rapid reversal of the load in case of pain. New technologies developed at the University contribute to improving the efficiency of medical care provided to patients. Employees of the Department of eye diseases No. 1 actively develop innovative technologies. More than 30 inventions and 10 utility models are patented in the field of ophthalmology. "A method of sealing the vitreal cavity with penetrating wounds of the eyeball" (patent 2690412). The use of the proposed method of sealing the wound outlet will provide reliable sealing of the rupture and / or sclera wound with simplification of surgical technique in case of damage to the posterior segment of the eyeball, plugging the wound canal with a collagen hemostatic sponge without suture fixation, reducing the risk of infectious complications.

"Optotype for the study of visual acuity" (patent 2695919) The use of the proposed optotype for the determination of visual acuity will increase the objectivity and precision level of measurement of visual acuity in ophthalmological practice; preserves the optimal ratio of the elements of the optotype to its total size, allows to achieve meridional uniformity of the optotype, as well as

"Method of combined treatment of macular edema of the retina" (patent 2622031) contributes to the effectiveness of functional rehabilitation of patients.

"Method of treatment of keratoconus" (patent 2620757) allows to increase visual acuity up to 1.0, and also allows to reduce the time of cross-linking up to 15 minutes, since a large power (7 mV/cm2) is used. The method provides high-quality and safe corneal crosslinking, improves the efficiency of functional rehabilitation of patients. "Method of treatment of macular edema of the retina" (patent No. 2635530), the positive effect of the application of this invention is that the complex treatment of patients with macular edema of the retina provides a stable improvement in visual acuity, reduction of retinal edema in a short time, reducing the risk of neovascular complications.

The presence of patented technologies, devices, participation in international exhibitions of innovations, awarding them medals, diplomas – all this is an integral part of the image of the University. Dagestan state medical University annually takes part in a number of international exhibitions of inventions, presents its innovative developments in many countries, including China. Popular commercial products are computer programs and databases developed at the University in different areas of medicine: Program .computer "Mobile app "Healthy baby" Program for computers "Program for the study of visual fatigue", computer Program "Software environment for the synthesis of color components of plastic teeth Blesk", computer Program "Register of patients with shigellosis in the Republic of Dagestan", computer Program "state of the antioxidant system, factors of nonspecific resistance of the body and cytokine status in patients with shigellosis", Database "Register of patients with brucellosis in the Republic of Dagestan", Database " Register of patients with chronic viral hepatitis in the Republic of Dagestan", Computer program "Navigation program for selection of ports installation points during laparoscopic aplotization of liver cysts", Computer program "Register of children with epilepsy in the Republic of Dagestan". On the website of the medical University there is a "Multimedia catalog of intellectual property", which makes it possible to quickly obtain reliable patent information. The multimedia catalogue is regularly updated with new information about patents developed by the University staff. The catalogue "International exhibition activity of Dagestan state medical University" was published, indicating the exhibitions where innovative developments of the University were exhibited.[2].

Thus, the development of innovative products and protection of intellectual property, improving the level of products is an important area of scientific activity of University science.

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地形的各向异性和不对称性（以俄罗斯远东地区为例）
ANISOTROPY AND ASYMMETRY OF LANDFORMS (ON THE EXAMPLE OF THE RUSSIAN FAR EAST)

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抽象。 地貌过程和地貌的时空各向异性在明显的长期不对称表现中最为明显。 不同阶地貌形式的不对称性是各种自然地理和地质过程的时空各向异性的结果。 在大多数情况下，自然法则已经固有地发展了某种可能的不对称计划。

Abstract. *The spatio-temporal anisotropy of geomorphological processes and landforms is most clearly seen in a pronounced long-term manifestation of asymmetry. The asymmetry of different-order relief forms is the result of the spatiotemporal anisotropy of various physical-geographical and geological processes. For the most part, the development of a possibly certain plan of asymmetry is already inherent in the laws of nature.*

Goal and tasks –investigation of the spatio-temporal anisotropy of geomorphological processes and asymmetry of different-order relief forms (on the example of the South and North of the Russian Far East).

Methods –comparative geographical, paleogeographic and informational were applied.

Materials – the data of long-term geomorphological and geoecological studies of the author were used in Chukotka and Wrangel Island (1957-1959, 1971-1972), in the Kolyma river basin and in Priokhotye (1971-1972, 1974-1975), in the lowlands (1974-1979) and in the mountains (2007-2011) in the south of the Far East (in the Khabarovsk Krai and Primorye), as well as available literary and stock sources.

It can be stated that the richest and most variable spectrum of spatiotemporal manifestations of asymmetry of different-order relief forms is characteristic precisely for the Russian (especially south) Far East. This is in full accordance with the most complex and diverse scale interweaving of continental and oceanic landscape-forming and, in particular, relief-forming influences here.

Completed developments that emphasize the novelty of the study may be in demand in the practice of choosing the best environmental management options, taking into account the minimization of possible geoecological risks.

关键词：各向异性，不对称，不对称，大陆性，硬化，河流，坡度，沿海过程，自然管理，俄罗斯远东地区。

Keywords: *anisotropy, asymmetry, dissymmetry, continentality, hardened, fluvial, slope, coastal processes, nature management, the Russian Far East.*

Introduction

The spatio-temporal anisotropy of geomorphological processes and landforms is most clearly recorded in a pronounced long-term manifestation of asymmetry. Moreover, the set of missing symmetry elements, in the system of which asymmetry acts as a special case, is understood as asymmetry. It is significant that "... the world, consisting of the forms of the earth's surface, at every step gives us examples of symmetric and asymmetric relations in their various combinations" [1, p. 9]. It was established that asymmetric relief forms prevail on the earth's surface. Asymmetry, therefore, is one of the general properties of the relief, reflecting not only the current, but also the general result of the development of diverse and genetically heterogeneous forms. In addition, asymmetry carries certain information about the origin of the forms. Registration of symmetry and asymmetry as one of the links in the morphological analysis of the relief ultimately leads to important historical and genetic conclusions [2].

Goal and tasks – study of the spatio-temporal anisotropy of geomorphological processes and asymmetry of different-order relief forms (using the example of the South and North of the Russian Far East).

Methods – comparative geographical, paleogeographic and informational were applied.

Materials – the data of long-term geomorphological and geoecological studies of the author were used in Chukotka and Wrangel Island (1957-1959, 1971-1972), in the Kolyma river basin and in Priokhotye (1971-1972, 1974-1975), in the lowlands (1974-1979) and in the mountains (2007-2011) in the south of the Far East (in the Khabarovsk Krai and Primorye), as well as available literary and stock sources.

Results and discussion

The asymmetry of different-order relief forms is the result of the spatiotemporal anisotropy of various physical-geographical and geological processes. For the most part, the development of a possibly certain plan of asymmetry is already inherent in the laws of nature.

As the most striking example in the global plan, such a predetermination of the asymmetry of accumulative-denudation formations, one should consider the formation of opposite types of asymmetry of large river valleys in the northern and southern hemispheres, caused by the multidirectional effect of the Earth's rotation force, which is reflected by the Baire-Babinet law (according to Kalesnik S.V., 1947).

In the regional plan, the important role of the asymmetry of low-order erosion forms arising as a result of the anisotropy of geomorphological processes in river valleys of small rivers on the slopes of different exposures (based on the materials of numerous authors - A.A. Borzova, 1913; I.S. Schukina, 1934; S. S. Voskresensky, 1947; E.A. Presnyakova, 1955; Yu.G. Simonova, 1959; G.M. Epshtein, 1961; A.M. Korotky et al., 1977).

In general, the climate-related asymmetry of landforms fixes the uneven distribution of daily, seasonal and annual heat and moisture, originally caused by the rotation of the Earth and a certain inclination of its axis to the ecliptic plane. It is this unevenness in the distribution of heat and moisture that is most characteristic of meso slopes, where it regulates the processes of erosion and accumulation primarily in low-order erosion forms. Such locally developing processes cover vast territories, therefore, they become a regional factor in climomorphogenesis.

In this respect, the symmetry and asymmetry of different-order morphostructures reflecting a different degree of symmetry of the processes that generated them are no less expressive [2, 3]. We add that the anisotropy of deep-seated processes, which determined the nature and degree of asymmetry of morphostructures and thereby sharply differentiated conditions of climomorphogenesis, continues to have a noticeable effect on the completeness of the spectrum and the intensity of accumulative-denudation processes. Initially symmetrical forms, ceteris paribus, are more stable in time, compared with asymmetric ones. Within the limits of initially asymmetric morphostructures (from the moment of their clear morphological expression), the anisotropy of geomorphological processes is clearly manifested, the magnitude of which is proportional to the asymmetry of the morphostructures. For example, the different intensity of erosion-denudation processes on the western gentle and eastern steep macro slopes of Sikhote-Alin appears to be a consequence of the significant role of the asymmetry of this morphostructure.

Currently, there is no clear geological evidence of the primary asymmetry of Sikhote-Alin since the occurrence of this orogen; in sections of the Cenozoic depressions, this asymmetry has been recorded at least since the Late Miocene [3].

The second important “consequence” of the structural asymmetry of Sikhote-Alin is the predominance of abrasion-denudation and abrasion-bay types of coasts within its eastern margin (along the coast of the Sea of Japan). The development of the latter is primarily associated with a weak manifestation of the mid-Holocene ingression of the Sea of Japan, due to the large slopes of the rivers and the intensive removal of coarse clastic material into the coastal zone of East Sikhote-Alin. Similar effects of the sharp asymmetry of large-order relief categories on the course of climomorphogenesis are also characteristic of large areas of the Korean Peninsula and the Northwest Priokhotye.

Analysis of the asymmetry of the slopes of river valleys and interfluves

The most striking manifestation of the anisotropy of natural processes and the structural features of the relief caused by it are recorded in the asymmetry of the slopes of river valleys and interfluves. The formation of the type and scale of valley asymmetry in diverse river systems and at different stages of its development is predetermined by the effect of various factors.

The article does not examine the morphogenetic manifestations of global factors in the occurrence of symmetry and asymmetry of the slopes of valleys and interfluves. We cover only thematic regional and local features related mainly to the activities of only fluvial agents and slope processes.

The most dynamic spatio-temporal contrasts of heat and moisture, from all regions of the Far East, are noted in the temperate zone - in Primorye and Khabarovsk Krai, which is associated with the maximum degree of monsoon climate [3].

The role of fluvial agents. The development of the asymmetry of the slopes at the level of the modern channel and high floodplain is determined by the laws of migration of the channel flow within the bottom of the valley. This influence is especially pronounced in those valleys where the width of the meander belt is close to the width of the bottom. Alternating washing out of expositionally different slopes in the approach areas of the peaks of river bends (due to their transverse movement) to the root sides or slopes of the terraces determines the alternation of steep gentle slopes along the strike of the valley. In addition, due to the shift of the rod in relation to the geometric axis of the channel, bends experience longitudinal movement down the river. Such a shift of meanders during the long-term impact of the watercourse on the sides of the valleys, leads, ultimately, to the emergence of a symmetrical river valley with progressively convex slopes. Thus, the rate of conversion of the lower parts of the slopes depends on the intensity of the transverse displacement of the bends and the speed of the longitudinal migration of the meander belt, which fluctuate sharply due to the frequent (especially in summer) different-height and prolonged rain floods.

In the valleys of mountain rivers, the displacement of the dynamic axis of the flow obeys the law of “reflection of elastic balls”, which determines the formation of sharp bends of the channel (according to the observations of MA Velikanov, in particular, in the mountains of the Far East, 1964). The intensity of transverse deformations of the channel is enhanced by its low stability in the areas of active accumulation. With significant transverse slopes of the bottom of the valley, the mountain stream can affect the same sections of the slopes for a relatively long time. In this case, the effect of rapid currents on the root sides of the river valley in its effect is many times higher than those for flat rivers, and the transverse migration of the channel becomes the predominant process in the development of the sides of the river valley. If this process is additionally combined with intensive deep erosion

under the conditions of monsoon wetting of the territory (in particular, in Primorye), a valley arises with embedded meanders and a well-defined and long-lasting equilibrium system of slopes that determines the alternating asymmetry of the slopes.

The above-described character of asymmetry also arises in the main valleys due to the deflecting action of equal left and right tributaries - the effect of the "game of tributaries" (according to N.I. Makkaveev, 1971). The alternating effect of these tributaries on the processes in the main channel leads to the formation of a "slightly winding" valley with the most pronounced alternating slope asymmetry.

In addition to the foregoing, we note that all the cases we examined (from the data of many years of research in the south and north of the Far East), the development of alternating asymmetry of the slopes of river valleys, are characteristic only of catchment basins with areal (basin) and hypsometric symmetry [2].

Role of hypsometry. In the mountainous countries of the Far East, there are numerous situations when, with pronounced basin asymmetry, a valley asymmetry of the opposite sign develops. This is very well observed, for example, during the cross-sectional profiling of interfluves and valleys of the Kievka rivers (in the section of the village of Stara Kamenka - village of Novitskoye) and Partizanskaya (in the section of the village of Sergeevka - the village of Novitskoye). The mismatch of the sign of the basin and valley asymmetries is explained, in our opinion, by their different origin: the first is due to the hypsometric contrasts of the catchment areas, and the second is due to climatic differentiation under these conditions of the valley-forming processes.

The hypsometric asymmetry in this case is the result of the intense uplift (for example) of the Sergeevsky anticlinorium and the Sestrinsky granite massif (Southern Primorye), within which there are smaller parts of the catchment areas (right for the Kievka river and left for the Partizanskaya river). The streams originating here (on ranges with the highest marks in the region — Sestrinsky, Alekseevsky and Benevsky) are shorter than the opposite tributaries of the main rivers. At the same time, they, of course, are characterized by a larger average slope, providing them with greater eroding ability. As a result, the watercourses of the "short" slopes carried large volumes of coarse clastic material into the main valleys, thereby pushing the Kievka river to the left for a considerable length (Figs. 2 and 3), and the Partizanskaya river to the right. In some areas, this process takes place now, but only during extreme floods.

An analysis of the area distribution of different age Pliocene-Quaternary traces in the river basins of Kievka and Partizanskaya leads to the conclusion that the most active formation of the asymmetry of the slopes of river valleys coincides with the cold eras of the Middle and Late Pleistocene. The main role in the "rolling down" of the main rivers (Partizanskaya - to the right, and Kievka - to the left) was played by the cones for the removal of their tributaries, "sliding" from the ranges. This allows us to consider the climatic factor (compared with the tectonic) as an equally important reason for the directional "rolling" of the river channels.

A study of the age of the lithological and facies features of geological sections (I, II, and III of the floodplain terraces of the Kievka and Partizanskaya rivers) showed a convincing coincidence in time of the cooling of the climate and growth of the internal deltas at the mouths of the right tributaries of the Kievka river and the left tributaries of the Partizanskaya river [2]. At the base of these terraces, a pervasive alluvium is revealed, whose structure corresponds to the alluvium of the main watercourses, and according to the accumulation time it is attributed to the warm epochs of the Middle and Late Pleistocene (based on the materials of A.M. Korotkoy and L.P. Karaulova, 1975). This structure of the section of terraces is explained by a decrease in the degree of asymmetry of the valleys during the era of climate warming. This is also confirmed by the distribution of the high floodplain (QIV) in the river valleys near the upland slope by intensive cutting of high terraces on the "long" slope of the same valleys. Some facts indicate that currently there is a tendency to increase here valley asymmetry [2].

Similar phenomena of unevenly directed migration of channels of different order streams into the cold and warm Pleistocene epochs are also noted in other areas (for example, within the basins of the upper and middle reaches of the Kolyma River).

Thus, the asymmetry of the valleys of the main rivers is the result of a complex interaction of tectonic and climatic factors of relief formation. In this case, the dynamic state of interacting factors is of fundamental importance. In the case considered by us, the morphogenetic effect of such an interaction is sharply differentiated in time: a) in "warm" epochs — a decrease in the speed of "rolling" rivers, the degree of valley asymmetry, the magnitude of the discrepancy between the valley and basin asymmetries; b) in the "cold" era - a sharp increase in all these processes and phenomena, which is causally associated primarily with increased regional and local contrasts of heat and moisture.

Separate indicators of the enhancement of both the listed and many other processes and phenomena (the data of the author's research, 1976 and 1977) against the background of the already emerging climate cooling (according to the materials of V.V. Nikolskaya and the author, 1976) indicate a directed increase in general continentalization in the Far East.

The role of slope processes. The climatically determined asymmetry of the slopes of river valleys and interfluves is primarily associated with the anisotropy of the actual slope processes [2]. Regional studies in Central Siberia and the Far East have revealed the widespread "climatic" asymmetry of the slopes both in the field of permafrost development and beyond, based on the materials of E. A. Presnyakova, 1955; U.G. Simonova, 1959; G.M. Epstein, 1961; S.S. Voskresensky, 1962; author, 1968; I.I. Krylova, 1976; A.M. Korotkogo et al. (1976; et al.).

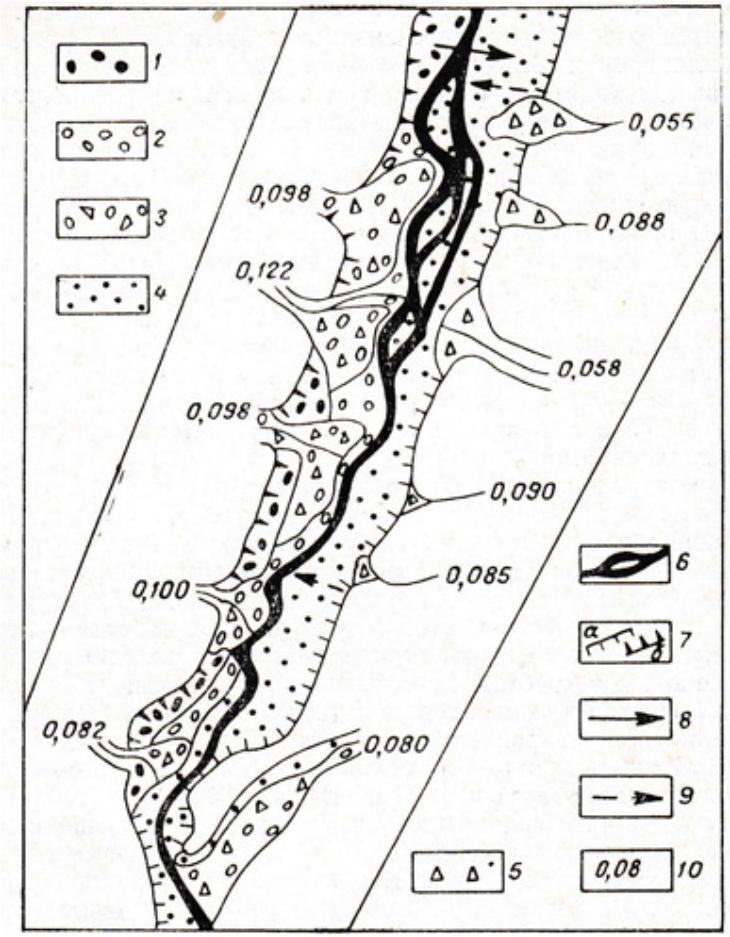

Fig. 1. *Geomorphological structure of the valley Kievka river valley (middle course)*

Legend: *1 – complex of regional terraces;*
2 – complex of low terraces; 3 – alluvial proluvial loops;
4 – modern bed and high floodplain;
5 – small watercourses cones; 6 – modern course;
7 – morphology of slopes (a - steep; b - gentle);
8 – direction of channel rolling in the late pleistocene;
9 – direction of modern channel displacement;
10 – hypsometric gradient

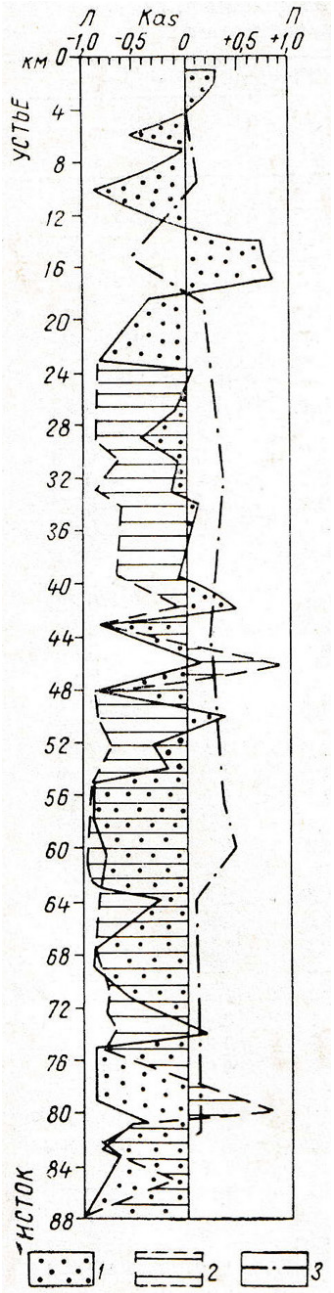

Fig. 2. *The ratio of basin and asymmetry of the Kievka river valley:*

1 – modern asymmetry (valley)
2 – late pleistocene asymmetry (valley)
3 – basin asymmetry;
L – left side of the valley;
R – right side of the valley;
Kas – coefficient of the relief asymmetry.

In the Far East, we have established specific features of the development of asymmetry of river valleys (the existence of 2 asymmetry variants - northern and southern, with 2 modifications - continental and oceanic). They are detected in accordance with changes in the direction and intensity of climomorphogenesis both in the direction from south to north, and from inland to coastal areas. At the same time, a close relationship between the anisotropy of slope processes and spatiotemporal climate changes during anthropogenesis was shown (based on materials by V.V. Nikolskaya and the author, 1976; A.M. Korotkogo et al., 1977).

On the basis of new data from our ground-based and aerial-visual observations and analysis of aerial photographs and large-scale maps using materials already published, we will attempt to discover the general and particular patterns of asymmetry of small river valleys. It is more expedient to do this in certain climatic regions.

Wrangel Island is located in the complex interweaving of continental and oceanic relief-forming influences, emphasized by the specific features of the polar climate [4]. The permafrost processes, among which the permafrost creep and the permafrost subsoil runoff dominate, are directionally amplified and already dominate in the development of the exogenous relief and, in particular, in the formation of the relief of small valleys. Here, in conditions of increased cloudiness at the beginning and end of the warm period and relatively uniform exposure due to the long-term setting of the sun not so high above the horizon in the middle of summer, there is a significant equalization of the thin active layer and smoothing of differences in the intensity of processes on differently oriented slopes. The asymmetry of the slopes of river valleys proceeds according to the northern variant and only in sub-latitudinal valleys, i.e. slopes of the northern exposure (NE) are always steeper than the slopes of the southern exposure (SE). In general, the “climatic” asymmetry manifests itself more clearly as the depth of incision increases, which enhances local contrasts of heat and moisture.

Chukotka is also in the sphere of the complex interaction of continental and oceanic relief-forming influences, but already in the conditions of a polar and subpolar climate [5].

The asymmetry of the slopes of the sides of small valleys (up to the fourth order inclusively) in Chukotka in all lowland river basins, and within the low and middle mountains on the mesoscale and macro slopes, is characteristic of a generally “warm” (western and especially southern) exposure. Its development, caused at different hypsometric levels by various slope-forming processes (mainly solifluction, desorption and permafrost creeps, kurum-talus), occurs according to the northern version. Moreover, if for sub-latitudinal valleys the asymmetry of the slopes throughout the territory has a constant sign (the slopes of SE and western are always better than the opposite), then for submeridional valleys its character

changes significantly from west to east and from south to north. The asymmetry of the slopes (northern variant) within the submeridional valleys can be discussed practically only for spaces located south of the Arctic Circle.

An analysis of the spatial characteristics of the asymmetry of the submeridional valleys shows that in the western and central regions of Chukotka (in the basins of the upper rivers Anadyr, Belaya, Tanyurer, Mayna, Velikaya and others), the slopes of the western exposure (WE) are usually noticeably more gentle the slopes of the eastern exposure (EE) The development of asymmetries of this type, as in sub-latitudinal valleys, is determined in general by zonal factors. In the eastern direction, this regularity begins to break: cases of symmetry and simultaneous expansion of gently sloping valleys are becoming more frequent, which are characterized by comparable thicknesses and lithological differences of loose deposits dressing the slopes; the incidence in opposite valleys asymmetry in small valleys increases directionally (slopes EE are slightly more sloping WE). Most clearly, these "violations" are noted in the basins of the upper Kanchalan and Volchye rivers, and to the east in many other areas of the peninsula. On the whole, the entire coastal eastern territory of Chukotka is characterized by approximately equal occurrence of asymmetry of the opposite sign and symmetry of the slopes of submeridional small river valleys. Their diverse development is associated primarily with hydrothermal contrasts as a result of the interaction of land and sea and (or) with the peculiarities of differentiation of the sun's irradiation of the territory (i.e., an obvious connection with provincial factors).

The manifestation of a peculiar asymmetry of submeridional river valleys in coastal areas in the east of Chukotka can be explained in more detail as follows. As a result of the very intense wind redistribution of snow cover produced throughout the cold period by the east and south-east winds, the slopes of the EE are often almost “naked”. This leads to an earlier onset of spring thawing and solifluction shift of the loose cover, etc., which ultimately determines a more active flattening of the EE slopes, compared with the slightly active opposite ones. At the same time, the symmetry of the slopes here indicates an approximately equal intensity of the slope-forming processes, and the asymmetry of the opposite sign (EE slopes are more gentle than the slopes of the WE) indicates an increase in the continental setting of the valley climomorphogenesis.

Thus, the development of the asymmetry of the slopes of small river valleys within Chukotka is sharply differentiated, which is in full accordance with the climatic factors. The variant of asymmetry of the slopes of the sub-latitudinal and submeridional valleys is represented by two modifications: in the continental and central regions of Chukotka — the north-continental (the SE and WE slopes are much more gentle than the NE and EE slopes) and in the eastern regions - the north-oceanic (SE and EE slopes are more gentle than the opposite).

The upper Kolyma river basin is located in a region of sharply continental climate, generally dry and cold [6]. Under conditions of high continentality and continuous development of permafrost, fluvial processes in the valleys of small rivers (I - III orders of magnitude) are almost completely suppressed by slope ones, among which solifluction predominates. At the same time, its morphogenetic role is affected not only directly in the more active flattening of "warm" slopes with simultaneous reversal (sometimes by 120˚) of small valleys, but also in the formation of asymmetry in vast sections of relatively high order in river valleys. The latter is due to the fact that powerful solifluction flows coming from small valleys move the channel of relatively high-order waterways to the opposite side, contributing to its cutting and thereby increase its steepness over a considerable length.

An analysis of the materials at our disposal shows that the north-continental modification of the northern version of the asymmetry of the slopes of the valleys of small rivers predominates over the entire territory of the upper Kolyma river basin (in the altitude zone of 800-1400 m) (Fig. 3). The symmetry of the slopes and morphologically similar to the north-continental modification of the northern variant, cases of asymmetry are generally subordinate. We associate such a complex ratio of the symmetry and asymmetry of the slopes not only with the variable spatiotemporal interweaving of continental and oceanic relief-forming influences. Unlike Chukotka in, where the leading factor in climorogenesis is the zonal manifestation of global seasonality, here morphotectonics appears to be such. The powerful morphotetonic factor acts through the formation of basin asymmetry and macroexposure, whereby the effect of the "climatic" development of small river valleys is enhanced or weakened.

Okhotsk Sea mega-shore (Fig. 4). Within its limits, the factor of cosmic rhythms is the leading one in climomorphogenesis, and the prevailing slope-forming processes are kumum-talus and nivational [7]. The slopes of the valleys of small rivers are often characterized by symmetry, but mainly in their sub-latitudinal sections.

In general, most valleys of small rivers (up to IV order) have symmetrical steep talus slopes (with well-defined talus terraces) and at the foot with linear curums in the narrow bottoms of the valleys. These conclusions are based on a survey of vast mega-shore spaces between 147 and 151° E, in the Detrin river basins (in the altitude zone of 800-1200 m), Arman, Yana, Seymkan and Khuren (in the altitude zone, mainly up to 1000 m).

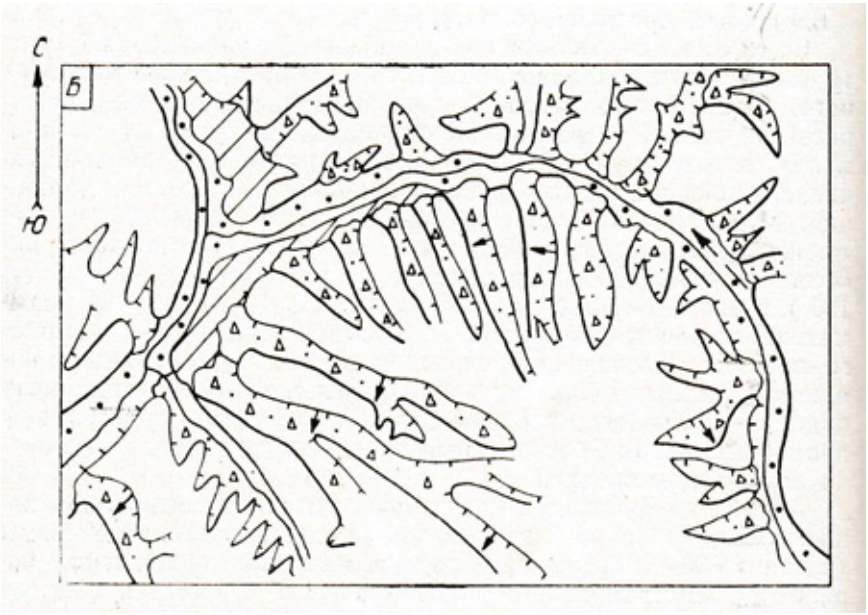

Fig. 3. *The nature of the asymmetry of the slopes of small valleys (I – II order) in the basin of the Berelekh river*

Legend: *1 - terrace complex; 2 - undivided complex of terraces;*
3 - alluvial-solifluction accumulations;
4 - steep (a) and gentle (b) slopes of the valleys;
5 - direction of displacement of the slope cover; 6 - direction of the river

Northern slope of the Stanovoi Range and Upper Timpton Depression depression. The development of valleys of small rivers occurs in conditions of sharply continental climate and often insular or continuous distribution of low-temperature permafrost. A pronounced asymmetry (of the north-continental modification of the northern variant) is more often observed in low-order valleys that divide the expositionally southern sides of the depression and large river valleys. On the macro slopes of the northern exposure, the asymmetry of the slopes of the valleys of small rivers is poorly expressed.

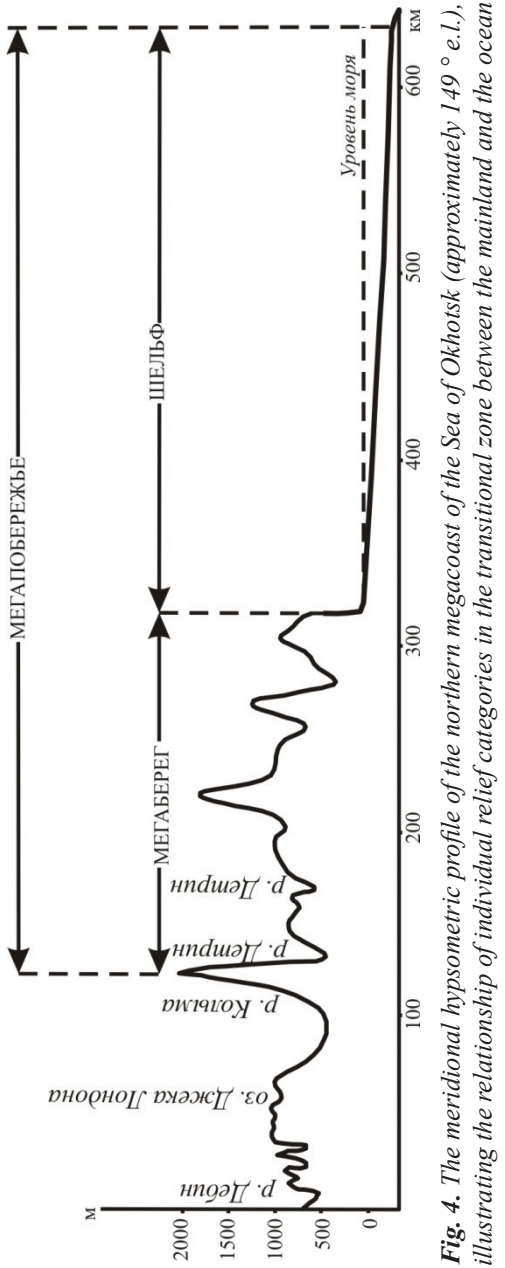

Fig. 4. *The meridional hypsometric profile of the northern megacoast of the Sea of Okhotsk (approximately 149 ° e.l.), illustrating the relationship of individual relief categories in the transitional zone between the mainland and the ocean*

*Yam-Alin and Dusse-Alin a*re seasonally influenced by inland areas and the ocean. The maximum impact of these influences on the physical-geographical process as a whole is clearly differentiated by macro exposures. This is expressed primarily in sharp contrasts of heat and moisture on the macro-slopes: a) eastern - well or excessively moistened throughout the year, moderately cooling in winter and warming up in summer; b) western - sharply cooling in winter and generally not enough (in summer - moderately, in winter - not enough) moist and warm well in summer; c) northern ones - by moistening close to western ones, by heat supply constantly the coldest; d) southern - similar to the eastern ones moistening, the same as the western ones cooling in winter, but most warming in summer. Each of these options has its own altitudinal-belt spectrum of hydrothermal contrasts, which is specifically different on different meso slopes within even one macroscope, not to mention a comparison of the indicated indices of the opposite macro slopes. This is well illustrated, in particular, by the spread of island (in the south) and often island (in the north) permafrost - a kind of mirror of the hydrothermal of landscapes, and the development of permafrost (maximum within the western and northern macro slopes) and nivational (most in the eastern macro slopes) processes and formations.

In the development of geomorphological processes on the western macro slopes, perennial and seasonal predominantly thermal differences play a paramount role, and on the eastern - humid (especially in the middle mountains) or humid and thermal (in particular, in the low mountains). The latter are the result of a growing and simultaneously expanding eastward continental relief-forming influence, especially as a result of the hollow effect in winter.

Thus, climatically, the factors of differentiation of the territory of the considered ranges were determined (at least from the Pleistocene) and determine the anisotropy of geomorphological processes. Naturally, the asymmetry of the slopes of the valleys of small rivers is characterized not only by various options, but also by their different modifications. In support of these conclusions, we give the following examples.

In the Nimelen river basin (a belt of shallow and low mountains within the eastern macro-slope of the Yam-Alin ridge), the territory of which is exposed to the southeast and where permafrost is most often developed on the north-western and northern mesoscopes, a clear and sustained slope asymmetry is characteristic only for sub-latitudinal valleys of small rivers. Its development proceeds more often according to the southern version (the SE and WE slopes are steeper than the opposite) and is associated with a more active flattening of NE slopes under the action of solifuction and permafrost creep, and EE slopes - monsoon solifluction, in comparison with the opposite slopes.

Within the north-east territory of the Kerby basin (low mountain belt of the northern macro slope of the Dusse-Alin ridge), where permafrost is widespread on all mesoscopes, a northern variant of asymmetry is observed in sub-latitudinally oriented valleys of small rivers. In its development, the decisive role is played by locally amplifying on the relatively well-heated slopes of SE solifluction processes. At the same time, we emphasize that here, as in the basin of the river. Nimen, there are frequent cases of symmetry of the slopes of submeridional valleys of small rivers, which may indicate a comparatively equal contribution to the development of river valleys of continental and oceanic factors. In addition to this, let us inform you - the noted situation of slope symmetry is a clear indicator of the ongoing restructuring of asymmetry options - from north to south. The latter is true for the entire territory of the south of the Far East.

A different picture is noted within the western macro-slopes of the Yam-Alin and Dusse-Alin ridges. For all valleys of small rivers in the territory (especially the most part exposed to the south-west) of the basin of the upper Selemji River in the shallow belt, the southern variant of asymmetry is more often characteristic. Here, as well as in the upper reaches of the Bureya River (western macro slope of the Dusse-Alin ridge), the northern variant of asymmetry prevails everywhere, owing mainly to solifluction and permafrost creep due to its origin. At the same time, in the shallow-water belt, as in more continental regions (for example, in the basin of the left tributaries of the Gilyuya river - Argaskit river, Khugder river, etc.), quite often there are symmetries of the slopes of the valleys of small rivers and the immediate proximity (interchange) of both asymmetry variants - the northern and southern, develop which is governed mainly by the spatio-temporal dynamics of permafrost and, consequently, permafrost processes that vary in intensity. In addition, we note that in these cases, on many slopes there are peculiar kinks-ledges, which can be traced in the upper or middle part of the slopes. In our opinion, these kinks-ledges indicate a temporary change in the development of anisotropy of the slope processes, which is associated with a sharp decrease in the degree of climate continent from the cold eras of the late Pleistocene to the Holocene. The latter is also confirmed by the results of paleogeographic studies in the Zeya basin (based on materials by I.E. Loginova and Yu.V. Makhova, 1973). At present, due to the already marked increase in continentality, it should be expected that in the basins of the Zeya, Selemdzhi and Bureya rivers, the occurrence of the north-continental variant of the asymmetry of the slopes of the valleys of small rivers will increase directionally. Summing up these constructions, we note the main features of the spatiotemporal development of the asymmetry of the slopes of the valleys of small rivers: a) this asymmetry is determined by zonal factors; b) in the historical plan (from the Late Pleistocene to the Holocene - during warming) in its development there was a change of sign - from the northern to the southern variant; c) at present,

with increasing continentality against the background of the onset of cooling - in separate thermodynamically unstable areas that arise, the opposite development of asymmetry occurs, from the southern to the northern, i.e. a peculiar adjustment of zoning by the provincial and factors is carried out. As a result, we are now observing in certain areas "neighboring" various options and modifications of the asymmetry of the slopes of the valleys of small rivers.

Sikhote-Alin and, in particular, South-Western Primorye are located in the monsoon forest climatic region of the temperate zone, which is characterized by a predominance of liquid atmospheric precipitation over solid. The intra-annual distribution of heat and moisture, the nature of the insolation and wind regime, and a number of other characteristics make it possible to consider the climate of this region as continental with monsoon features.

The greatest originality of slope processes that affect the appearance of low-order erosion forms is determined by high summer temperatures in combination with heavy rainfall. This causes a fairly intense chemical weathering of rocks, especially in hilly bumpy and shallow mountains. At the same time, relic weathering crusts were preserved here over large areas, including within the Sikhote-Alin range. All this creates a high degree of clayiness of slope sediments, which determines, with optimal moisture, the active development of monsoon solifluction processes.

The geomorphological effect of modern slope-forming processes (defluction, monsoon solifluction, permafrost creep, etc.) is significantly complicated by the features of slope transformation at earlier stages of the relief development. Thus, a significant displacement of the island permafrost to the south during the cold Pleistocene epochs to the south was the cause of the development of solifluction and talum-talus processes in the lower zone of the mountains, and in the warm epochs, the last arena shifted sharply in height. Thus, the morphogenetic effect of the anisotropy of the slope processes, which repeatedly changed their intensity and direction during the last stages of geomorphological development, was quite clearly manifested in the relief of the Sikhote-Alin Mountains and Southwestern Primorye. This is most clearly recorded in the climatically determined asymmetry of small erosion forms, in the form of which both modern zonal and sectoral, and their relict features in climorogenesis are noted. Moreover, the features of slope processes are most clearly seen when comparing the morphology of river valleys and slopes of interfluves in various geomorphological regions (altitudinal zones) of Sikhote-Alin and South-Western Primorye (Fig. 5).

The research materials show that climatic asymmetry is most clearly manifested in river valleys with moderate erosion incidence. As the incision increases and fluvial processes increase, the identification of valleys with a pronounced climatic asymmetry is difficult. This is one of the reasons for the bright anisotropy of the climatically determined slope processes only in the remnant-denudation belt. and shallow and low mountainous terrain [2].

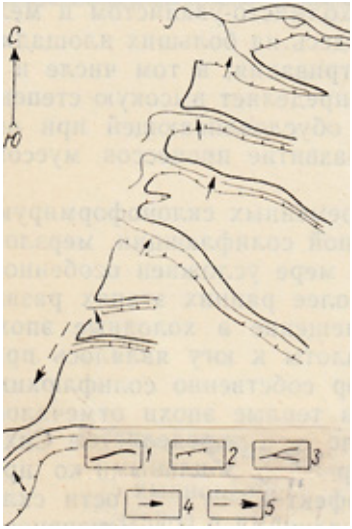

Fig. 5. *A typical example of the climatically determined asymmetry of the valleys of small rivers in the low mountains of the South Sikhote-Alin (basin of the Kievka River)*

Legend: *1 - steep slopes;*
2 - gentle slopes;
3 - channels of watercourses;
4 - direction of displacement of the slope cover;
5 - direction of river flow

Small valleys in the above-mentioned zones at different macroscopes of Sikhote-Alin are characterized by continental and oceanic modifications of the southern variant of asymmetry (according to our joint research with A.M. Korotkiy, 1976). Differences in the development and modeling of differently oriented slopes are associated with the humidification regime. Thus, the slopes of SE and WE in the late winter and spring due to active sublimation are quickly cleared of snow and, by the beginning of the thawing of the seasonally frozen and relatively thin layer of low-icy and, as a rule, coarse-skeletal soil, are relatively dry. This slows down the movement of clastic material, so these slopes slowly flatten, remaining steep. Subsequently, these “dry” slopes are gradually transformed into progressively convex. Opposite slopes are relatively slowly cleared of snow and at a lower thickness of the active layer (especially in areas of close occurrence of permafrost) and under conditions of significant wetting during its slow thawing, solifluctions and (or) defluxations are actively combined with monsoon solifluction. As a result, the previously formed

ledges are "cut off", and the straight slopes are transformed into progressively concave with an increase in their length. The latter phenomenon is also facilitated by the fact that the thalwegs of temporary watercourses in such valleys are usually pressed to the SE slope by a train of material sliding from the opposite slope (NE).

In the low-altitude belt, the character of asymmetry of small valleys substantially depends on which macro- and mesoscopes they develop. With relatively neutral basin exposures or very slight slopes of the mesoscopes to the east or west, the structure of such valleys shows a previously noted pattern: a) a continental modification of the southern asymmetry is noted in the western and central parts of the region (the slopes of SE and WE are noticeably steeper than the opposite); b) in the eastern coastal part, an oceanic modification of the southern variant of asymmetry (the slopes of SE and EE are noticeably steeper than the opposite). It is very significant that in all these cases, the development of asymmetry is climatically determined, which was illustrated (Fig. 5).

Thus, in different climatic conditions of the Far East, the morphogenetic effect of the anisotropy of slope processes manifests itself in different ways. In the direction from south to north and from coastal to inland areas, the order of small valleys increases (from 1-2 to 4 inclusive). In these spaces, climatic conditioned slope processes, suppressing fluvial ones, form an asymmetry of slopes. Its development in the meridional direction varies from the southern version to the northern one, in the latitudinal direction - from oceanic modifications of a particular asymmetry variant to continental. At the same time, the spatial change of asymmetry options and their modifications is especially difficult (with fluctuations and mutual transitions of its signs) within the central band of the temperate zone (mainly from 50 to 55 ° n.l.), which experienced the largest natural and climatic conditions together with its southern part changes over the Quaternary. At the same time, here, unlike the southern regions, as much as possible, they constantly preserved unidirectionally (from north to south) developing, but often recovering, Pleistocene trends in the development of ancient generations of climate-related relief are observed. In general, continental and oceanic modifications of the northern and southern asymmetries of small valleys can be considered as diagnostic signs of the corresponding influences - continental or oceanic.

Asymmetry analysis of coastal landforms

The anisotropy in the manifestation of coastal processes and the asymmetry of coastal forms of abrasion and wave accumulation associated with it are the result of a complex interaction of many natural factors: a) wind activity and sea waves associated with it; b) the orientation and configuration of coastal land and irregularities of shallow relief; c) fluctuating seasonal sea ice cover, etc. [2]. The anisotropy of coastal processes reflects the historical tension of coastal formation as a result of: a) the heterogeneity of tectonic development of coastal land and shelf areas; b) a certain trend in the change in coastal forms caused by long-period climate fluctuations and eustatic fluctuations in sea level.

All these factors that determine the essence of hydrodynamic processes in the coastal strip of land and on the shallow shelf are also associated with the balance of sediments in the coastal strip. So, depending on the amount of clastic material entering the wave-breaking strip, as well as on the speed of its redistribution along the littoral and along the coast, the relief of the coastal strip develops along an abrasion or accumulative path. Using the example of the northwestern coast of the Sea of Japan, we show to what extent the anisotropy of coastal processes determines the asymmetry of the valley and coastal forms of relief.

In the course of the studies, it was found that most rivers flowing into the Sea of Japan are characterized by a certain type of displacement of their channels when they flow into bays or bays. The latter usually coincide with the lower sections of river valleys flooded by the sea during the Holocene transgression. In relation to the axial part of these bays or bays and the river valleys associated with them, the channels have a right- or left-side displacement, or are located symmetrically with respect to the entrance capes. The nature of this asymmetry, which corresponds to the very last stage in the development of coastal-marine formations and estuarine parts of river valleys, in our opinion, is mainly associated with the prevailing orientation of the coastal sediment transport. Moreover, by the nature of the deviation of modern river mouths and by their ratio with ancient accumulative forms, we can estimate, as a first approximation, the direction and intensity of sediment flows for a longer time.

Among the variety of asymmetry manifestations of abrasive and accumulative formations at the seaside and in the mouth parts of valleys that arose at different stages of development of the coastal territory and the water area, six main types of asymmetry can be distinguished and characterized (Fig. 6) [2].

1. With a regular change in the resultant excitement during the Middle-Late Holocene, an ingressive bay arises. It is characterized by progressively convex slopes with approximately the same steepness and entrance capes and proximal ends of ancient and modern accumulative forms (relatively to the axial part of the valley that flows into the bay) (Fig. 6, I). The periodic deviation of the river mouth along the coastal sediment flows in the development of asymmetry of coastal landforms is not significant. The mouths of large rivers (for example, Kievka, Chernaya, Zerkalnaya) more often have such a structure, carrying a sufficient amount of material into the wave-stripe strip, subsequently redistributed along the coastal sediment flows, periodically changing their direction.;

2. The relief of the estuarine part of the valley and the adjacent seaside is formed under the influence of mainly alongshore sediment flows, the prevailing direction of which has been maintained for a long time, at least over the past 6 thousand years. In this case, the asymmetric distribution of facies is observed within the accumulative plain. In addition, along the leeward side of the bay there is mainly an accumulation of beach deposits, and lagoon and alluvial-lagoon sedi-

ments accumulate on the opposite side. The mouth of the river within such an asymmetric bay is usually pressed against the windward inlet cape. Quite often, the river valley in the section of the ingression lagoon has an asymmetric structure, which is fixed by a relatively gentle leeward slope and a well-defined abrasion ledge on the windward slope (Fig. 6, II). This is most typical for sections of the ingress-bay type of coast (for example, at the mouths of the rivers Milogradovka, Margaritovka, etc.).

3. In those cases when a sharp change in the direction of alongshore sediment flows occurred on the coastal section in the Late Holocene, spatial asymmetry of accumulative and abrasive relief forms of different ages is observed in the estuarine parts of the river (Fig. 6, III). Such temporary anisotropy of coastal processes can only be associated with a change in the regime of winds. More often, asymmetry arises in the valleys, where the ancient accumulative form was formed due to the products of abrasion, and the younger one due to the entry of alluvial material into the wave-stripe band. Active intake of alluvium can occur after the mouth estuary has been completed with debris (for example, at the mouths of the Maksimovka and Kema rivers). During floods, the river usually destroys the young accumulative form in several places, and after passing through them, when the flow strength weakens and the sediment flow is restored, the formed openings are filled with sediments.

4. In some cases, the asymmetry of the river valley in the lower part is determined by the features of the processes and does not depend on sea waves. In many valleys, the asymmetry of the mouth part is associated with the development of a meandering belt. So, if on the overlying section of the valley the peak of the bend approaches the starboard side, then left-side asymmetry will be observed directly at the mouth of the river, and vice versa. This can be observed in the mouths of the rivers Pei, Svetlaya, Kuznetsova, Amgu and others. In general, such a structure is usually observed in those rivers where the estuary lagoon is quickly filled with alluvial material (Fig. 6, IV).

5. In the estuaries of low-order watercourses with a well-defined complex of local terraces, the asymmetry of valleys and accumulative coastal-marine forms has a different nature. Thus, the asymmetry of the river valley is usually associated with a long and directed channel displacement. In this case, the entire complex of Quaternary terraces is observed on one side of such a valley, and its other side is a progressively convex slope (Fig. 6, V). Such a long-term directional channel displacement in some areas is clearly related to the climate anisotropy of the slope processes. For example, low-order valleys on the site of the Japanese megabereg - from the mouth of the river. Milogradovka and to the mouth of the river Margaritovka, have terraced NE slopes and steep SE slopes. In other areas, valley asymmetry is associated with basin or hypsometric asymmetry due to the peculiarities of the geological structure of river basins.

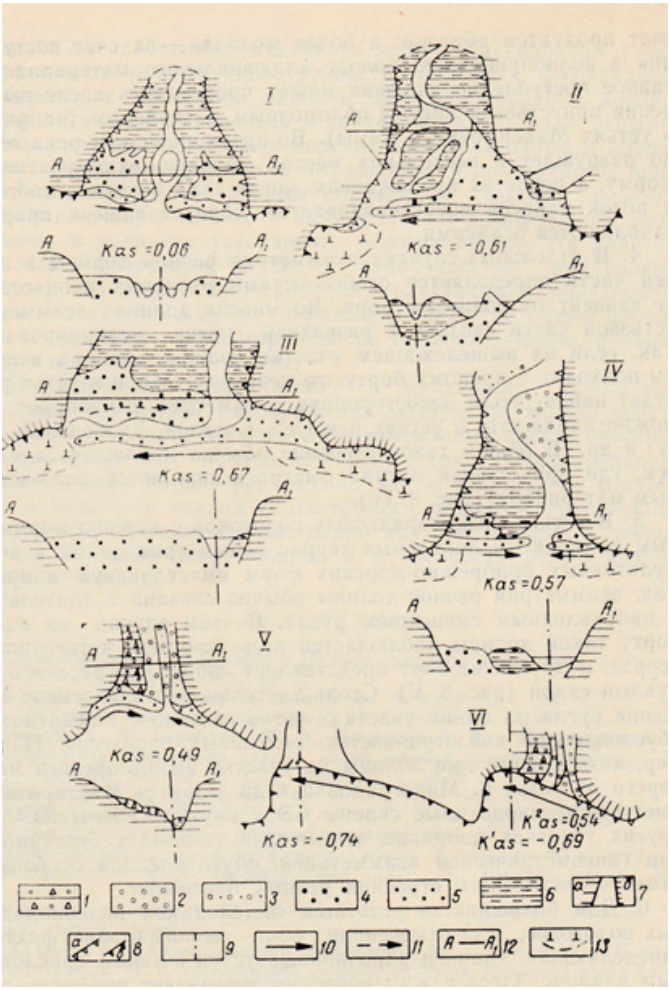

Fig. 6. *The nature of the asymmetry of coastal-marine landforms and estuarine sections of river valleys*

Legend: *1 - second floodplain terrace; 2 - first floodplain terrace;*
3 - high floodplain and modern riverbed; 4 - ancient sea terrace;
5 - modern beaches; 6 - lagoon terrace;
7 - slopes progressively concave (a) and progressively convex (b);
8 - abrasive ledges dead (a) and active (b); 9 - axis of bays and valleys;
10 - modern sediment flows; 11 - ancient sediment flows;
12 - geomorphological profiles; 13 - contours of the abrasion platform.

6. For most estuaries of low-order watercourses, where the aforementioned role of the geological factor is decisive, an abrasion ledge with a narrow leaning beach is typical. Here the wave mode determines the configuration and the degree of asymmetry of the abrasion bays. When the sea is exposed for a long time, an asymmetrically toothed outline of the coastline arises with a rock-shaped arrangement of inlet capes (Fig. 6, VI). Additionally, we note that the contours of bays and river valleys on the sections of the ingressive bay coast usually do not coincide; here, the character of the asymmetry of the bay and valley forms is also different.

Thus, various anisotropic manifestations of slope, fluvial, and coastal processes have been recorded in the relief of the coastal strip of the northwestern megacoast of the Sea of Japan, the complex functioning of which was morphologically expressed in the creation of a number of asymmetric valleys and coastal-marine accumulative and abrasive relief forms. A pronounced asymmetry in space is recorded mainly in the areas of development of abrasion-aligned and accumulatively-aligned types of coasts under conditions of a stable regime of winds. In the areas of the rias coast (with frequent variability of the direction of the winds), the nature of the asymmetry of the accumulative and abrasive forms is relatively less ordered, up to the change of asymmetry options (left-side to right-side, and vice versa) within one bay.

Conclusion

Critically comprehending the materials at our disposal, we can state that the richest and most variable spectrum of spatiotemporal manifestations of asymmetry of different-order relief forms is characteristic of the Russian (especially south) Far East. This is in full accordance with the most complex and diverse scale interweaving of continental and oceanic landscape-forming and, in particular, relief-forming influences here.

An analysis of the materials presented shows that the continental relief-forming influence affects most of the Russian Far East, and in the future (according to V.V. Nikolskaya, 1974) should increase even more.

The developments that we completed and presented in the article may be in demand in the practice of choosing the best environmental management options, taking into account the minimization of possible geoecological risks.

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硅和玉米产量形成的制剂

PREPARATIONS WITH SILICON AND CORN YIELD FORMATION

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抽象。本文根据叶处理的持续时间，介绍了各种类型的含硅制剂对玉米生产力形成的影响的研究结果。发现当玉米作物用纳米硅双重处理时，与用水处理的变体相比，其生长为33cm。当使用Kelik钾硅时，在叶面处理过程中在五片叶子的阶段中形成了较高的植物，并且使用Microvit-6硅，植物的多余高度为14-18厘米。在用硅制剂进行叶面处理期间，已发育的穗轴数量增加了8.1-18.7%，而纳米硅的优势却很小。在五叶期和两次喷雾中用纳米硅对玉米作物进行叶面处理的变体中，与不使用该药物的变体相比，一种植物的质量增加了19.7-22.0%。当以五片玉米叶和两次施用的阶段加工纳米硅时，与没有药物的选择相比，产量增加的湿重为20.6-21.0%。Microvit-6硅制剂的功效略逊一筹，这确保了生坯产量的增加12.4-19.3%。叶绿素钾硅的叶面处理使生果量增加了3.7-5.7吨/公顷或10.5-15.7%。通过使用纳米硅对农作物进行双重处理，可以提供最高的干物质产量，增加量为3.2吨/公顷。

关键词：玉米，硅，生物识别技术，绿色质量，穗轴，产量。

Abstract. *The article presents the results of studies on the effect of various types of silicon-containing preparations on the formation of corn productivity, depending on the duration of foliar treatment. It was found that when the corn crops were double-treated with Nano Silicon, the growth compared to the variant with water treatment was 33 cm. When Kelik Potassium-Silicon was used, taller plants formed during foliar treatment in the phase of five leaves, and using Microvit-6 Silicon, the excess height of the plants was 14-18 cm. The increase in the number of developed cobs during foliar treatment with preparations with silicon was 8.1-18.7% with a slight advantage of Nano Silicon. In the variants with foliar treatment of corn crops with Nano Silicon in the five-leaf phase and double spraying, the increase in the mass of one plant compared to the variants without the drug amounted to 19.7-22.0%. When processing Nano Silicon in the*

phase of five corn leaves and two-fold application, the yield increase wet weight was 20.6-21.0% compared with the options without the drug. The Microvit-6 Silicon preparation is slightly inferior in effectiveness, which ensured an increase in the yield of green mass 12.4-19.3%. The foliar treatment of Kelik Potassium-Silicon contributed to an increase in the yield of green mass by 3.7-5.7 t/ha or 10.5-15.7%. The highest yield of dry matter was provided by the option of double processing of crops with Nano Silicon, the increase was 3.2 t/ha.

Keywords: *corn, silicon, biometrics, green mass, cobs, yield.*

Introduction

The main function of silicon in a plant is to increase the body's resistance to adverse conditions, expressed in thickening of the epidermal tissues, accelerating the growth and development of the root system, binding of toxic compounds and increasing biochemical resistance to stress, reducing the effect of high temperatures [1, 2]. Silicon is necessary to improve the consumption of nitrogen, phosphorus and potassium [3]. It stimulates growth processes, accelerates the onset of the sweeping and ripening phases, which is associated with an increase in energy for metabolic processes and sugar synthesis [4, 5]. Interest in silicon is associated with the possibility of using it as an environmentally friendly alternative to pesticides, as well as increaseing the natural resistance to biotic and abiotic stresses [6-8]. The accumulation of silicon in conductive vessels causes an increase in the mechanical strength of the tissues. Silicon is necessary for the normal growth and development of the aboveground organs and the root system of plants [9, 10-15]. In the development of corn plants, two important stages (critical phases) can be distinguished by the availability of their macro- and microelements: phases 3-5 and 7-8 leaves. The future harvest depends on the availability of nutrients during these periods. All trace elements are required by plants in small doses. Therefore, the best way to make them is foliar top dressing, which is carried out by spraying with an aqueous solution of fertilizer. When applying this method of feeding, most of the nutrients fall directly on the surface of the leaves of the plant. And the use of silicon-containing preparations in which silicon is in the form of nanoparticles contributes to the greatest assimilation of nutrients by the plant [16]. Therefore, it is important to study the use of silicon-containing fertilizers at different times on crops of corn in the conditions of the forest-steppe of the Middle Volga, which determined the purpose of the study.

Object and methods of research

The studies were carried out in 2018-2019 in the conditions of CJSC"Konstantinovo" in the Penza district of the Penza region on leached chernozem medium-power medium humus heavy loam on cover carbonate loam with the following agrochemical characteristic: humus content – 5,1-5,4 %; $N_{sl.}$ – 110-112; P_2O_5 – 108-121; K_2O – 144-153 mg/kg of soil; pH_{salt} – 5,31-5,42.

The field experiment was repeated four times in accordance with generally accepted methods [17, 18] according to the scheme: Factor A - type of preparation: 1. Without preparation (treatment with water); 2. Kelik Potassium-Silicon (1.5 l/ha) 2. Nano Silicon (150 g/ha); 3. Microvit-6 Silicon (0.5 l/ha); factor B - processing time: 5 corn leaves; 7-8 corn leaves; 5 leaves + 7-8 leaves of corn. The plot area of the second order is 28 m^2. Under the first pre-sowing cultivation, mineral fertilizers were applied in a dose of N90P60K40. The object of research is an early ripe hybrid of maize Ladoga 191 MV (FAO 190). Sowing was carried out with aisles of 70 cm. The density of plant standing (70 thousand/ha) was formed in the phase of full germination. The predecessor is winter wheat in clean field. Doses of drugs are taken from the manufacturer's recommendations.

An analysis of weather conditions showed that the vegetation conditions of 2018 were arid against a background of moderately low air temperature. Insufficient moisture supply did not contribute to the full realization of the potential of the hybrid and obtaining a high yield of corn biomass. Precipitation during the growing season of 2019 was uneven, but most of it fell in the second decade of July and the first decade of August, during the period of active growth and development of corn, which contributed to the formation of a higher yield of corn compared to the previous year of the study.

Results and discussion

The measurement results showed that all the studied drugs had a positive effect on the dynamics of the linear growth of plants. On average, in two years of research for harvesting, the greatest growth-promoting effect was noted with a double treatment of corn crops with Nano Silicon. The growth, compared with the version with water treatment, was 33 cm. Processing in the phase of five leaves led to an increase in plant height by 12 cm, and when spraying in the phase of seven to eight leaves - by 26 cm. When using Kelik Potassium-Silicon, taller plants were formed during foliar treatment in the five-leaf phase, the growth for the variant without the drug was 19 cm. Spraying in the seven-eight-leaf phase and double use of the drug contributed to an increase in plant height by 7-9 cm. with the use of Microvit-6 Silicon, the excess of the height of the plants compared to spraying with water was: when processing in the phase of 5 leaves - 17 cm, 7-8 leaves - 14 cm, double foliar treatment - 18 cm.

Calculation of the number of ears of corn per hundred corn plants showed that, on average, over two years of research, the increase in the number of generative organs in pre-foliar treatment with preparations with silicon was 8.1-18.7% with a slight advantage of Nano Silicon.

The yield of corn depends on the number of plants occupying the sown area and on the mass of each plant. It was established that in both years of the experiment, more powerful plants were formed in the variants with leaf treatment of corn crops with the Nano Silicon preparation in the phase of five leaves and double spraying.

In these options, the increase in plant mass, compared with the options without the drug, amounted to 110-112 g or 19.7-22.0%. When processed in a phase of seven to eight leaves of corn, the increase was 63 g or 11.0%. The use of the drug Kelik Potassium-Silicon in the phase of five leaves of corn gave an increase of 79 g or 13.9%. The use of seven to eight corn leaves in a phase contributed to an increase in plant mass by 56 g or 10.5%, and with double treatment - by 89 g or 16.3%. The use of Mikrovit-6 Silicon in terms of effectiveness was equivalent to Kelik Potassium-Silicon, the growth ranged from 11.6% when processing in the five-leaf phase, to 19.0% when using the drug binary.

Analysis of yield data showed that in both years of research, the best indicators for collecting green mass were obtained using Nano Silicon. Apparently, this is due to the fact that when using Nano Silicon plants additionally receive trace elements such as iron, copper and zinc.

It should be noted that the treatment in the phase of five corn leaves and the double application were more effective, which ensured an increase in the yield of phytomass of 20.6-21.0% compared with the options without the preparation (Fig.). The Microvit-6 Silicon preparation is slightly inferior in effectiveness, providing an increase in the collection of green mass 12.4-19.3%. The foliar treatment of Kelik Potassium-Silicon contributed to the growth of green mass productivity by 3.7-5.7 t/ha or 10.5-15.7%.

However, it is difficult to conclude only the yield of green mass on the benefits of using this or that drug. Of great importance for obtaining high-quality silage is the dry matter content in the plant. As the results showed, in 2018, with the use of silicon-containing preparations, there was a tendency to a decrease in the moisture content of green mass. And in the growing season of 2019, the use of Kelik Potassium-Silicon and Mikrovit-6 Silicon for foliar treatment, on the contrary, slightly reduced the accumulation of dry matter, and in versions with Nano Silicon, a decrease in the phytomass moisture was noted.

The conducted surveys of dry matter productivity showed that under the arid conditions of 2018, the effect of all the studied drugs, regardless of the processing time, was approximately equal, while in a more favorable 2019, the best results were obtained with Nano Silicon. On average, over two years of testing, the highest yield of dry matter was provided by the option of double processing of crops with Nano Silicon, an increase of 3.2 t/ha or 31.4%. The foliar treatment in the phase of five and seven to eight leaves of corn led to an increase in the yield of dry matter by 18.8-20.4% compared with treatment with water. The use of Kelik Potassium-Silicon in the phase of five leaves was equivalent to Nano Silicon, and when sprayed twice and treated in the phase of seven to eight leaves, an increase of one and a half to two times less was obtained. The foliar treatment of Microvit-6 Silicon provided the greatest increase with double use - 1.8 t/ha.

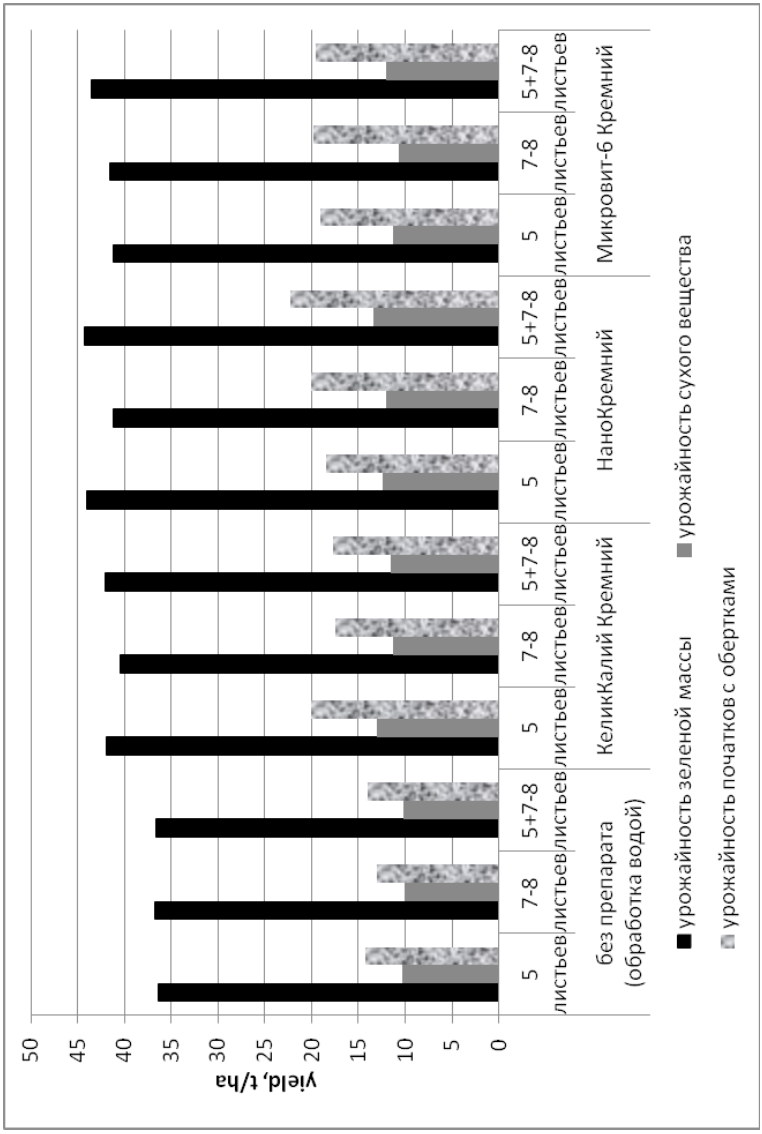

Figure - *The effect of the type and duration of processing silicon containing preparations on the yield of corn, average for 2018-2019.*

There were no large differences in the preparations for collecting cobs with wrappers; when applied, the increase was 3.7–8.3 t/ha or 26.4–54.0% of the options for water treatment.

Conclusions

1. The greatest growth-promoting effect was noted with a double treatment of corn crops with Nano Silicon, an increase, compared with the variant with water treatment, was 33 cm.

2. In the pre-foliar treatment of corn crops with Nano Silicon in the five-leaf phase and double spraying, the increase in the mass of one plant, compared to the options without the preparation, amounted to 110-112 g or 19.7-22.0%.

3. Non-root treatment with Nano Silicon in the phase of five corn leaves and two-time application provided an increase in the yield of phytomass of 20.6-21.0% compared with the options without the drug.

4. The highest yield of dry matter was provided by the option of double processing of crops with Nano Silicon, an increase of 3.2 t/ha.

5. There were no large differences in preparations for collecting cobs with wrappers; when applied, the increase was 3.7–8.3 t/ha, or 26.4–54.0% of the options for water treatment.

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含硅药物对春小麦生产力形成的影响
THE INFLUENCE OF SILICON-CONTAINING DRUG ON THE FORMATION OF PRODUCTIVITY OF SPRING WHEAT

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抽象。本文介绍了三年研究成果，根据使用纳米硅制剂的方法，对Arkhat春季软小麦籽粒的产量形成特征和技术性能进行了研究。在草甸黑钙土土壤中进行了研究，该土壤具有足够高的养分含量和微酸性土壤溶液。发现纳米硅对种子和农作物的综合处理刺激了植物的线性生长，与对照相比，其生长为7.7-8.1 cm。将种子处理与喷洒作物相结合时，植物的特征在于更长的穗状花序，从而增加了1.3厘米。在药物的复合使用过程中形成了最颗粒的耳朵，与对照组相比，颗粒的数量增加了25.5%。用纳米硅处理种子有助于使耳朵中的谷粒数量增加20.5%，而叶面处理则相对于没有准备的变种增加了12.1%。就峰值的谷物产量而言，最好的选择是两次使用该药物，与对照相比增加了33.3%。就效率而言，种子处理的选择略逊于他，获得了28.4%的控制。仅通过叶面处理，耳朵的谷物产量提高了14.8%。与对照相比，药物纳米硅的综合使用提供了最大的谷物单产-1.62吨/公顷。通过种子处理，每公顷可获得额外的1.34吨谷物，与对照相比，在收获期对作物进行叶面处理有助于使谷物单产提高0.99吨/公顷或23.7%。使用纳米硅时，小麦籽粒的碾磨特性没有变化，与水处理相比，粗面筋的质量分数增加了2.3%。

关键词：春小麦品质生产力纳米硅产量

Abstract. *The article presents the results of three years of research on the characteristics of yield formation and technological properties of Arkhat spring soft wheat grain, depending on the methods of using the Nano Silicon preparation. Studies were conducted on meadow chernozem soil with a sufficiently high content of nutrients and a slightly acidic soil solution. It was found that the integrated treatment of seeds and crops with Nano Silicon stimulated the linear growth of plants, the growth was 7.7-8.1 cm compared to the control. Plants were characterized by a longer spike when combining seed treatment with spraying crops, where an increase of 1.3 cm was obtained. The most grainy ears formed during the complex use of the drug, the number of grains increased by 25.5% compared with the control. The treatment of seeds with Nano Silicon contributed to an increase in the number of grains in the*

ear by 20.5%, and the foliar treatment - by 12.1% in relation to the variant without the preparation. In terms of grain yield from spikes, the best option was to use the drug twice, the increase was 33.3% compared with the control. The option with seed treatment was slightly inferior to him in terms of efficiency, where an increase to control of 28.4% was obtained. Only from foliar treatment the yield of grain from an ear increased by 14.8%. The largest increase in grain yield was provided by the integrated use of the drug Nano Silicon - 1.62 t/ha in comparison with the control. An additional 1.34 tons of grain per hectare was obtained from seed treatment, and foliar treatment of crops during the harvesting phase contributed to an increase in grain yield by 0.99 t/ha or 23.7% compared with the control. There was no change in the milling properties of wheat grain when using NanoSilicon, and the mass fraction of crude gluten increased by 2.3% compared to the version with water treatment.

Keywords: *spring wheat, quality, productivity, Nano Silicon, yield.*

Introduction

The formation of high yields by crops is a complex biological process, which is based on the constant interaction of the plant organism and the environment [1]. A modern solution to this problem is the creation of innovative technologies that make it possible to bring potential productivity as close as possible to genetic. One of the promising agricultural methods for increasing the productivity of field crops and improving the quality of grain is the use of nanotechnology, i.e. methods based on the use of particles 10^{-9} m in size [2-4]. A promising technology is the use of biologically active nano-additives, in which microelements are used as plant growth stimulators and metabolic activators. Metal salts (fertilizers) are replaced in them by a state form that pollutes the environment less and provides the minimum concentration requirements used for treating plants and seeds [5-6]. Modern trends in the development of agriculture (increasing prices for mineral fertilizers, the need to restore soil fertility, the search for alternatives to pesticides) have led to the emergence of a new type of fertilizer, the active substance of which is active silicon. World experience shows that silicon fertilizers are an innovative factor in the intensification of modern agriculture, without which it is impossible to conduct highly productive, stress-resistant and environmentally friendly production of crop products. Silicon increases the level of resistance of plants to any stress and does not have a toxic effect. The accumulation of silicon in conductive vessels causes an increase in the mechanical strength of the tissues. Silicon is necessary for the normal growth and development of aboveground organs and the root system of plants. Optimization of silicon nutrition of plants leads to an increase in photosynthetic activity. [7-12]. However, there is insufficient information on the formation of the yield and quality of spring wheat when using the Nano Silicon preparation depending on the processing method, which determined the purpose of the research.

Object and research methods

Three-year studies were carried out on meadow chernozem soil with a sufficiently high content of nutrients and a slightly acidic soil solution (pH 5.3–5.5). The experience was laid in accordance with generally accepted methods [2] in four-fold repetition by a randomized method according to the scheme: 1. - Control (water treatment); 2. - Seed treatment (0.4 kg/t); 3. - Spraying plants in the tillering phase (0.1 kg/ha); 4 - Seed treatment (0.4 kg/t) + Spraying plants in the tillering phase (0.1 kg/ha). The norm of the drug Nano Silicon is taken from the recommendations of the manufacturer. The plot area is 5 m^2. The object of research is Arkhat spring soft wheat.

The weather conditions of the vegetation in 2016 were arid, and the air temperature was above the long-term average, which did not allow us to fully realize the potential capabilities of the variety. Moderate temperatures and a sufficient amount of rainfall during the vegetation of 2017 positively affected the formation of grain productivity. The conditions of the growing season 2018 were characterized by insufficient rainfall, but the low temperature during the formation of grain contributed to a good yield.

RESULTS AND DISCUSSION

The yield of spring wheat largely depends on the number of plants per unit area and productive bushiness. The tests carried out in the experiment showed that regardless of the period of use of the drug, the productive viscosity in the research years did not vary significantly, from 1.19 to 1.21.

Measurements showed that in all years of research, the integrated treatment of seeds and crops by Nano Silicon stimulated the linear growth of plants, the growth was 7.7-8.1 cm compared to the control. Non-root treatment of crops contributed to an increase in plant height by 4.8 cm in relation to the control.

The studied drugs had an ambiguous effect on the formation of reproductive organs. According to the results, the spike length in the experiment varied depending on the duration of use of the drug. It was established that plants were characterized by a longer spike when combining seed treatment with spraying crops, where an increase of 1.3 cm was obtained compared to the control. The version with presowing seed treatment was slightly inferior to it, the spike length increase was 1.0 cm. the treatment of crops in the tillering phase practically did not affect the change in the size of the ear.

The number of spikelets in the ear shows the potential of the variety. The calculation showed that the largest number of spikelets was formed during the double use of the drug and amounted to 14.5 pcs., Which is 2.2 pcs. or 17.9% more than in the control option. From seed treatment, the increase was 12.2%, and with non-root treatment, only 4.9%.

Ears of spike is a reserve of plant productivity. Our studies found that more grained ears in 2016 formed during seed treatment and the integrated use of the drug, the number of grains increased by 27.5-30.2% compared with the control. In the growing season of 2017, in all variants using NanoSilicon, an approximately equal number of grains per ear was obtained - 29.6-32.2 pcs., Which is 3.8-6.4 more than the control. In 2018, the best options were seed treatment and two-time use of NanoSilicon. The increase in control amounted to 22.6-23.9%. On average, over the three years of testing, the most grainy ears were formed with the complex use of the drug, the number of grains increased by 25.5% compared with the control. The treatment of seeds with Nano Silicon was able to increase the number of grains in the ear by 20.5%, and the foliar treatment by 12.1% in relation to the version without the drug.

By to the yield of grain from the ear, the option with double use of the drug was also the best. The average increase was 33.3% compared with the control. Slightly inferior to it in terms of effectiveness was the variant with seed treatment, where an increase to control of 28.4% was obtained. Only from foliar processing the grain yield from an ear increased by 14.8%.

The experimental data obtained indicate that Nano Silicon showed the greatest adaptive efficiency in the dry summer of 2018. Seed treatment and double use of the drug contributed to an increase in grain yield by 33.2-35.7%. A little inferior to them is the treatment of crops in the tillering phase, which ensured a grain growth of 25.2% compared with the version without the preparation.

On average, over the years of the experiment, the largest increase in grain yield was provided by the integrated use of the drug Nano Silicon - 1.62 t/ha compared with the control. An additional 1.34 tons of grain per hectare was obtained from seed treatment. The foliar treatment of crops contributed to an increase in grain yield by 0.99 t/ha or by 23.7% compared with the control (figure).

It was established that during the years of research, the nature of grain when using Nano-Silicon did not undergo significant changes and almost did not differ from the control variant, it varied from 797 to 806 g /l.

The combined use of NanoSilicon increased the weight of 1000 grains by 6.5%, and from a single use of the drug, the increase was 3.2-5.6% compared with water treatment.

The silicon-containing preparation did not affect the consistency of the grain; it depended more on hydrothermal conditions during the period of ripening and harvesting.

It was shown that the most promising for increasing the mass fraction of crude gluten is the treatment of seeds with Nano Silicon, which provided an increase of 2.3% in relation to the control. However, when applying NanoSilicon, there is a tendency towards the decrease in the elastic properties of gluten.

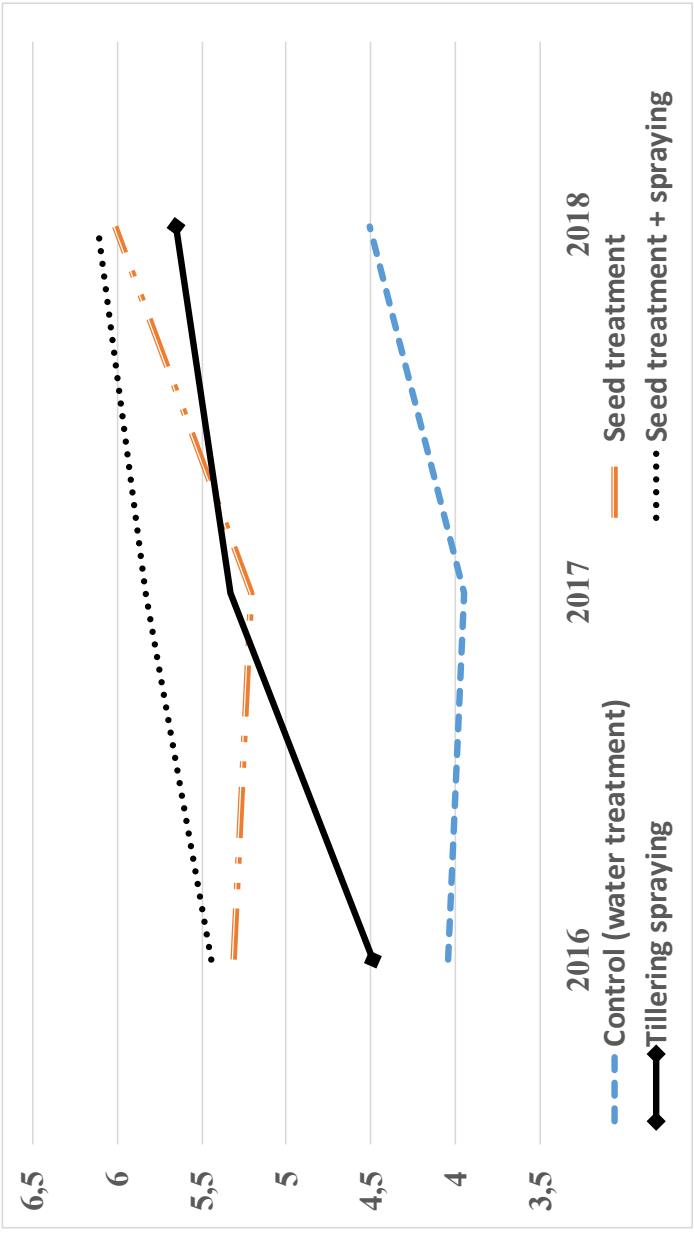

***Figure** - Effect of Nano Silicon on the yield of spring soft wheat*

Conclusions

1. The tallest wheat plants were formed after the processing of seeds by Nano Silicon and the double use of the drug.

2. More grained ears of corn formed after the integrated use of the drug, the number of grains increased by 25.5% compared with the control. The treatment of seeds with Nano Silicon contributed to an increase in the number of grains in the ear by 20.5%, and the foliar treatment - by 12.1% in relation to the variant without the preparation.

3. The grain yield from an ear with a double use of Nano Silicon increased by 33.3% compared with the control, and after seed treatment by 28.4%.

4. The largest increase in grain yield was provided by the integrated use of the drug Nano Silicon - 1.62 t/ha compared with the control.

5. The use of Nano Silicon did not affect the milling properties of wheat grains, however, the mass fraction of crude gluten during seed processing increased by 2.3% compared with the control.

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