



# 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

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这些会议文结合了会议的材料 – 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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金融发展的决定因素及其对经济增长的影响：撒哈拉以南非洲地区的案例研究  
**THE DETERMINANTS OF FINANCIAL DEVELOPMENT AND ITS  
IMPACT ON ECONOMIC GROWTH: A CASE STUDY OF SUB-  
SAHARAN AFRICAN REGION**

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抽象的。 本文回顾了金融发展的决定因素及其在发展中国家经济增长中的作用。 本文采用传统和非传统的研究方法，回顾了发展金融因素以及金融与增长关系的相关理论和实证文献。 除了回顾金融与经济发展关系的理论和实证研究外，本文还考察了金融发展的一些一般因素，包括社会信任、收入水平、贸易透明度、政治环境、环境和地理因素、国民收入和经济增长等。 其他的。 当审视撒哈拉以南非洲国家金融发展与经济增长之间的关系时，我们发现金融发展对该地区的经济增长有直接影响，因为它有助于通过储蓄汇集来积累资金，然后分配给各个经济部门。 将金融发展模式与经济发展模式进行比较表明，当金融发展下降时，经济增长就会放缓。 因此，政策制定者制定和采取促进金融发展的政策是有用的，从而促进经济发展。

关键词： 金融发展、金融、资本、经济增长、发展中国家、经济发展、投资。

**Abstract.** *This paper reviews the determinants of financial development and its role in economic growth developing countries. The paper employed both traditional and non-traditional methods of research by reviewing relevant theoretical and empirical literature on the factors of financial of development as well as on the finance-growth nexus. In addition to reviewing theoretical and empirical research on the relationship between finance and economic development, this paper looked at some general factors of financial development, including social trust, income level, trade transparency, political environment, environmental and geographical factors, national income, and others. When the relationship between financial development and economic growth in sub-Saharan African countries was examined, it became clear that financial development has a direct impact*

*on economic growth in the region because it aids in the accumulation of funds through the pooling of savings, which are then distributed to the various economic sectors. Comparing the patterns in financial development to those in economic development shows that when financial development declines, economic growth retards. Consequently, it is useful for policymakers to create and adopt policies that could promote financial development, which will in turn cause economic development.*

**Keyword:** *Financial development, Finance, Capital, Economic growth, Developing countries, Economic development, Investment.*

### **Introduction**

Financial institutions serve as catalyst to economic development in general. Thus, it is believed that financial institutions and markets drive economic growth by helping to pool savings and channel them to diverse areas of the economy, to catalyze total investment, provide jobs, and improve performance, has been extensively researched (Patrick, 1966; Goldsmith, 1969; Shaw, 1973; McKinnon, 1973 and so on). This debate dates to the late 1960s and it has gotten the bolster of modern empirical conclusions that supports the findings of previous scholars (Beck and Levine, 2004; Kappel, 2011; Kim and Liin, 2011).

But Huang (2005) and Voghouey et al. (2011) think the various variables that cause financial development are not adequately studied. Thus, this study aims at reviewing the finance-economic growth literature. This will revive and contribute to overall understanding of the determinants of financial development particularly in underdeveloped nations and grant policymakers a better understanding on how to develop and/or create institutions (within the financial sector) that able to vital economic transformation functions.

For instance, financial development involves an advancement in capacities such as facilitating investment funds mobilization and increasing the production capabilities of an nation; allocating capable for investments; improving the trade; catalysing trade and diversification, accumulating funds, hedging against loses and subsequently decreasing exchange costs as well as monitoring and evaluating the performance of managers to guarantee that the firms are run in the best interest of investors so as to decrease moral hazard. Previous scholars conclude that financial development is a function of different variables that can be either economic, social, or geological. For instance, some scholars indicate that financial related development depends on different geographical, economic, and sociocultural variables like income, political situation, ethnic, religious tolerance, intellectual property rights, inflation, education, and other factors (Huang, 2010).

The report 'World Economic Situations and Prospects 2018' by the Untied Nations' highlighted 4 major segments that governments must accomplish to guarantee

the achievement of sustainable development goals by 2030 (United Nations, 2015), the Addis Ababa Action Agenda (United Nations, 2015) and other action plans.

They are economic transformation in developing economies that depend largely on the exportation of commodities and mineral resources, decreasing wage disparity, building up a solid financial system that is significant to realizing stable and sustainable development since it guarantees a consistent flow of capital capable for industrialization, and building strong regulatory systems and improving security.

Given the significant role that financial development plays in reducing poverty and starvation, advancing peace and security, helping to protect the environment, prevents tax avoidance (Ahamed, 2016), creating the connection between foreign direct investment (FDI) and business development (Muneno, 2017), and guaranteeing welfare development through socio-economic transformation, thus this makes it essential to identify the factors of financial development in developing economies. Moreover, the negative impacts of financial crises like the one in 2007-2008 and the Asian financial turmoil in 1997 justifies the relevance of this research.

### **Literature review**

The relationship between financial sector development and economic transformation and the functions of financial sector development in bridging poverty and inequality gap in developing economies has inspired various works including this paper to examine the role of financial development in underdeveloped economies. This part outlines the results of these previous studies.

With a joint application of the Bayesian Model Averaging and the General-to-Specific methods, Huang (2005) examined the factors of financial related development. The results reveal that initial capital, trade transparency, number of people, quality of institutions, national policies, geographical components, sociocultural factors influence the degree of financial development of an economy. Also, a study of the causes of the difference in financial development among economies by Baltagi et al. (2009) indicate that strong financial organizations and system as well as trade openness are significant factors of financial development.

Based on data of fourteen states from the Center East and North Africa, Cheriff and Gazdari (2010) analyzed the elements of equity market growth. It was found that national income, liquidity of the stock market, interest rate, as well as level of savings influence the level of stock market growth, but inflation rate was revealed not to be an important determinant. Employing data on 108 nations, Chim and Ito (2005) studied the effect of the quality of regulatory institutions on financial development, by focusing more on stock markets. The study reveals that the liberalization of financial sector causes financial development most specifically upon the achievement of specific level of institution and legal.

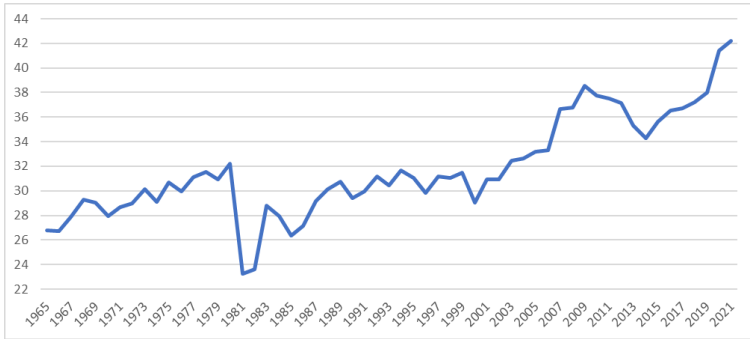
Also, some scholars use factors such as agencies, trade, and tradition to examine the cause of the variations in financial development among nations. Agencies that oversee the enforcement of the law and trade transparency have significant correlation and directly affect financial development, however, belief system was found to indirectly influence financial development via other agencies (Herrger et al. 2008). Furthermore, Boyd et al. (2001) examined the capacity of inflation rate to determine the allocation of funds in the financial sector. The results indicate a non-linear and negative relationship between the financial sector's capacity to supply capital and inflation, the level and degree of this relationship is economically important. Moreover, the financial system tends to perform less when the inflation rate goes beyond 15 percent.

Financial inclusion plays an important role in financial development. However, social confidence acts as a crucial element in financial inclusion. Based on data of 148 nations, Xu (2019) reveal that social confidence is a vital component of financial inclusion. The higher social confidence, the more people use banking services like as savings as well as borrowing products. Social confidence also promotes support and encourage the use of financial institutions despite the existence of information asymmetry.

Another crucial element that promotes financial development is the level of financial literacy, the set of understanding and knowledge that enables families and firms to form ideal choices as to how to designate and utilize accessible financial resources. A study on the financial literacy on some developing economies reveal that it is influence by factors such as sex, individual income, level of education, and so on (Karakurum-Ozdemiir et al., 2019). And they came to the following conclusions i) increased income level leads to higher financial literacy; ii) males have higher financial literacy scores than females; and iii) people with tertiary education have higher financial literacy, and so on.

### **The finance-economic growth nexus in sub-Saharan Africa**

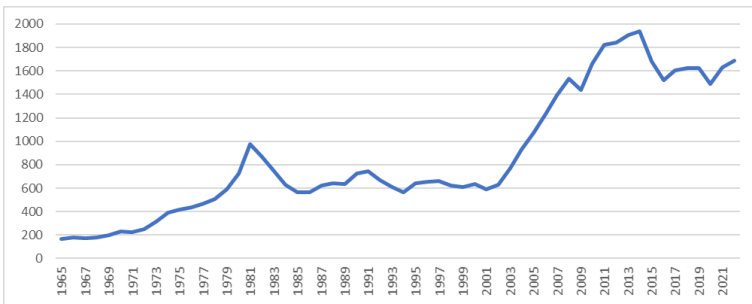
It is believed that finance plays vital role in every economy by driving the investment development that leads economic transformation, which consequently promote business development, the provision of employment, poverty alleviation, human capital development, reduction of inequality and many others. This section juxtaposes the trend of financial development and economic development to determine how financial development stimulate economic growth. The dataset on sub-Saharan African countries is collected from the World Bank database for the 1965 and 2021 to analysis financial development. Broad money (presented in figure 1) is used as a variable for financial development.



*Figure 1. Broad money in sub-Saharan African countries*

As can be seen in the figure above there has been constant fluctuation in the level of broad money in sub-Saharan Africa, which indicates that the level of funds for domestic and business also fluctuate in the region. This trend impacts the purchasing power of residents.

Economic transformation is influenced by the amount of money in circulation as this serves as through which businesses earn and mobilize capital for their development, which help them expand to provide jobs, execute their corporate social responsibilities, etc. The trend of economic growth in sub-Saharan Africa is presented in figure 2.



*Figure 2. Economic growth of sub-Saharan Africa*

The figure above shows that economic growth is unstable and takes the same trend as the financial development variable. And it is observed that as financial development shrinks the economic also contracts. This explains that statistically financial development correlates with economic development as financial development becomes the driver fundamental economic activities that promotes so-

cioeconomic transformation and technological progress of economies. Thus, as far as this study is concerned it can be stated that financial development causes economic growth or vice versa in sub-Saharan African countries.

### Conclusion

The positive correlation between financial development and economic growth has inspired research in this field on the factors of financial development and its impact on economic growth. The aim of this research was to review and analyse the relations of finance-economic growth in sub-Saharan Africa using data from 1965 to 2022. This paper explored some general factors of financial development such as social trust, income level, trade transparency, political stability, environmental and geographical factors, national income, and so on as well as reviewed both theoretical and empirical literature on the nexus of finance-economic development. On examining the relationship between financial development and economic growth in sub-Saharan African countries, it was revealed that financial development directly influences economic growth in the region as it helps in the accumulation of funds through pooling of savings, which are further allocated to the various sectors of the economy. On juxtaposing the trends of financial development to economic development it indicates that as financial development reduces, economic growth slows and vice versa. Thus, it is instructive for policymakers to develop and adopt policies that could stimulate financial development as this can serve as a catalyst to propel sustainable economic development in developing countries.

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摩尔多瓦共和国刑法特别部分制度发展的概念和起源  
**THE CONCEPT AND GENESIS OF THE DEVELOPMENT OF THE  
SYSTEM OF THE SPECIAL PART OF THE CRIMINAL CODE OF  
THE PRIDNESTROVAN MOLDOVAN REPUBLIC**

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Institute of Public Administration, Law and Social Sciences and  
Humanities Pridnestrovian State University named after  
T.G. Shevchenko*

抽象的。本文考察了摩尔多瓦共和国刑法体系形成的渊源，提出了摩尔多瓦共和国刑法特别部分与《摩尔多瓦共和国刑法典》条款执行过程中的系统解释和逻辑互动问题。其一般部分。同时，作者在研究中对普里德涅斯特罗维亚摩尔达维亚共和国刑法特别部分与俄罗斯联邦和共和国刑法特别部分的现行结构进行了简要的法律比较分析。摩尔多瓦。

关键词：刑事立法、特殊部分、发展阶段、体系、结构要素、普里德涅斯特罗维亚摩尔达维亚共和国刑法典、比较法律分析。

**Abstract.** *The article examines the genesis of the formation of the criminal law system in the Pridnestrovian Moldavian Republic, raises the problem of systemic interpretation and logical interaction in the enforcement of the provisions of the Special Part of the Criminal Code of the Pridnestrovian Moldavian Republic with articles of its General Part. At the same time, the author in his study conducted a brief comparative legal analysis of the current structure of the Special Part of the Criminal Code of the Pridnestrovian Moldavian Republic in comparison with the Special Part of the Criminal Codes of the Russian Federation and the Republic of Moldova.*

**Keywords:** *criminal legislation, Special part, stages of development, system, structural elements, criminal code of the Pridnestrovian Moldavian Republic, comparative legal analysis.*

Pridnestrovian society has been developing very rapidly in all directions over the past five years, this requires constant control by the state, and a well-built legal framework that regulates various areas of life support for citizens. At the same time, an indisputable fact is the recognition of the priority of criminal law

protection in the light of the political, legal and economic reforms being carried out today.

Taking into account these provisions, it is obvious that the process of legislative construction of individual criminal-legal elements of the Special Part of the Criminal Code of the Pridnestrovian Moldavian Republic (hereinafter referred to as the Criminal Code of the PMR) as a whole must be built on the basis of the fundamental norms of the Constitution of the PMR, which are systematically subjected to fundamental changes and a number of amendments, dictated by the needs of modern society in refraction to global values and criteria.

In the context of the foregoing, it is extremely important to form the correct attitude towards the current Pridnestrovian system of criminal law, as a specific form of reflection of criminal law processes, a model of civil society relations within the framework of the adopted criminal legislation in the state.

Unfortunately, at the present stage, we have to state the presence of conflicts in certain provisions of the Special Part of the Criminal Code of the PMR, gaps in the legal and technical construction of some norms and institutions, desystematization and the lack of interdependence of the decisions taken by the legislator to introduce additions and changes to the content of a number of criminal law norms. All this negatively affects the ability to counter the commission of crimes of various kinds, most of all in the field of combating economic crime, reducing the potential of the internal affairs bodies to prevent and prevent socially dangerous acts.

The foregoing determines the paramount importance and significance of complex multifaceted author's research in the field of systematization, structuring and harmonization of the Special Part of the PMR Criminal Code, the need for science and practice to formulate effective ways to increase its effectiveness, consistency, and visuality in law enforcement practice. Of great functional importance in this process is quite rightly given to criminal law science, one of the main directions of which, of course, is the assessment and forecasting of the level of legal regulation of social relations. Only on the basis of expert assessments of the effective solution of specific tasks by the criminal legislation will the forecast of further reform (including the need for such reform) be realistic.

It should be noted that any objective research should contain a historical analysis of both the object under consideration and its individual structural elements (phenomena, directions) subjected to study. In this connection, within the framework of this article, the author briefly studied and highlighted the main stages in the evolution of the system and structure of the Pridnestrovian criminal legislation, which were previously disclosed in detail in the dissertation research "The general part of the criminal legislation of the Pridnestrovian Moldavian Republic: results and development prospects"<sup>1</sup>.

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<sup>1</sup> The general part of the criminal legislation of the Pridnestrovian Moldavian Republic: results

According to the author's research, the historical stages in the development of the criminal legislation of Pridnestrovie are:

- "the application of Soviet criminal law throughout the territory of Moldova, excluding the territorial division of the regions that were part of the Moldavian Soviet Socialist Republic (1961-1991);
- formation of the General and Special parts of the Moldovan-Pridnestrovian criminal legislation on the fundamental principles of the Soviet criminal law (1991 - 2002);
- the transition from the post-Soviet model of criminal law to its own Transnistrian one, as well as further systematization, modernization, unification and harmonization on the basis of the most optimal for the Transnistrian region corresponding Russian model (2002 - to the present)<sup>2</sup>.

In order to understand the principle of systematic construction of legal provisions during periods of periodization of criminal legislation, it is necessary to analyze a number of fundamental documents.

The Criminal Code of the MSSR of 1961 became the first classic example of the systematic construction of the criminal legislation of Moldova in its modern sense. This normative legal document outlined the extremely important task of criminal law protection, which consists in the need to strengthen the protection of the social and state system, the priority of criminal law protection of socialist property. Thus, the legislator, as before, emphasized the priority of protecting state and public interests, and the rights, freedoms and interests of the individual were again not in the first place among the most important objects taken under protection by criminal law. The model of this codified act was a system consisting of two interrelated elements: General and Special parts. The norms of the Special Part contained an indication of the commission of certain types of criminal acts and the types of punishments provided for in the event of their commission.

The legislator subjected to significant changes the existing archaic system of punishments, which for a long time needed a detailed analysis regarding the types of punishments contained in it, as well as their sizes and terms. The most humane was such a type of punishment as public censure, the most severe were imprisonment and the death penalty. However, taking into account the requirements of the time, the normative legal document under study has undergone numerous changes and additions, which are often made without proper legal justification and are un-systematic and contradictory to each other.

The above circumstances made it obvious to both lawmakers and law enforcers the need to develop a new document, the provisions of which would correspond to

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and development prospects: Thesis of Cand. of Juridical Sciences / K.N. Gudima; Kuban State Un-ty. - Krasnodar, 2021. - 177 p.

<sup>2</sup> Ibid., P. 22.

the emerging realities of public life, the political situation, the emergence of new types of commodity-money relations that led to the emergence of speculation. At the same time, it is important to note the historical fact that the Criminal Code of the MSSR of 1961 existed until 2002, but in a different status. On the basis of a nationwide referendum held in 1991, an independent state was formed - the Pridnestrovian Moldavian Republic. On December 10, 1991, the Supreme Council of the PMR adopted the Resolution “On the procedure for applying legislation on the territory of the Pridnestrovian Moldavian Republic”<sup>3</sup>, on the basis of which the Criminal Code of the MSSR of 1961<sup>4</sup> continued to exist throughout the newly created state.

Continuing the study of milestones in the development of the system of criminal legislation of the PMR, one cannot ignore the active development of projects of the Criminal Code of the PMR, carried out in the periods from 2001 to 2002, which was due to permanent crisis phenomena in the field of economics and law, as well as the sudden desire of the legislator and legal scholars to reform the foundations of the criminal law protection of public relations.

The proposed drafts of the Criminal Code of the PMR, having a common basis, nevertheless differed significantly from each other, primarily by the creation of a new chapter, in which it was proposed to include criminal acts against the peace and security of mankind. It was proposed to introduce innovations into the chapter containing provisions on bringing to criminal responsibility for the commission of certain criminal acts classified by the legislator as economic. In addition, most of the project developers insisted on separating the groups of environmental crimes and crimes in the road safety system. “But after painstaking work on synchronizing various bills, using the rule-making experience of the Russian Federation, and in parallel cooperating with representatives of the Russian scientific community, in July 2002 the draft Criminal Code of the PMR was adopted in the second reading at the plenary session of the Supreme Council of the PMR. On July 10, 2002, it was signed by ex-president I.N. Smirnov and entered into force on July 22, 2002, which is still valid today.

The basis of the compositional construction and content component of the Criminal Code of the PMR 2002. was taken by the Criminal Code of the Russian Federation of 1996. Therefore, we can talk about the perception of its concept as a whole, balancing between the intensification of criminal law measures to combat

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<sup>3</sup> On the procedure for applying legislation on the territory of the Pridnestrovian Moldavian Republic: Decree of the Supreme Council of the Pridnestrovian Moldavian Republic dated December 10, 1991 No. 122 (D) <https://zakonpmr.com/DetailDoc.aspx?document=37348> (date of access: 06/10/2023)

<sup>4</sup> The Criminal Code of the MSSR in force on the territory of the Pridnestrovian Moldavian Republic // URL: <https://zakonpmr.com/DetailDoc.aspx?document=36583> (date of access: 06/10/2023).

crime and liberalization in relation to persons who have committed crimes who did not have a great public danger<sup>5</sup>.

Noting the complexity and versatility of the issues of the system and structure of the Special Part of the Criminal Code of the PMR 2002, it is necessary, first of all, to point out the wide and multidimensional distribution of the category “structure” in various branches of science. Of course, the criminal law industry also adopted this term, applying it in combination with another term - “system” - to the content of the entire array of criminal law provisions and allowing you to identify the specific features of an object of interest to the researcher, to identify the internal relationship of the components its content elements.

The current structure of the Criminal Code of the PMR as a single entity contains two fundamental fundamental elements, which are the General and Special parts, being interdependent and mutually existing in the context of a single plane. It is necessary to point out that the universally recognized criminal law provision is the extension of the principles of operation of the norms that make up the content of the General Part to the norms that make up the content of the Special Part.

Take, for example, the provisions of Art. 5-1 of the Criminal Code of the PMR, according to which the only basis for criminal liability is the commission of an act containing all the elements of a crime under this Code. Taking into account the requirements of this principle in the process of applying one or another norm of the Special Part of the Criminal Code of the PMR, in each individual case, it is important to identify the presence in the fact of committing a criminal act of all the signs of its composition.

Carrying out comprehensive research in the field of the system and structure of criminal legislation, the author comes to the conclusion that today’s construction of the current model of the Criminal Code of the PMR is fully consistent with the legislative logic and rules of philosophical doctrines in relation to the category of systemicity. Thus, including twelve sections in its structure, the PMR Criminal Code is structured in such a way that these sections, in turn, are divided into chapters, which are also divided, but already into articles.

Fundamental basis of the Criminal Code of the PMR 2002 “built in comparison with the previous version of the Criminal Code of the MSSR of 1961, according to a three-level scheme for reflecting normative material, in a meaningful hierarchical order; Sections of the code are consecutively numbered and are divided into chapters, which, in turn, also have a single continuous numbering; chapters contain articles and their separate parts”<sup>6</sup>.

<sup>5</sup> Gudima K.N. Conceptual bases for reforming the General Part of the Criminal Code of the Pridnestrovian Moldavian Republic within the framework of the general legal reform / K.N. Gudima // Humanitarian, socio-economic and social sciences. – 2019. – No. 11. – P. 166-167.

<sup>6</sup> Gudima K.N. Criminal Code of the Pridnestrovian Moldavian Republic of 2002: features of formation, current state and prospects for improvement / K.N. Gudima // Legal Bulletin of the Kuban State University. – 2020. – No. 2. – P. 34.

The current system of the General and Special Parts of the Criminal Code of the PMR includes twelve sections that are complex in content, as follows:

- The General Part of the Criminal Code of the PMR includes such sections as: “Criminal Law”; “Crime”; “Punishment”; “Exemption from criminal liability and punishment”; “Criminal liability of minors”; “Coercive measures of a medical nature”;

- The special part of the Criminal Code of the PMR consists of the following sections: «Crimes against the person»; «Crimes in the sphere of economy»; «Crimes against public safety and public order»; «Crimes against state power»; «Crimes against military service»; «Crimes against the peace and security of mankind».

The names of the sections specified in the Special Part of the Criminal Code of the Russian Federation of 1996 completely and completely coincide with the Criminal Code of the PMR of 2002, and once again emphasizes the identity of the criminal legislation of Russia and the PMR, as well as the possibility of its further harmonization throughout the entire legal system.

At the same time, all the chapters of the Criminal Code of the PMR, similar to the Criminal Code of the Russian Federation, “are built in accordance with a clear legislative desire to classify articles into certain groups, followed by arrangement in strict sequence, taking into account the primacy and significance of the object, with further highlighting of individual articles containing elements of criminal acts based on their the nature and degree of public danger «<sup>7</sup>”.

In this regard, it seems that the legislative bodies, when building the system of the Criminal Code of the PMR, entirely relied on the skeletal basis for building legal norms used in the Criminal Code of the Russian Federation. In addition, “when constructing such a system, the legislator took into account the principle according to which the design of criminal law norms should be based on a hierarchy of values taken under protection with the interconnection and interdependence of the system elements included in this hierarchical system”<sup>8</sup>.

If we briefly highlight the main differences in the structure of the Special Part of the Criminal Code of the PMR and the Criminal Code of the Russian Federation, we can note the following:

- sanctions for a number of crimes in the Criminal Code of the PMR are more stringent than in the Criminal Code of the Russian Federation (for example, for murder in Russia the punishment is from 6 months to 15 years - paragraph 1 of article 105 of the Criminal Code of the Russian Federation, and in the PMR from 6 months. up to 20 years - paragraph 1 of article 104 of the Criminal Code of the PMR);

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<sup>7</sup> Sizova V.N. The system of the Special part of the Russian criminal legislation. Monograph. Yurlitinform. 2021. – P. 140.

<sup>8</sup> Ibid., P. 141.

- in the Criminal Code of the PMR, in comparison with the Criminal Code of the Russian Federation, a number of elements of criminal acts are absent or have been excluded from the Special Part for a number of social, economic and political reasons, and they continue to operate in the content of the Criminal Code of Russia (for example, Article 128\_1 of the Criminal Code of the Russian Federation «Slander» is absent in the structure of the Criminal Code of the PMR).

If there are almost no structural and substantive differences between the Criminal Code of the Russian Federation and the Criminal Code of the PMR in the system of criminal law norms, then the Criminal Code of the Republic of Moldova dated April 18, 2002. (hereinafter referred to as the Criminal Code of Moldova) in this respect is the complete opposite.

A brief comparative legal analysis of the structure of the Special Part of the Criminal Code of the PMR and the Criminal Code of the Republic of Moldova showed that:

- in the content of the Special Part of the Criminal Code of Moldova there are a number of chapters that are absent in the Criminal Code of the PMR: Chapter 12 «Qualification of the crime», Chapter 13 «Meaning of some terms or expressions in this code». These chapters reveal the essence of qualifications and types of competition, as well as the specifics of the implementation of the criminal law norms of the General Part in the articles of the Special Part of the Criminal Code of Moldova;

- The special part of the Criminal Code of Moldova in its content does not have notes to the norms, this indicates the complete absence of the institution of notes;

- a number of norms of the Special Part of the Criminal Code of Moldova go beyond the norms outlined in the General Part of the Code, as in Art. 43 of the General Part contains four types of complicity in a criminal act (simple, complex, organized group, criminal organization), and the provisions of the Special Part also include another form of complicity - a crime by two or more persons;

- in the General Part of the Criminal Code of Moldova there are a number of norms, the procedure for the implementation of which is not provided for in the Special Part of the Code (preparation of a crime - Art. 26, attempt - Art. 27, etc.). This leads to the fact that part of the criminal law norms of the Criminal Code of Moldova become declarative, and their application in the Special Part is the subjective discretion of the law enforcer;

- “in part 2 of article 57 of the Criminal Code of Moldova, the relationship between the General and Special parts regarding the institution of active repentance is fixed: special types of active repentance specified in the notes to the articles of the Special part are valid only if there are general signs of active repentance (part 1 of article 57 of the General part Criminal Code of Moldova)»<sup>9</sup>. But in Art. 74 of

<sup>9</sup> Petrushenkov A.N. Coherence of the general and special parts in the criminal legislation of Israel

the Criminal Code of the PMR, there is no such direct relationship with the General and Special Parts, which is a flaw;

- the current Criminal Code of Moldova allows criminal liability of legal entities (art. 21, art. 63), while there are no such norms in the Transnistrian criminal legislation.

The study of the issues of the historical process of formation and development of the system of criminal legislation of Pridnestrovie and its structural construction, when compared with a number of countries, made it possible to form an objective conclusion about the need for a systematic approach to understanding the entire criminal law space in general and its individual elements in particular, taking into account the organic connection of these elements.

The development trend in the region of a fundamentally new legal field is due to the transformation of foreign and domestic policy vectors, the actual observance of the principle of priority of criminal law protection of the individual, is in urgent need of proper criminal law support, including a comprehensive study of issues related to the construction of the PMR Criminal Code system for increasing its effectiveness from the standpoint of lawmaking and law enforcement.

At the same time, in our opinion, the efforts of academic theorists and practicing lawyers aimed at solving the above issues will certainly contribute to a higher level of law enforcement in the future, which will allow developing a more advanced mechanism for the prevention and prevention of crime, as well as provide opportunities for more successful counteracting modern criminal manifestations, which are also undergoing certain transformations today, due to the emergence of new previously unknown types of criminal activity (cybercrime, medical crimes, etc.). This, in turn, requires the legislator to create such a system for its prevention, which would correspond to modern trends and the realities of today's society.

We also consider it necessary to pay close attention to the implementation of these provisions in the process of lawmaking, which in itself will contribute to the development of an effective and in terms of technical and legal construction of a perfect legislative act. The system of Pridnestrovian criminal legislation needs to be subjected to detailed structuring, which will provide real opportunities for criminal law protection and reveal the potential of criminal law science.

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确定危害正义罪责任的立法的发展历史  
**THE HISTORY OF THE DEVELOPMENT OF LEGISLATION  
DETERMINING RESPONSIBILITY FOR CRIMES AGAINST  
JUSTICE**

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抽象的。本文在刑事理论和法律演变的更广泛框架内审视了危害司法犯罪责任的法律规制历史。历史方法有几个要求，其中之一是将研究分为阶段（历史时期）。本文在对历史时期进行划分时，将政治、社会、经济和文化标准作为社会和国家发展的基础。因此，首先考察阿塞拜疆与俄罗斯统一前我国危害司法犯罪责任规制的状况。随后，对阿塞拜疆在俄罗斯帝国的奴役和苏联时期解决此类犯罪的责任问题进行了调查。

关键词：司法、法院、刑事责任、区分、犯罪内容。

**Abstract.** *The history of legal regulation of responsibility for crimes against justice was examined in the article within the broader framework of the evolution of criminal theory and law. The historical approach has several requirements, one of which is to divide the research into phases (historical periods). In the presented article, during the classification of historical periods, political, social, economic and cultural criteria were taken as the basis for the development of society and the state. Therefore, first of all, the state of regulation of responsibility for crimes against justice in our country before the unification of Azerbaijan with Russia was considered. Later, the issues of solving responsibility for these types of crimes during the period when Azerbaijan was under the servitude of the Russian Empire and was a part of the Soviet Union (USSR) were investigated.*

**Keywords:** *justice, court, criminal responsibility, differentiation, criminal content.*

The degree of public danger, the nature of the crime, the public risk of the offender's identity, etc. appear as the basis for the differentiation of criminal responsibility. The idea of balance, which articulates the requirements of justice, and the differentiation of criminal responsibility are two closely connected con-

cepts. According to the legal position of the Constitutional Court of the Republic of Azerbaijan, the principle of balance, which expresses the requirements of fairness, includes determining legal responsibility depending on the guilty act and its severity, the extent and nature of the damage caused, the degree of guilt of the violator, and other important circumstances that determine individualization in the application of punishment ( 1, p. 121).

Without studying the past, it is challenging to understand the true nature of the events and processes happening today, the best course for progress, and the ideas for the future. Each science's development perspectives can be ascertained by researching its past, examining its successes and failures, and taking into account the acquired knowledge. The historical approach method can be used to identify consistent trends in the development of law (3, p. 31). Following N.K. Aliyev's legitimate argument, we demonstrate the relevance of both theoretical and practical considerations while studying the history of the criminal legislation's response to crimes against justice.

The historical facts of the Russian Empire, which we have long been a part of, as well as the former Soviet Union, must first be taken into consideration while studying the evolution of the law establishing responsibility for crimes against justice. Although these periods encompassed separate stages, they were closely related to each other in terms of internal content. Determining the distinctive characteristics of the issue in the relevant field requires a thorough examination of the history of the evolution of criminal legislation. The solution of this task depends on the creative use of general and special scientific methods, complex approach, systematic and historical methods.

With the signing of the «Turkmenchay» contract on February 10, 1828, the Russian Empire's occupation of Azerbaijani territory that had begun in 1801 came to an end. The judicial reforms in 1840 and 1864 left a lasting impression on Russian history. In 1831, the «Rules on Trial and Punishment, Crimes and Misdemeanors of Former Tatar Instances, Yelizavetpol District, Residents of Muslim Provinces, and Mountain Peoples» approved by the State Council gave the authority to beys, aghas, maliks, and other village chiefs to perform police and judicial functions. But on February 5, 1724, Peter I signed a law that gave judges the authority to impose even the death penalty for unfair punishment. Although the «Compendium of Laws on Criminal Punishments and Corrections» was in force in the Russian Empire in 1845, emergency departments, including emergency courts, judicial authorities, established by the decree of the Russian Emperor dated April 10, 1840 «On Institutions for Administering the Transcaucasian Land» and notarial functions, along with economic and administrative functions, was also authorized to perform investigative activities and to apply that Code of Laws in practice. The Statute of November 22, 1866 and the Law of December 9, 1867, both titled

«On the Application of Court Statutes in Transcaucasia,» brought about the same judicial reform in Azerbaijan as had been adopted in Russia in 1864, starting on January 1, 1868. New courts, such as conciliation courts, started operating at that time (4).

Responsibility for crimes against justice was further distinguished in the Russian Empire's 1903 criminal code, which included a separate chapter with 22 articles. Many of the criminal elements provided here have different features from modern analogous norms. For example, for the act of deliberately reporting false information, 2 independent components of responsibility are provided; one provided for responsibility for falsely reporting a crime to prosecuting authorities, and the other for charging a specific act (Articles 156 and 157, respectively).

In general, the criminality of acts against the interests of justice was never disregarded in pre-revolutionary (up until 1917) Russian law. The social, political, and judicial systems of Russia were drastically changed by the Socialist Revolution that occurred in October 1917. During the early years of Soviet government, separate principles governed the defence of the interests of justice. In the first acts defining the foundations of Soviet criminal responsibility (for example, «Guidelines on the criminal law of the Russian Soviet Federative Social Republic», etc.) nothing was specified about crimes against justice. However, actions against justice were given a legal value as counter-revolutionary crimes and caused responsibility as political crimes. Such actions were considered as treason against the new government and resulted in severe punishments.

In the first Soviet codified criminal law act - the 1922 Criminal Code of the RSFSR, crimes against justice were not provided for in an independent chapter. Such actions are included in different chapters - one part is placed in the chapter of counter-revolutionary crimes, another part is placed in the chapter of crimes against administrative rules, and the third part is against the rules protecting the life, health and dignity of the person, public health, against public security and general order, etc. it was intended in the chapters where such crimes are placed. Similar to other at-the-time allied republics, the Azerbaijan SSR's 1923 Criminal Code contained chapters and articles with the same names. It has been rightly shown in the literature that although the states included in the USSR Union, including Azerbaijan, were presented as an independent state at that time, in essence this aspect was of a formal nature. The majority of normative documents, including codes, were initially written in Russia before being translated into the languages of the allied republics and being officially approved (4).

Later, the formal independence of the allied republics on the adoption of a number of legislative acts gradually disappeared. Thus, in the Constitution of the USSR adopted in 1924, the preparation of the bases of criminal legislation was attributed to the authority of the Union government. The Central Executive

Committee of the USSR adopted the «Principles of Criminal Law of the USSR and Allied Republics» in October 1924 in accordance with the Constitution. The «Principles» developed and adopted by the Union state were then followed by each republic, including Azerbaijan, in adopting their own Criminal Code.

The RSFSR's 1926 Criminal Code did not have a separate section on crimes against justice. This type of crime is covered in three chapters: «Official crimes,» «Crimes against administrative rules,» and «Counter-revolutionary crimes.» Even though the judiciary was supposed to be independent at the time, it actually operated under the direction and control of the Communist Party of the Soviet Union. Since the court and prosecutor's office are considered administrative institutions, violations of social relations that ensure its normal functioning are considered as crimes against administrative rules or official crimes. In the «Counter-revolutionary crimes» chapter, criminal responsibility is defined for concealing and aiding such crimes, as well as for not reporting information about their preparation and commission. The norms of criminal responsibility for false news or false testimony are listed in the chapter «Crimes against administrative rules» of the Criminal Code of 1926. In the Article 114 of the Criminal Code for issuing illegal judgments, decrees or decisions by judges, in the Article 115 of the Criminal Code for illegal arrest, illegal bringing, forcing to testify, Criminal Code for deliberately giving false information, false testimony in Article 95 of the Criminal Code, in Article 92 of the Criminal Code for the avoidance or refusal of a witness, expert, interpreter to testify, in Article 96 of the Criminal Code for disseminating the information of a preliminary investigation, investigation or inspection, in the case of a prisoner's release from prison and Article 81 of the Criminal Code provided for responsibility for his illegal release from prison or for helping him to escape.

«The Basics of Criminal Legislation of the Union of the USSR and Allied Republics» was enacted in the former USSR in 1958 and 1959 as a consequence of the process of creating the nation's new criminal code. Following that, new criminal laws were enacted in the allied republics in 1959 and 1960. The Azerbaijan SSR's new Criminal Code was passed on December 8 of 1960 and went into force on March 1 of 1961. A variety of legal and democratic concepts were taken into consideration when developing the 1960 Criminal Code of the RSFSR and the Azerbaijan SSR, which was partially developed in the context of fundamental democratic changes occurring in the international community.

Criminal responsibility for acts against justice was differentiated in the Azerbaijan SSR's 1960 Criminal Code in certain ways. 21 criminal elements are included in the chapter 8 section devoted to crimes against justice. Between official crimes and crimes against administrative rules, Chapter 8, which deals with crimes against justice, was placed. Because the sexual objects of this particular set of crimes were categorised in relation to the efficiency of different state pow-

er branches. In Article 174 of the Criminal Code responsibility for deliberately bringing an innocent person to criminal responsibility, in Article 180 of the Criminal Code responsibility for forcing a witness, a victim to give a false statement or forcing an expert, translator or extorting money, in Article 183 of the Criminal Code responsibility for wasting, expropriating, concealing or changing listed or seized property, in Article 186 of the Criminal Code responsibility for not reporting a crime, in Article 187 of the Criminal Code responsibility for concealing a crime were designed. It is important to mention here that the person conducting the trial or the preliminary investigation was not an independent component at that time due to the acts of attempted murder, such acts are punishable by the relevant paragraph of Article 94 of the Criminal Code of the Azerbaijan SSR of 1960, which defines responsibility for intentional homicide. was described.

The Azerbaijan SSR's 1960 Criminal Code replaced the laws that supported the Stalinist repression, but it also took into consideration democratic principles that were advanced. However, that Code retained certain elements of the 1922 and 1927 Codes were remained in the Code. In this sense, the Republic's Criminal Code of 1960, based on the principles of the socialist society, was closely connected with totalitarianism and the administrative-emirate system. The criminal codes have occasionally given priority to and protected the criminal-legal protection of «extraordinary values» in order to secure the safety of its existence throughout the years of Soviet administration (2).

In the final decade of the 20th century, there were significant changes in the state and dynamics of crime around the world, fundamental and systematic steps were taken in the direction of democratic transformations, and legislation was created to defend human rights and freedoms. In this way, the Azerbaijan SSR's Criminal Code, which went into effect on March 1, 1960, fell short of meeting the society's expanding needs and the globalisation of progressive processes. The adoption and implementation of the Criminal Code of the Republic of Azerbaijan, which took effect on September 1, 2000, should be seen as the logical outcome of the country's judicial and legal reforms as well as a significant step forward in the development of the country's legal and legislative system. «Crimes against justice» is the title of the revised Criminal Code's 32nd chapter. The contents in this chapter made sure that offences against justice were organised in a logical order. Positive and confident trends in Azerbaijan's relations with developed countries, along with the country's use of their positive experiences as democracies, mutual experience exchanges, etc., provide evidence that the state of criminal law in the modern era should be dynamically developed to combat criminal intentions against justice. If the protections provided by the criminal law, which is an autonomous arm of state authority, are trustworthy and long-lasting, then the judiciary can also perform at the appropriate level.

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阿塞拜疆配偶间财产关系法律规定的历史概况  
**HISTORICAL OVERVIEW OF LEGAL REGULATION OF  
PROPERTY RELATIONS BETWEEN SPOUSES IN AZERBAIJAN**

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抽象的。1995年阿塞拜疆独立共和国第一部宪法的通过,为我国新的家庭立法的形成奠定了基础。宪法第十七条规定,家庭作为社会的主要核心,受国家的特殊保护。《基本法》第34条“婚姻权”规定,人人在达到法定成年年龄后,有权建立家庭。婚姻是在自愿同意的基础上缔结的。任何人都不能被强迫结婚。国家保护婚姻和家庭。母亲、父亲、童年均受法律保护。国家为有许多孩子的家庭提供援助。夫妻双方享有平等的法律权利。1999年12月28日第781-IQ号法律通过并于2000年6月1日生效的《阿塞拜疆共和国家庭法》第7章、第8章和第9章分别称为“配偶财产法律制度”,“配偶财产的合同制度”和“配偶义务的责任”。新《家庭法典》对配偶间财产关系的法律规定与1969年《婚姻和家庭法典》不同。

**Abstract.** *With the adoption of the first constitution of the independent Republic of Azerbaijan in 1995, set the foundation for the formation of the new family legislation of our country. Article 17 of the Constitution stipulates that the family, as the main core of society, is under the special protection of the state. Article 34 of the Basic Law entitled «Right to Marriage» states that everyone has the right to start a family upon reaching the age of legal majority. Marriage is concluded on the basis of voluntary consent. No one can be forced into marriage. The state protects marriage and family. Motherhood, fatherhood, childhood are protected by law. The state assists families with many children. Spouses have equal legal rights. Chapter 7, Chapter 8 and Chapter 9 “ of the Family Code of the Republic of Azerbaijan adopted by Law No. 781-IQ dated December 28, 1999 and effective from June 1, 2000 are called respectively “Legal regime of the spouse’s property”, “The contractual regime of the property of the spouses” and “Responsibility for the obligations of the spouses”. Different basis and types of legal regulation of property relations between spouses were created in the new Family Code than in the prior 1969 Marriage and Family Code.*



The expansion of private property and the establishment of market economic mechanisms in the newly independent Republic of Azerbaijan necessitated a review of the legal regulation of property relations in the family, which constitutes the core of society. Because property relations between spouses largely depend on the level of power and development of the country's economy. When relations between family members are based on mutual love, mutual respect, care and attention, the rights and duties of spouses, including property relations, are hardly the subject of debate or discussion. In such cases, the couples use not only their joint common property, but also the property owned separately by each of them as their personal property. However, when family life deviates from its regular course, when conflicts and disputes between spouses become widespread, and when it becomes impossible to continue the marriage, the necessity for the state to intervene in these relationships arises. The importance of establishing the equal rights of spouses in the sphere of family life, including property relations in the legislation shows itself precisely in such conflict situations.

If the Marriage and Family Code, which was in force in our republic until June 1, 2000, distinguished between the types of property acquired by spouses before and during marriage, the Family Code dated December 28, 1999, which is currently in force, allows the spouses to determine their property legal relations. In addition to the legal regime of the spouses' property, the contractual regime is determined by signing a marriage contract. Thus, the imperative legal regulation of property relations of spouses has been replaced by dispositive legal regulation. The use of the contract form in the regulation of property relations in the family allows the spouses, who are the subjects of this right, to independently determine the property regimes and take into account the many needs they may face in family life. A marriage contract also allows the parties to define and enforce their own terms in resolving family legal disputes.

The relevance of the topic is also related to the instability of marital relations and the large number of divorce cases in our republic in recent years. Thus, in our republic, the number of registered marriages in 1950 was 23,862, the number of divorces was 883, the number of registered marriages was 46,635 in 1960, the number of divorces was 2,910, the number of registered marriages was 35,222 in 1970, the number of divorces was 6,786, in 1980 if the number of registered marriages was 60134, the number of divorces was 7116, the number of registered marriages was 73119, the number of divorces was 14040 in 1990. The number of registered marriages and divorces in the further years were respectively 39611 and 5478 in 2000, 79172 and 9061 in 2010, 68773 and 12764 in 2015, 66771 and 13114 in 2016, 62923 and 145514 in 2017, 62484 and 14857 in 2018, 63859 and 17148 in 2019, 35348 and 14628 in 2020, 2021 56314 and 17191 (4). As can be seen, since 2015, the total number of registered marriages has gradually fallen,

while the number of divorces, on the contrary, has gradually increased. Property conflicts between spouses are typically resolved in court during divorce proceedings.

The property relations of the spouses can have an impact on the non-property relations existing between them and the effective development of these relations. In this sense, the effective legal control of property relations between spouses is critical for the stability of any family life. The legal basis of the family union is marriage, and the economic basis is property. From this point of view, property rights relations constitute an important aspect of relations between spouses. At the same time, the legal aspects of property between spouses retain their relevance not only during marriage, but also after the termination of marriage. As a result, even after a divorce, the work of resolving property disputes can be difficult for separated spouses. The relevancy of the article's topic is determined by what has been mentioned.

Property ties between family members were governed by communal rules and customs in the early phases of human history. It can be observed that the state of regulation of relations in this field is almost the same even in backward societies. Although ancient Roman law had norms regulating family relations, for a long time it was the husband who was considered the head of the family (*pater familias*). The husband had unlimited power over his dependents, and this was called *patria potestas* (father's power). It is as if the husband - the father, who is the head of the family, had the right of ownership over other members of the family. All property and non-property rights acquired in the family were unambiguously owned by the husband (3, p. 74-76).

The history of legal regulation of property relations between spouses is as long as the history of the development of the institution of marriage (6). In England, according to the provisions of the common law properties of spouses for a long period belonged to husband. Even property owned by the wife prior to marriage was deemed the husband's property. In 1882, the English Parliament passed a legislation governing the property of a married woman for the first time. Married women are allowed the right to create a contract and bequeath their possessions in this country.

As one of the world's oldest nations, the Azerbaijani people have a long history of statehood and political-legal principles. The process of bringing Azerbaijan's regions under the jurisdiction of the Arab caliphate was completed in the 9th century. Since then, Sharia standards have been the primary source of legislation in Azerbaijan. Each man and woman, according to Islam, is the proprietor of their own labour and earnings. All property of a woman belongs to her, whether it is acquired through inheritance, work or dowry. In general, in Muslim law, marriage is viewed as a bilateral contract between spouses. Since «marriage» and «marriage

contract» are regarded as the same concept here, the marriage contract defines not only personal but also property rights and obligations between spouses. Dowry is considered the main institution regulating property relations between spouses in Muslim law (9).

The borders of Azerbaijan were divided between the Iranian and Russian states in the 1813 Gulustan and 1828 Turkmenchay treaties, with the southern half of Azerbaijan joined to Iran and the northern part united to the Russian Empire. The legislation of the Russian Empire began to be enforced in the land of northern Azerbaijan, where the present state of Azerbaijan was created, from that time forward. In the Russian Empire's pre-revolutionary legislation of 1917, it was determined that the wife should obey her husband as the head of the family, show devotion to him, be attentive to her words to an infinite extent, and serve her in every way as a lady of the home. The spouses' place of residence is defined by the man's residence. The wife had to take her husband's surname. Property relations between husband and wife are founded on a separate regime of property; marriage does not result in the establishment of joint property between spouses. The property acquired by the spouses before entering into marriage, as well as during the marriage, is considered the separate property of each of them. Spouses had the right to dispose of their property without obtaining each other's consent, to enrich their personal property on legal grounds, including through a donation agreement, as well as to independently enter into obligations. The husband also had the duty to support his wife.

With the establishment of Soviet power, the principle of equal rights of spouses in property relations entered a new stage of development. In the decrees issued by the All-Russian Central Executive Committee (ARCEC) and the Soviet of People's Commissars of the RSFSR on December 18 and 19, 1917, «On civil marriage, on children, and on the books of civil status acts» and «On dissolution of marriage», the main principles of the soviet family of law have been determined. The decree stipulates that spouses have equal personal and property rights. The principle of separation of property of spouses was defined in the «Code of Laws on Civil Status Acts, Marriage, Family and Guardianship Laws» of the RSFSR adopted at the meeting of ARCEC on September 16, 1918 (2).

In other words, property obtained by the spouses during the marriage is not regarded common property, but is considered independent (personal) property of each of them, depending on which of them was acquired. The Code gives spouses the legal ability to enter into all forms of property contracts between themselves. However, the needy husband (wife) could request assistance from the able-bodied husband (wife). The husband (wife) in need had the right to apply to the Soviet of People's Deputies' social security department at the defendant's place of residence, requesting that this responsibility be fulfilled for the husband (wife) who

refused to give financial help. While characterising the property relations between spouses at that period, N.V. Rabinovich demonstrated that the legislative definition of the principle of property separation of husband and wife fully corresponded to the idea of the independence of the woman declared in Soviet family law (5, p. 38). The majority of Soviet scholars defended this position that the source of the principle of separation of property of spouses is the bourgeois scheme that existed in family life in the pre-revolutionary period, while the definition of the principle of common property of spouses in legislation is aimed at ensuring the true equality of men and women in family life (7).

The next most important federal law regulating Soviet family relations - «Fundamentals of marriage and family legislation of the USSR and allied republics» was adopted by the Supreme Soviet of the USSR on June 27, 1968 and entered into force on October 1 of the same year. According to the principles, the Marriage and Family Code of the Azerbaijan SSR, which was adopted at the sixth session of the Supreme Soviet of the Azerbaijan SSR held on December 26, 1969, entered into force on April 1, 1970. According to Article 3 of the Code, in accordance with the legal equality of men and women established in the Constitution of the USSR and the Constitution of the Azerbaijan SSR, they have equal personal rights and property rights in family relations. The property of couples is divided into common (joint) and separate (personal) property, according to the Code. The property acquired by the spouses during the marriage was a sort of common property (common joint property) with unknown shares. The share of each of the owners, including the spouses, was known only during the division of the common joint property.

The division of common property between spouses was possible not only by court order, but also by mutual consent of the parties. As a result, the spouses might register their agreement to divide their joint property in the notary office or the executive committee of the Soviet of People's Deputies. In notary practice, two types of such agreements have been applied between spouses: 1) the share of common property that can reach both or one of the spouses; 2) agreement between spouses on the division of their common property. Spouses have the right to file a joint application with the notary office and request that a certificate of ownership be issued to both or one of them for their portion of the common property. The certificate specifies the share of common joint property that can be obtained by the husband (wife). The joint application of the spouses on the issuance of the certificate and the agreement concluded between them on the division of the common property are distinguished from each other. The specific property given to the husband (wife) is indicated in the contract. Although notarization of property division agreements is not required in all cases, notarization of residential house and garden division agreements is mandatory. The order of legal regulation distinguishes common and separate property, in other words, according to their objects

and management methods. Separate (personal) property is property that belongs to only one of the spouses. Each of the spouses had the right to independently own, use and dispose of such property. According to the principles, the list of separate (personal) property of each of the spouses is defined in the 1969 Code. Thus, according to Article 29 of the Code, apart from jewelry and other decorative items, personal items (clothes, shoes, etc.) acquired during the marriage at the expense of the common funds of the spouses, if they were used by either of the spouses, considered his/her personal property. Personal awards and other incentive awards received in the form of money or other material resources, as well as other types of property (branded watches, vehicles, hunting rifles, etc.), are included in each spouse's separate (personal) property (2).

In court, each spouse's personal property comprises the property they possessed prior to marriage as well as the property they obtained as a result of selling or exchanging that property during the marriage. This law also applied to properties received as a gift or inheritance during the marriage. The property obtained by the couples through a loan for common needs is shared as the spouses' joint property earned during the marriage. Both were accountable for the couples' obligation for the benefit of the family throughout the period of living together, and this was taken into consideration while distributing the spouses' common (joint) property. The property in the personal use of each of the spouses in the collective farm yard was considered their personal (separate) property, regardless of whether it was acquired before entering the collective farm yard or after. This property is not included in the common property of the collective farm yard.

Any agreement that changes the common joint ownership regime over the property of the spouses is void since it breaches the legislation's mandatory requirements. It was forbidden to enter into a marriage contract with the intention of changing the regime. The mentioned types of property include house, garden plot, furniture, car, various types of household items, salary, pension, author's royalties, state bond and lottery obtained during marriage and their winnings, things acquired by spouses on debt, etc.

According to Article 43 of the Marriage and Family Code of the Azerbaijan SSR of 1969, when cases of dissolution of marriage are considered, the common property dispute acquired by the spouses during the period of living together is considered in the same proceeding, and no additional state fee is charged for such cases. It was deemed improper to include a property dispute impacting the interests of a third party (home, automobile, etc.) in the same court as a divorce case. The natural division was a more correct method of sharing the property of the spouses. Because at this time, each of the spouses has the right of ownership over the part separated from the common property. If this is not possible, it is considered appropriate to pay the value of the part of the property falling to the share of

the party requesting the property with money or to replace it with another property. According to Article 28 of the Code, the court had the authority to increase one of the parties' shares, taking into consideration minor children living with one of their parents or the major interests of one of the spouses, breaking from the rule of equality of their shares. During the natural division of the building, the interests of the husband or wife who assumed responsibility for the future upbringing of the minor children were considered separately. Settlement of property disputes between persons in de facto marriage is regulated by civil law norms. The dispute over the property that the parties gave each other in the form of a gift with the intention of starting a family in the future, and in cases where the official registration of the marriage did not take place at the initiative of one or both of them, were guided not by the norms of family law, but by the norms of civil law.

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阿塞拜疆共和国刑法中对劫持人质行为责任的法律规定  
**LEGAL REGULATION OF LIABILITY FOR ACTS OF HOSTAGE-TAKING IN THE CRIMINAL LAW OF THE REPUBLIC OF AZERBAIJAN**

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抽象的。根据阿塞拜疆共和国宪法第24条,每个人生来就享有不可剥夺、不可让渡和不可侵犯的权利和自由。阿塞拜疆共和国宪法第28条和第32条分别规定了每个人的自由权和人格完整权。侵犯这些基本自由和权利的危险犯罪之一就是劫持人质。这种犯罪是一种可能造成严重后果的犯罪行为,在极少数情况下,甚至会严重损害国家声誉、政治经济和国际关系。因此,针对劫持人质的公共危险性,需要加强对其的刑法打击,需要对此类犯罪的相关问题进行科学的理论研究。文章对阿塞拜疆共和国现行刑法中所提及行为的责任规制问题进行了调查,并做出了一定的科学概括。

关键词: 刑法、劫持人质、公共安全、个人自由。

**Abstract.** *According to Article 24 of the Republic of Azerbaijan's Constitution, every person is born with unalienable, unalienable, and inviolable rights and freedoms. The Republic of Azerbaijan's Constitution establishes everyone's rights to freedom and personal integrity under Articles 28 and 32, respectively. One of the dangerous crimes that violates these essential freedoms and rights is taking hostages. This crime is a criminal conduct that can have serious consequences and, in rare circumstances, even seriously harm a state's reputation, political and economic and international relations. Therefore, the public danger of hostage-taking requires the strengthening of the criminal-legal fight against it, and the need to scientifically and theoretically study the problems related to this type of crime. In the article, the issues of regulation of responsibility for the acts mentioned in the current Criminal Code of the Republic of Azerbaijan are investigated and certain scientific generalizations are made.*

**Keywords:** *criminal law, hostage taking, public safety, freedom of individual.*

The criminal code of the Republic of Azerbaijan, dated 1999, chapter on «Crimes against public security,» article 215, contains a definition of hostage-taking by the lawmaker. This crime is one of the most dangerous ones against public

safety according to criminal law. This crime breaks social ties that uphold both personal freedom and public safety on the one hand, as well as the inviolability of a person's life, health, and property on the other. The mentioned objects of conspiracy are considered the most important social values. Therefore, the relevance of the topic of the article is primarily related to the importance of the intended object of the mentioned crime. The crime of hostage-taking is also a crime of transnational character and an international crime, and the fight against it is important not only at the national level, but also at the international level. The UN General Assembly's adoption of the International Convention on Combating Hostage Taking on December 18, 1979 [1] was the first time that hostage taking was recognised as a independent category of international crime.

In the legislative history, taking hostages has long been considered a type of kidnapping. After the crime of taking hostages was made punishable by law, the crime described in the literature on criminal law was given many definitions. But, in general, hostage-taking can be defined as obtaining illegal control over a person's behavior, accompanied by the restriction of his freedom. Holding people hostage means preventing a person from leaving the place by force [2, p. 47]. More specifically, hostage-taking is the illegal physical deprivation of a person's freedom (arrest and/or detention) in such a way that the criminal makes demands of the state, an organisation, or an individual in order to force them to act or refrain from acting in order to secure the release of the victim. If we look back in time, many people were taken hostage when planes were hijacked in the 20th century. Although the first instance of this kind of incident occurred in 1930, it started to become increasingly common in the 1960s and 1970s. On October 15, 1975, the first successful hijacking of a plane occurred in the former USSR. Pranas Brazinskas, 45, and his son Algirdas, 45, who were both shop managers on the Batumi-Sukhimi aircraft and were convicted of embezzlement, shot and killed flight attendant N. Gurchenrk and instructed the pilot to head to Turkey. The plane lands in the city of Trabzon, but here they are caught by Turkish law enforcement agencies [5]. It should be noted that in the former USSR, the crime of hostage-taking was mainly committed in penitentiary institutions.

In general, hostage-taking has existed in one form or another from ancient times to our time. It should be noted with regret that over time, this crime not only did not disappear, but with the development of humanity, it took new, more subtle and cruel forms and became one of the most serious crimes of the century. It should also be noted that taking hostages as a type of crime was included in the Soviet criminal legislation under international law. Article 215 of the 1999 Criminal Code of the Republic of Azerbaijan is significantly different from Article 120-1 of the 1960 Criminal Code of the Republic of Azerbaijan in terms of both its legal structure and content. There is also a difference in the names of the substances.



Thus, Article 215 of the Criminal Code of 1999 is called «Taking people hostage», and Article 120-1 of the Criminal Code of 1960 is called “Keeping people hostage”. One of the important differences between the mentioned articles is related to their place in the Special Part of the Criminal Code. Thus, Article 215 of the Special Part of the 1999 Criminal Code of the Republic of Azerbaijan “Crimes against public security and public order” (Chapter X) in the chapter “Crimes against public security” (Chapter XXV), 120-1 and the article was included in the chapter “Crimes against person” (third chapter) of the Special part of the 1960 Criminal Code of the Republic of Azerbaijan. It was wrong to include Article 120-1 in the chapter “Crimes against person “. V.S. As Komissarov wrote, during the taking of hostages, damage is done to social relations that ensure the safety of public life, and the corresponding norm regarding this crime should be provided in the system of crimes against public safety [2, p. 47].

The provisions of Articles 215 of the Republic of Azerbaijan’s 1999 Criminal Code and 120-1 of the 1960 Criminal Code also differ from one another. Therefore, in order to expose the offender to criminal responsibility under Article 215 of the Criminal Code of the Republic of Azerbaijan, 1999, he takes personal hostages in an effort to persuade a third party (a state, organisation, or citizen) to do something or refrain from doing something, and/or it is sufficient to maintain. In order to bring a person to criminal responsibility under Article 120-1 of the Criminal Code of the Republic of Azerbaijan of 1960, in addition, the taking or holding of a person as a hostage must be accompanied by a “threat of death, infliction of bodily harm on this person or continued detention”. With this, the legislator limited the possibilities and limits of application of Article 120-1 of the 1960 Criminal Code of the Republic of Azerbaijan. Because taking or holding a person as a hostage created responsibility under the considered article when the act was accompanied by threats of death, physical injury to that person or continued detention. In addition, the said provision made it difficult to prove procedurally the taking of hostages.

The disposition of the above-mentioned articles is also different according to the scope of the objects to which the demands of the offenders are addressed. Thus, according to the provisions of Article 120-1 of the Criminal Code of the Republic of Azerbaijan of 1960, demands are made to the state, an international organization, a natural or legal person or a group of persons; According to the provisions of Article 215 of the 1999 Criminal Code of the Republic of Azerbaijan, it can be addressed to the state, organization or citizen.

One of the important differences between the mentioned articles is the existence of a provision on exemption, thus in the note of Article 215 of the 1999 Criminal Code of the Republic of Azerbaijan, the person who committed the act of taking hostages voluntarily or at the request of the authorities frees the taken

hostage, and if there are no signs of other criminal elements in his act, that person is exempted from criminal responsibility. Such a note did not exist in Article 120-1 of the Criminal Code of 1960.

The main goal of the crime of hostage-taking is to maintain public order and safety through good public relations. Public security refers to a collection of interpersonal interactions that guarantee both the protection required for society's smooth operation and the security of social interactions. Social relationships that provide the security of social life are the sort of object of crime. This comprises the array of public relations practises that guarantee the safety of citizens' lives and health, the preservation of their property rights as individuals and corporate entities, the maintenance of the public order, and the regular operation of the government and other public institutions. The direct object of the crime of taking hostages is the set of social relations that ensure the safety of society.

The following are the objects of intent of the crime of hostage-taking:

- 1) Direct victims of the crime (persons taken as hostages);
- 2) Indirect victims of the crime (persons to whom the demands are addressed);
- 3) Citizens or organizations whose interests may be violated.

The crime of taking people hostage is a crime with two objects: the main direct object is social relationships that uphold personal freedom and public safety, and the secondary optional object is the inviolability of a person's life, health, and property.

This crime is objectively expressed by active actions - taking people as hostages and forcibly holding them as hostages. Thus, the objective aspect of the crime under consideration includes the following acts, which are related to each other:

- 1) taking people as hostages;
- 2) forcibly holding people as hostages.

The literature has a variety of viewpoints on how to put a stop to the crime of taking hostages. One argument holds that the moment hostages are seized or are retained as hostages, the crime is finished. Another viewpoint holds that the hostage-taking is over when the necessary demands are made, not when the hostages are abducted or held as hostages. The length of the bail and how long it lasts are thought to be unimportant for the description [1].

The considered crime can be carried out in different ways - covertly or openly, with or without the use of force, with the use of force that is not dangerous for the life or health of the victim, or that is dangerous. However, the experience of fighting this crime shows that hostage-taking is usually carried out by the use of physical force accompanied by the threat of using a weapon (firearms or weapons). Some authors claim that kidnapping hostages can only be done violently, while others claim that it can be done in both violent and nonviolent ways. Taking hostages by deceiving the victim refers to taking hostages without using force.

The demands put forward are not important for the description. Demands can be both of a property nature (money, transport, any other material well-being) and of a non-property nature (release from office, imprisonment, termination of criminal prosecution, etc.). Taking hostages is accompanied by demands for more vehicles (often airplanes), large sums of money (usually in foreign currency), weapons and drugs, and not to prevent criminals from flying to another country [3, p. 497].

The place and time of taking people hostage is not important for the description of the crime. The experience of hostage-taking crimes committed in foreign countries, for example, in the Russian Federation, shows that places where people gather the most (concert hall, school, hospital, etc.) are usually chosen to commit the said crime.

In the literature, there are different positions regarding the restriction of the freedom of the victim or the deprivation of freedom in hostage taking. At this time, we defend the position of the victim's deprivation of liberty. Special purpose is also a necessary sign of the subjective aspect of the crime established in Article 215.1 of the Criminal Code of the Republic of Azerbaijan. Therefore, the crime of hostage-taking provided for in Article 215 of the Criminal Code of the Republic of Azerbaijan is subjectively committed with direct intent. Taking people hostage can be done with different motives. These include taking revenge, greed, envy, trying to escape punishment, getting political asylum, etc. can be an example. At this time, it should be taken into account that the motive of taking hostages, except the motive of greed, does not affect the description [4, p. 50].

The individual who performed the act and has the ability to be held accountable for it is the subject of the crime of hostage-taking. One important component of the criminal composition is the set of legally required indications that characterise the subject of the mentioned crime. The following indicators must be present for the crime's target:

- a) must be a natural person;
- b) must be a reasonable person;
- c) must have reached the required age for criminal liability.

Taking hostages is a general subject crime. Not only the person who committed the completed crime can be the subject of the crime, but also the guilty persons who should be punished for the preparation of the crime and the attempt to commit the crime (uncompleted crime). A sane, natural person who has achieved the age of fourteen at the time of the crime can typically be the subject of the crime of hostage-taking.

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没收财产：刑事处罚还是替代性刑事法律措施？

## CONFISCATION OF PROPERTY: A CRIMINAL PENALTY OR AN ALTERNATIVE CRIMINAL-LEGAL MEASURE?

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抽象的。由于犯罪率很高，有必要不断加强打击犯罪的措施体系。这尤其可以通过寻找预防犯罪的新方法和提高现有战略的效率来实现。当前，当务之急是发展和加强刑法中的非拘禁措施。没收被认为是旨在剥夺犯罪经济基础的有效工具，在其中占有特殊地位。如果没有专门的没收，就不可能谈论有效的打击犯罪措施体系的存在。在这方面，许多国际法律文书都将没收视为预防措施体系的重要组成部分之一。文章探讨了没收财产属于刑事处罚还是另一种刑事法律措施的问题，认为没收财产与一种特殊的没收财产刑事法律措施并无本质区别。它还得出结论，将没收从刑事处罚清单中删除是立法者的犯罪行为，表达了立法者确保没收通过犯罪活动获得的财产的愿望。

关键词：财产没收，犯罪客体，替代性刑罚，刑事处罚，犯罪所得财产。

**Abstract.** *Due to the high level of crime, it is essential to continuously enhance the system of measures in place to combat it. This may be done, in particular, by looking for new ways to prevent crime and enhancing the efficiency of current strategies. Currently, the priority is to develop and strengthen non-custodial measures in criminal law. Confiscation, which is considered an effective tool aimed at depriving crime of its economic basis, has a special place among them. In the absence of special confiscation, it is impossible to talk about the existence of an effective system of measures to fight crime. In this regard, confiscation is considered one of the important elements of the system of preventive measures in a number of international legal acts. The article investigates the issue of whether confiscation of property is a criminal punishment or another type of criminal legal measures and concludes that confiscation of property and a special type of confiscation criminal-legal measure do not differ from one another in essence. It also concludes that the removal of confiscation from the list of criminal penalties is a crime of the legislator expresses the desire to ensure the confiscation of the property obtained through criminal activity.*

**Keywords:** *property confiscation, object of crime, alternative punishment, criminal punishment, property obtained by crime.*

Although the confiscation measure has been a part of the Republic of Azerbaijan's criminal law for a while, there have been numerous revisions to how it is regulated under the law. By the way, the removal of it from the Criminal Code as a form of punishment, despite Russia's international obligations and strong opposition from prominent scholars, is considered one of the most serious changes in the history of the Russian Federation's criminal legislation. Realizing that the exclusion of confiscation was a mistake, the legislator returned it to the Criminal Code of the Russian Federation in mid-2006, but in a completely different capacity, as "a different measure of a criminal-legal nature." The return of confiscation to the Criminal Code of the Russian Federation in a new form gave rise to many discussions that continue sharply even now. From this point of view, we can say that in the science of criminal law, the issues related to the definition, types, scope and other issues of other criminal-legal measures have not yet been clearly resolved.

Similar circumstances happened in our country. By its decision dated January 12, 1999, the Constitutional Court of the Republic of Azerbaijan, commenting on Article 32 of the Criminal Code of the Republic of Azerbaijan dated 1960, determined that property obtained through crime should be exposed and that property confiscation is officially interpreted as a special confiscation limited to the tools and means used in the commission of a crime. Property confiscation was eliminated from the list of additional penalties in the Law of the Republic of Azerbaijan of March 7, 2012, which revised the Criminal Code of 1999. Thus, the provision "property in the Republic of Azerbaijan is inviolable and protected by the state" established in the 13th article of the Constitution of the Republic of Azerbaijan has acquired a real content from a criminal-legal point of view and has become a reality (1, p. 311).

In the Republic of Azerbaijan's current Criminal Code, the institution of special confiscation is mostly taken from the criminal code of the Soviet Union. The presence of several normative acts that established the criminality and punishment of actions without any systematisation was one of the characteristics of the criminal legislation during the early years of Soviet authority. Additionally, in the early years of Soviet government, confiscation was the most typical method of nationalisation. This was addressed in numerous papers, and it was observed in the law literature that during the early years of Soviet rule, confiscation was primarily used as a political and economic tool rather than a punitive one (2, p. 13). One of the specific aspects of confiscation in the first years of Soviet power was that it could be determined not only by the court, but also administratively.

In general, the Soviet criminal legislation provided for the measure of confiscation, with the exception of family and small inventories, farm products or

equipment required for the convict's professional activity, and food products for personal use as the compulsory and gratuitous expropriation of property for the benefit of the state. In the case of a court decision to deprive a prisoner of the right to engage in the relevant profession, the inventories necessary for his professional activity were also confiscated.

The 1999 Criminal Code made a distinction between full and partial confiscation, just with the Republic of Azerbaijan's earlier criminal law. The 1999 Criminal Code does not provide a list of items that cannot be confiscated by court order, in contrast to the 1960 Criminal Code. Compared to the 1960 Criminal Code in the 1999 Criminal Code, the number of articles of the Special Section, which include confiscation of property as an additional penalty, has been significantly reduced. In this regard, it should be mentioned that a comparison of the old and new Criminal Codes came to the conclusion that the decriminalisation of a number of crimes has reduced the use of property confiscation as a form of punishment (4).

The object of the crime was also mentioned in Article 51 of the 1999 CM of the Republic of Azerbaijan, which provides for confiscation of property. Article 99-1.1 of the current Criminal Code of our country does not specify the subject of the crime among the property to be confiscated. The legislator's position is understandable, except in cases where it must be returned to its rightful owner, because money or other property obtained through crime (illegally kept firearms, etc.) is the reason that such property should be confiscated has found its reflection in Article 99-1.1.2 of the Criminal Code. In Article 99-1.1.4 of the Criminal Code, it is stated that certain types of property can be confiscated, such as money and property used in the crime of financing terrorism. There are some groups of crimes, the subject of which should be confiscated, as specified in Article 99-1.1.3 of the Criminal Code. For example, legalized money or other property is the subject of the crime that involves the legalization of money or other property obtained through crime (Article 193-1 of the Criminal Code), which should be confiscated. In some cases, the subject of the crime can also act as property obtained through crime. For example, the subject of bribery and bribery crimes can be money, securities or other property. Money, securities or other property is also considered property obtained as a result of the crime of bribery. In the mentioned cases, the resolution of the issue of confiscation of the object of the crime depends on the circumstances of the crime (crimes), whether the bribe was given voluntarily or under the influence of threats (1, p. 314).

According to the provisions stipulated in articles 99-1.1.1-99-1.1.4 of the CC of the Republic of Azerbaijan dated 1999, special confiscation is the compulsory acquisition of property for the benefit of the state without compensation. For the purposes of applying special confiscation, the value (value) of the property that will be seized is irrelevant. The first category of items subject to special con-

fiscation includes tools used to commit crimes. Therefore, if there is a rightful owner of the tools or means used in the commission of a crime according to the law, they should not be confiscated and should be returned to the rightful owner (except in cases of acquisition of ownership) is irrelevant, because the instrument or means obtained through crime (based on lease, rental agreement, etc.), which must be returned to the rightful owner, cannot be confiscated (Article 99-1.1.2 of the Criminal Code).

If there is no rightful owner of the tools or means used in the commission of the crime, or if the rightful owner of the tools or means is the person committing the crime who is its owner, those tools or means must be confiscated. If the property right to the tool or means used in the commission of a crime belongs to the natural person who committed the crime, or to the legal person for the benefit of which the crime was committed for the purpose of protecting his interests, that tool or means must be confiscated. If the property right to the tool or means used in the commission of a crime belongs to a natural person who commits a crime, or to a legal person who commits a crime for the benefit or protection of his interests, that tool or means must be confiscated. If the instrument or means used during the commission of the crime, which should not be returned to its rightful owner, has been destroyed, rendered useless, alienated, or cannot be confiscated for other reasons, in this case, generally, the property or other property belonging to the convict in the amount of the value of that property cannot be confiscated. Such conclusion follows from the requirements of Article 99-2 of the CM.

If the tools or means used in the commission of a crime are items that are prohibited for civil circulation, those items must be confiscated in all cases, and in the case of restricted items for civil circulation, in cases where those items are used without special permission. In cases where items belonging to other legal entities or individuals are used as instruments or means of crime based on a special permit, those items cannot be confiscated because they must be returned to the legal owner.

It is known that the concept of confiscation in modern society is ineffective as a crime-fighting tool. The lack of an effective mechanism for confiscation property obtained as a result of crime, used for financing criminal activity, as well as means of committing crime, creates threats to the safety of the individual, society, and the state. All this, of course, requires the creation of a legally consolidated form of confiscation using new approaches, including conceptual approaches.

Is confiscation a type of punishment, or was it not a type of punishment, but another criminal-legal measure? This topic has been discussed extensively in the literature. Discussed in particular is whether citizens' constitutional rights to possess property are violated when property is confiscated as a criminal punishment. According to the Republic of Azerbaijan's Constitution, anyone may lose their



property as a result of a court ruling. The only way to impose a criminal punishment in the form of property confiscation, on the other hand, is by a court order. As a result, the criminal law's use of confiscation does not infringe citizens' constitutional rights to their property. Additionally, it is not possible to agree to the proposal to add special confiscation as a form of criminal punishment to the Criminal Code because it serves purposes other than those of criminal punishment (3).

The changes and additions to the effective criminal law of the Republic of Azerbaijan include the following:

- 1) property confiscation is removed from the system of punishment, that is, it is no longer considered a punishment;
- 2) property confiscation penalty is renamed as "special confiscation";
- 3) special confiscation is included among other criminal-legal measures;
- 4) special confiscation can be applied to both individuals and legal entities;
- 5) unlike property confiscation, the range of property that can be the subject of special confiscation is expanded;
- 6) the application of special confiscation is excluded in cases where the tools and means used during the commission of a crime, as well as the property obtained through crime, must be returned to the rightful owner;
- 7) if confiscation of property could be applied only in the cases specified in the sanction, special confiscation can be applied in the cases provided for in Chapter 15-1 of the CC.

Thus, in our opinion, it is correctly stated in the literature that the punishment of confiscation of property and the criminal-legal measure of a special type of confiscation do not differ in essence (1, p. 311-312). We add to this position that the removal of confiscation from the list of criminal penalties expresses the legislator's desire to ensure the confiscation of property obtained through crime, which should be considered as a completely justified decision made in the modern conditions of our world.

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简化民事司法程序作为现代程序政策的一部分  
**SIMPLIFIED PROCEEDINGS IN CIVIL JUSTICE AS A PART OF  
MODERN PROCEDURAL POLICY**

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抽象的。简化民事程序是世界各地现代程序立法的一个组成部分。简化程序发展的关键问题是其适用范围，即简化审理的索赔类别，以及该类别案件的索赔价格（价格门槛）。改革呈现出提高价格门槛的趋势，以及通过纳入新的索赔类别来扩大简化程序的范围。然而，这种发展可能会引发关于这些修改的合理性的问题，即可以实现哪些结果以及如何影响公众对司法机构的信心。

关键词：民事诉讼程序、简化程序、民事法院、民事司法、民事诉讼程序改革。

**Abstract.** *Simplified civil procedure is an integral element of modern procedural legislation around the world. The key issues in the development of simplified proceedings are the scope of its application, namely the category of claims considered in a simplified manner, and the price of the claim (price threshold) for this category of cases. The reforms show the trend to increase in the price threshold, as well as the expansion of the scope of simplified procedure by including new categories of claims in its scope. However, such development can raise questions regarding justification of these modifications in terms of which results can be achieved by it and how can it influence the public confidence to the judiciary.*

**Keywords:** *civil procedure, simplified proceedings, civil court, civil justice, civil procedure reforms.*

One of the modern trends in the field of procedural law is the differentiation of legal proceedings - the search for the most optimal and effective ways of considering and resolving cases, taking into account the nature of the dispute, the typicality of the case, the legal and factual complexity, the price threshold and other factors that can predetermine the need for a “full” litigation procedure in each particular case. In this context, simplified proceedings are actively developing, which represent such forms of administration of justice that characterized by a deviation from the basic, traditional models (the operation of the principles of legal proceedings

is narrowing; shortened terms for the consideration of cases, submission of procedural documents are established; court sessions, oral hearings, etc. are limited) [1]. More globally, legislators and scholars are seeking the balance between the inherent formalism of legal proceedings and the need for its adequate simplification in accordance with the requirements of the dynamism of current society [2]. Asian countries are also looking for new ways to simplify civil litigation. Thus, Chinese researchers previously noted the need for less formal court hearings and proceedings, as well as the development of simplified procedures similar to those used in foreign countries. [3, p. 930].

Simplified forms of legal proceedings are a general concept that includes both special procedures for resolving disputes in cases with a small claim value, as well as “writ” type proceedings on indisputable claims (“order for payment” procedure) and other procedures. Despite the difference in national models, the typology of simplified proceedings, the essential features, goals and objectives of such procedures are largely coincide [4, 5, 6]. This is explained by the fact that procedural systems are designed to respond to similar problems - the length of the process of considering and resolving cases, the high costs of justice for the persons participating in it and for the state, the overload of the courts.

Quite a long time ago, in European normative acts and scientific literature, was emphasized that the judicial procedure should be simpler and less costly in most cases, and the general (ordinary) procedure should be used for more significant disputes [7, p. 157-159]. Later this ideas were followed by Recommendations of the Committee of Ministers of the Council of Europe No. R (81) 7 of May 14, 1981 on measures facilitating access to justice and No. R (84) 5 of February 28, 1984 on principles of civil procedure designed to improve the functioning of justice.

ECHR also spoke out that the existence of an essentially single, complex and extensive legal procedure for considering and resolving most civil cases is nothing more than ignoring the existing objective features of the latter, which cannot but affect the procedure for protecting civil rights and modify it. The desire to resolve all cases according to the same procedure without taking into account their specific features can introduce a dysfunction between the ultimate goal of legal proceedings and the methods for achieving it.

It would not be an exaggeration to say that practically all judicial reforms in world history took place under the slogan “to make justice simpler, faster and less costly.” These goals are universal: the development of legal proceedings both in Russia and in foreign countries shows that almost all reforms - both modern and past - are aimed at speeding up, simplifying, reducing the cost of legal proceedings and eliminating excessive formalism.

The legislative changes and statistical data of recent years show that today, in fact, a simplified procedure in many cases replaces the general way of han-

ding cases and thus becomes a new standard of ordinary procedure. In part, these changes are can be explained by the increasing number of consumer disputes: in the European supranational procedural law the consumer and the protection of his rights is one of the top priorities in legal regulation. ADR mechanisms as well as online dispute resolution are also developing (EU Regulation of 05.21.2013 No. 524/2013, EU Directive of 05.21.2013 No. 2013/11/EU).

Although the trend towards the simplification of legal proceedings has been manifested for a long time, the development of simplified proceedings is still far from complete. The procedural rules of simplified proceedings are constantly being improved, and the proceedings themselves are strengthening their positions among other procedures for considering cases and occupy a dominant position in the system of procedures for considering cases. Further reform of simplified procedures takes place in a number of directions, but to a large extent they are developing along a similar path in the world practice.

The first direction is the expansion of the use of simplified proceedings by raising the price threshold for “insignificant” cases (cases with a small claim value) considered in a simplified manner. In the EU, in cases with a low value of the claim (EU Regulation of 11.07.2007 No. 861/2007), from 14.07.2017 the amount of the claim has been increased from 2,000 to 5,000 euros (EU Regulation of 12.16.2015 No. 2015/2421), while initially discussed option was to increase this amount to 10,000 euros. In Ontario (Canada), from 01.01.2020, changes came into force, according to which a simplified procedure in ordinary courts will be available in civil cases for claims up to 200,000 CAD (the previous rules provided for an amount up to 100,000 CAD), and to the competence of the courts small claims now include cases with a claim value of up to 35,000 CAD instead of the previously existing limit of 25,000 CAD (Ontario Regulation No. 344/19 dated 23.10.2020). In Russia, the threshold for cases has also been raised (although not as radically as originally proposed) and there is every reason to believe that the threshold will continue to be raised, as evidenced by the latest initiatives of the Supreme Court of the Russian Federation.

This situation gives rise to a number of serious questions, both practical and theoretical in nature. The consequences of such a development of legal proceedings also require reflection: to what extent can this threshold be raised, how many cases should be considered in simplified manner? Where exactly in numerical terms lies the line of “insignificance”, “small price” of the claim, what should the legislator rely on when fixing one or another price threshold? Is it an automatic consequence of raising the price threshold to increase the number of cases that will actually be dealt with in a simplified manner? In addition, discussions are absolutely meaningful not only about determining the quantitative (price of the claim), but also about determining the qualitative characteristics of those cases (claims)

that deserve consideration in a simplified manner, taking into account real social relations, the state of economic development, civil relations, sociocultural aspects.

Attention should also be paid to the issues of preventing abuses when using simplified proceedings. A simplified procedure for the consideration of the case may create the illusion among the participants that it is possible to mislead the court or achieve the desired decision without drawing the attention of the opposite side. Therefore, legislation should contain tools aimed both at preventing potential abuses and at responding to and suppressing bad faith procedural behavior. As a preventive measure, for example, quantitative restrictions can be used. In particular, such a rule is formulated in Japan. The use of the simplified procedure is allowed no more than ten times during the year (when the applicant applies to the court, information on the number of applications of this person under the simplified procedure for the past year must be indicated). At the same time, this count includes the actual number of applications submitted, and not the actual use of the procedure [8]. Despite the fact that quantitative restrictions are not applied in European countries, and, as it may seem, represent a very simple and even primitive way of regulation, this example shows potential ways of regulation that are recognized as acceptable and, to a certain extent, are designed to stimulate lawful behavior.

As it was mentioned, almost everywhere the development of simplified proceedings is accompanied by an increase in the price threshold (price of a claim) for cases of simplified proceedings. In fact, the meaning of the amounts previously chosen by legislators, which served as the basis for the application of summary proceedings and served as a criterion of “insignificance”, has acquired an illusory character: at the current threshold values, “insignificant cases” already imply very significant rate.

When setting a price threshold - especially in conditions of economic instability, crisis phenomena in the economy, or in conditions of objectively existing regional differentiation (in terms of living standards and incomes of the population and other economic factors) in federal states - it is possible to use not a flat price scale, but put it in dependence on other indicators: this can save you from endless changes in the price threshold in changing conditions, as well as smooth out possible disproportions and inequalities (for example, if for one region, the threshold value is very small, taking into account average incomes, while for another they are in principle unattainable, etc.).

From this point of view, the experience of procedural regulation in the PRC is of interest, the legislator of which, for the purposes of the applicability of simplified proceedings in Art. 162 of the Code of Civil Procedure established the price of the claim “up to 30% of the average wage of the working population for the previous year in the province, autonomous region, city of central subordination” [9, p

.130-131]. It is known that since January 1, 2022, changes have been made to this system aimed at increasing this threshold to 50% and establishing the possibility of applying simplified proceedings at the initiative of the parties themselves, if the threshold is above 50%, but below 200%, however, the proportionality approach itself with the average annual income of the population, was retained [10]. Such a system of “floating” claim price for simplified proceedings is also found in the European space (for example, in Sweden the price threshold is tied to the base amount, which is annually indexed by the Government) [11, p. 273].

By itself, the establishment of a high price threshold does not always mean that more cases will be considered by the courts in this simplified procedure, since the procedural system is a dynamic system of interrelated and interacting procedural mechanisms and institutions. For example, Norway among the Scandinavian states has the highest price threshold for cases with a “low value of a claim”, but at the same time, fewer cases are considered in the country in a simplified manner than in neighboring states (Denmark, Sweden). The reason for this, as the authors point out, is the development of mechanisms for alternative methods of resolving disputes, the obligation to use them [11, p. 275]. Thus, it is precisely a set of measures that is an effective way to unload courts, and not just the path of an endless increase in the price threshold for cases of simplified proceedings.

It must be realized that an insufficiently justified and sharp increase in the price threshold, as well as the expansion of the scope of simplified procedure by including new categories of requirements in its scope - without taking into account a qualitative analysis of existing social relations and economic life - will not only fail to achieve the stated goals introduction of simplified procedures, but it can also provoke an increase in the already existing crisis of confidence in the judicial system among the population.

In general, it should be noted that the problems of determining the most appropriate procedure for considering minor cases or indisputable claims continue to be in the field of view of scientists and are studied in a comprehensive manner, i.e. not only from a legal point of view, but also using the methodology of other sciences [12]. This gives hope that in the end an effective, fair and not violating the rights of participants mechanism for resolving such cases will be developed.

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整合教学技术并教授户外条件下视觉活动的基础知识

## INTEGRATION PEDAGOGICAL TECHNOLOGY AND TEACHING THE BASICS OF VISUAL ACTIVITY IN THE CONDITIONS OF THE PLEIN AIR

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抽象的。 本文关注激活高等艺术和艺术教育机构学生的教育和创造性活动的问题，特别是在设计和技术（户外）实践的框架内，以及户外整合培训的主题 – 空气与现代教育学相关。 自然条件下视觉活动专业训练的新教学技术的开发被艺术和教育界视为教学研究的优先领域，这将有助于提高培训专家的质量。

教学研究表明，在户外教授学生的系统方法可以根据理论（作者的方法论发展、实验计划）和在自然条件下对自然现象（颜色）的观察来形成他们的世界观。在教育艺术和艺术师范大学的学生时，在不同的自然条件下进行融合训练在教学模式中非常重要。

***Abstract.** The article pays attention to the problem of activating the educational and creative activity of students of higher art and art-pedagogical educational organizations, especially within the framework of design and technological (plein-air) practice, and the topic of integration training in the plein-air is relevant in modern pedagogy. The development of new pedagogical technologies for professional training of visual activities in the conditions of nature is considered by the artistic and pedagogical community as a priority area of pedagogical research that will contribute to improving the quality of training specialists.*

*Pedagogical research has shown that a systematic approach to teaching students in the open air forms their worldview based on theory (author's methodological development, experimental program) and observation of natural phenomena (color) in the conditions of nature. It is important in the pedagogical model when teaching students of art and art-pedagogical universities to apply integration training in different conditions of nature.*

**1. Introduction:** The object of the study is the process of teaching undergraduate students of art profiles of fine discipline in the conditions of plein air practice.

The subject of the research is the theoretical and methodological substantiation of professional, integrative training of students of higher educational institutions



of art profiles of painting, drawing and composition within the framework of “Design and technological practice (plein air)”.

The purpose of the study is to create and test an experimental model and integration pedagogical technology for professional education of students of art profiles.

To achieve this goal, it is necessary to solve the following interrelated tasks:

1. To analyze philosophical, pedagogical and psychological publications aimed at determining the methodology, theoretical and methodological foundations of professional, integration training of students of artistic profiles of visual activity in natural conditions.

2. Based on the views of leading domestic and foreign scientists, artists-teachers, create and test an experimental model and integration pedagogical technology for professional training of bachelors of art profiles in fine arts in the open air;

Professional training of students of teachers of artistic and creative profiles will be more effective if:

- to develop and apply an innovative integration model, pedagogical technology, when teaching visual activity to students of higher education institutions of artistic profiles in plein air practice (Figure No. 1);

- to use modern methods of organizing educational and creative work in the open air, in the training of future artists and teachers.

- in conducting practical classes in fine arts in nature with the solution of gradually becoming more complex educational and creative tasks, and studying the color-tone aerial perspective in the open air, to test the experimental program.

- describe the integration methodological foundations of artistic teaching in drawing and painting and composition (still life, landscape, portrait) in the open air.

Many years of pedagogical experience, as well as a master’s study conducted in 2018 - 2020, allows us to conclude that it is necessary to apply an integration approach to the process of teaching students the basics of visual activity in the open air. Scientific work has been ongoing since 2022, in which the goal, objectives, forms and methods of teaching were established. The study is aimed at the integration training of students of art universities (testing the experimental research program in 2023, the synthesis of the disciplines of composition, drawing and painting), design and technological practice plein air B2.V.01.03. (U) in natural conditions on the territory of Kub SU (squares, parks, etc. in the period from June 23 to July 5, 2023), (Goryachiy Klyuch July 2023) made it possible to state the level of knowledge and skills of HGF students in the open air for further professional educational and creative acquisitions.

The relevance lies in high-quality vocational training and the transformation of each element of the pedagogical system, the teaching essence of the process (ori-

entation) in a holistic combination of modern methods, several artistic disciplines (composition, drawing, painting, perspective, etc.). Modern textbooks on the indicated problem contain incomplete and sometimes contradictory information on the theoretical and methodological justification for teaching still life, landscape and portrait painting and graphics in natural conditions. This situation has developed for a number of reasons: knowledge and skills from related disciplines are not always given systematically, and information materials about the achievements of practitioners and methodologists suffer from excessive detail and repetition. In the field of teaching plein air, the necessary intra-subject and interdisciplinary connections are not sufficiently applied, which is an urgent problem for art and art-pedagogical universities.

One of the many researchers of the integration approach L.I. Gritsenko notes that: - "Integration is a process of resolving contradictions, as a result of which a qualitatively new result appears (a new idea, a new trend, a new technique, a new meaning, etc.). Thanks to interdisciplinary connections (even if they relate, for example, not only to content, but also to methods), summation is carried out, a simple addition of various elements of learning, which, of course, allows students to more deeply and adequately learn one or another element of the content. Therefore, a lesson can be called truly integrative only when it solves a problem that cannot be solved with the help of one subject [6, p. 4]".

Artistic educational and creative activity is characterized by its own principles. Considering the principles of scientific activity (principles of scientific knowledge), we identify the main ones:

- 1) a constructivistic scientific approach, in which the observed phenomena are not random, but have a specific cause;
- 2) conscious work on sketches in the open air;
- 3) a methodological principle that has a connection with theory, methodology, research component, a process leading to the achievement of a specific result;

In the principle of integration association in our single concept of the interpretive concept of individualization, we will single out one aspect formed within the framework of this centric paradigm (development of thinking) which is noted in the pedagogical model of education (drawing 1 of the pedagogical model).

Integration classes at the design-technological practice «Plein Air» in painting, composition and drawing in the open air should be aimed at developing students' abilities such as:

- the ability to perceive the nature of nature in three-dimensional and four-dimensional (mental distribution of planning) space, and its image - in two-dimensional, three-dimensional space (finding a spatial color perspective) when performing sketches of still life, landscape and portrait.

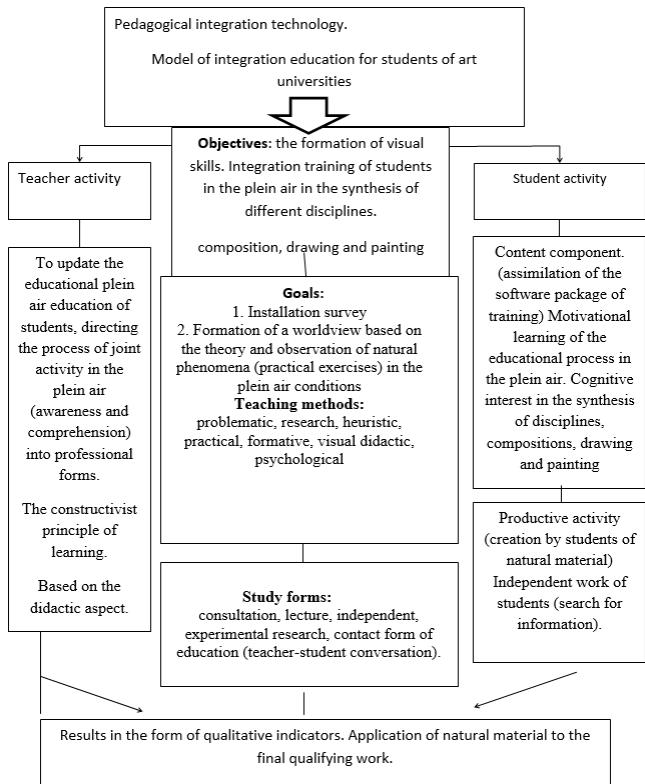
An integrative approach to organizing and teaching in plein-air conditions in teaching (still life, landscape and portrait) with the definition of three-dimensional and four-dimensional air-perspective space in the open air.

1. Perspective distribution of plans in three or four planes. (distribution of the location of objects, people, etc. in relation to each other with the establishment of a long-term plan, coloristic perspective with the definition of the main color accent).

2. Determine the horizon line and the vanishing point, this will wake up the perspective building model with the removal of plans with the definition of vertical lines (perspective planning of building trees in a landscape, in a still life, the ratio of objects).

3. Two-dimensional image approach (horizon line and mirrored landscape construction, color definition).

4. It is the images of the portrait in the open air that can be correlated with the angle of turning the head or figure of a person in nature with the motif of a landscape of four-dimensional space (perspective image of trees in relation to the turn of a person's head). Holistic perception of nature, taking into account the general and color state of illumination; a constant perception of the conditioned color, its warm and cold shades, depending on the lighting, environment, spatial distance. It is important for integration training to fully perceive objects in the open air and find large color relationships in it; - the ability to accept the method of working with relationships in sketches (the law of proportional relationships), be able to compare the colors of nature in terms of hue, lightness and saturation, maintain a tonal and color scale[16].



**Drawing 1.** An experimental pedagogical model of the integration of a single process of teaching students of art and pedagogical universities in the open air.

“Principles of integration education and their scientific substantiation. Based provisions, laws and patterns of learning, carried out in line with a certain paradigm, are embodied in the principles of appropriate learning[6, p.85]”.

Principles of integrative teaching of visual activity in the plein air.

1. The principle of consistency [17, 5].
2. The principle of identifying problems.
3. The principle of approach from the point of view of scientific worldview.
4. The principle of establishing certain methods for performing sketches in the open air.
5. The principle of effectiveness.

Acquisition of new experience as a result of learning activities every moment of student learning is new in the interpretation of the uniqueness of the teacher. An

innovation can be classified in different ways, the most common in pedagogical methods was the concept of V.V. Kraevsky[11].

Teaching students and gaining practical and theoretical experience in the visual activity in the open air should consist of the following main structural components:

- a) experience of cognitive activity fixed in the form of results - knowledge;
- b) experience of reproductive activity, fixed in the form of methods of its implementation (skills and abilities).
- c) the experience of educational and creative activity in different conditions of nature, fixed in the form of problematic situations, cognitive goals and objectives, etc.;
- d) experience in the implementation of emotional-value relations, philosophical.

Oriented learning promotes the development of different forms of thinking, as well as the ability to cooperate with the teacher. The specifics of innovative oriented learning, in which it is important to highlight the following features: openness of learning, the ability to anticipate based on constant reassessment of values, the ability to act together in new situations [1].

It is important to teach students the laws of forms of thinking, directly the teacher solves this issue by the method of dialectics. The application of the dialectical method in the conditions of the open air should unite all the principles of teaching, which are based on clear requirements, rules that prescribe a certain procedure for the implementation of the teacher's actions aimed at exploratory search. It should be noted that the dialectical method is of a general, universal nature and covers the highest levels of methodology and philosophy[14].

Here is an idea from one of the well-known textbooks on pedagogy edited by Yu.K. Babansky about the correlation of education: "The formation of scientific ideas, concepts, laws, theories, special general educational skills and abilities prevails in the content of education. This process simultaneously contributes to solving the problems of upbringing and development, forming the dialectical-materialistic worldview of the trainees" [12, p. 445].

In the 21<sup>st</sup> century, when information education is given in the form of providing ready-made knowledge (theory, methodology, methodology), students have the opportunity to develop intellectually. Therefore, the problem of developmental education, in modern art pedagogy, in which it is important for the student to consciously set goals and objectives to achieve results, is relevant. . Thus, a triad has been formed: "training-formation", in the future they should essentially converge on the basis of "training, development", which, accordingly, should become fundamentally new. The student is encouraged to learn and develop their individual qualities of character, especially in educational and creative activities. Therefore,

we will give an example of a quote from the famous textbook on educational psychology N.A. Zimnyaya: «... training is not only a condition, but also the basis and means of a person's personal development» [12 p. 446].

The integration methods applied by us in the artistic and educational process in the open air (design and technological practice) include the following: problem presentation; heuristic conversation; methods of educational projects (preparation of material for defense); reflective analysis; research method, etc. This means that, explaining how to perform the task, the teacher must think over a system for combining reproductive and creative methods of teaching students' visual activity. In each specific task (still life, landscape, portrait), combining teaching methods, we must choose them depending on the pedagogical situation.

In the general logic of this study, define the basics of integration training and methods that have been tested in plein air painting (drawing) professionally oriented (individual approach) plein air training. In the process of plein air practice, this experimental innovative teaching model was aimed at establishing a balance between the reproductive educational and creative development of artistic experience by students in the plein air in various forms of relationship with the teacher (questionnaires, a built learning process, analysis, observation, etc.) and self-education. Students of HGF KubSU mastered the artistic style to the best of their ability in the open air (Goryachiy Klyuch plein air practice July 2023, Krasnodar, design and technological practice).

A feature of the artistic model of our professional education is to recommend that students focus their attention on the following issues. What is the essence of the educational and creative process in the open air, built on the development of a single component of composition, drawing and painting (landscape, still life and portrait). Competently build a way of structuring and content of educational information when implementing it in the plein air process, which is a learning algorithm (approach to the scientific process).

This pedagogical technology and the mastery of exercises and skills consists in a set of forms, methods, methods, teaching techniques that are systematically used in the educational process in the open air, always leading to the achievement of a predictable educational result with an acceptable deviation rate.

Pedagogical strategies in the implementation of this professional model of education in different plein air conditions.

1. Synthesize the analysis of pedagogical approaches to the considered problems of teaching in the open air, substantiating the implementation of the integration approach of vocational training.

2. Theoretical - methodological foundations of the integration professional training of students in painting, drawing and composition in the open air. The teacher directs students to the perception of the material in the open air practice

after questioning to identify problems. It develops their cognitive and professional interest in the disciplines of painting, drawing and composition. Students develop the ability and ability to independently acquire knowledge, analyze work in the process of practice [7].

3. The core and structuring of the cognitive activity of fine arts in the open air of students should consist of learning in the action of the teacher.

The experimental model of the integration approach in plein air practice highlights the following factors that affect the effectiveness and efficiency of training, and the productivity of the cognitive activity of students in art universities:

- a) setting goals and identifying *tasks* to be solved;
- b) organization of the plein air process, activity, i.e. the presence of algorithms (instructions for activity, taking into account all factors and circumstances of activity in different conditions of the plein air);
- d) activity motivation factors;
- e) methodological integration level with innovation, the unity of methods and technologies for the implementation of certain content of the learning process within several disciplines.

Integration art education in the open air in the modern world is considered by me as one of the most promising and new ways. The model of integration learning is manifested in the desire to get the most accurate representation of the studied process of teaching students of art universities in different environmental conditions.

It is important to create a unified integration pedagogical technology and a program for design and technological practice «Plein Air» for use in different departments of fine arts, graphics, painting and composition in different art universities.

The process of the model of integration training of students in the open air.

First, the definition of the purpose of the educational plein air process. Further, the activity of the teacher is a single process of the organizational moment, which contains the content of the educational material, the forms of education, the application of methods and teaching aids aimed at the activities of students to obtain high results.

*Purpose:* application of the unity of methods and methodological [11] components of teaching visual activity in different plein air conditions:

- problem method (problem identification and questioning)
- empirical method (observation)
- research (allowing to identify the problem, promote knowledge, draw conclusions from pedagogical facts, acquiring new knowledge)
- dialectical method (philosophical explanations, poll, dialogue, etc.);
- informational integration receptive method (illustrative example, samples of reproductions of paintings, analysis, etc.);

- integration - reproductive method (teaching students according to these instructions, previously acquired knowledge, the formation of knowledge and skills based on ready-made examples);

- heuristic (contact and independent work);

- oriented teaching method (individual approach to each student);

- productive (the result of high-quality work).

It is important for students to classify and understand the concept of the methodology of science. The difference between such strategies as: the methodology of educational activities; scientific research methodology; methodology of practical activity; methodology of artistic activity, defines a single component of organizational culture [12, p. 436].

Methodical integration recommendations for students. The key point of integration training in creating the color of sketches is the determination of the general color and tone state of the illumination of nature by saturation and lightness. The space in the landscape between the foreground and the background is conditionally considered the middle plan, which has its own color tone. In accordance with the properties of the tone in the middle ground, a certain saturated color range is strictly maintained. Integration training of composition, drawing and painting is a comprehensive comparison of these common compositional foundations, tone, color tone of nature by warm-coldness makes it possible to correctly determine their general paradigm. The most important is the general tone, the color, which contains one of the properties of the general state of illumination - the color shade. It is determined by comparing all color tones not only along the verticals and horizontals, but also over the entire depth of the depicted space. At the same time, the unity of the patterns of integration of still life, landscape and man in the space of nature is taken into account.

Integration classes in the design - technological practice «Plein Air» in painting, composition and drawing in the open air should be aimed at developing students' abilities such as:

- the ability to perceive nature in three-dimensional and four-dimensional space, and its image - in two-dimensional space on a plane in the field of still life, landscape and portrait.

Forms of teaching an integration approach to the organization of plein air practice for students of art universities in the plein air:

1. individual;

2. collective.

3. Contact and independent.

The teaching model should be based mainly on plein air exploration (search).

1. The acquisition of knowledge.

2. Observation.



3. Establishing the student's abilities in open air conditions.
4. Direct to the application of the methodology to be followed.
5. In order for the plein air learning process to be effective, meaningful learning must take place.

Stages of meaningful teaching of visual literacy in the open air.

1. Composition. Prospective distribution of plans (distribution of the location of objects, people, etc. in relation to each other with the establishment of a long-term plan).

2. Composition. Determine the horizon line and the vanishing point, this will wake up a perspective construction with the removal of plans with the definition of vertical lines (perspective planning of building trees in a landscape, in a still life of objects).

3. Construction of a picturesque-compositional solution of sketches in different conditions of nature. "...In painting....the problem of point of view appears primarily as a problem of perspective" [16, p.8].

4. It is the images of the portrait in plein air conditions that can be correlated with the angle of turning the head or figure of a person in nature with the landscape motif (perspective image of trees in relation to turning and sculpting the shape with the color of a person's head). Transmission of the perspective of coloristic lighting, color relationships in different conditions of nature.

5. Holistic perception of nature, taking into account the general and *color state of the illumination* of nature (color perspective); a constant perception of the conditioned color, its warm and cold shades, depending on the lighting, environment, spatial distance. It is important for integration training to fully perceive objects in the open air and find large color relationships in it; - the ability to accept the method of working with relationships in sketches (the law of proportional relationships), be able to compare the colors of nature in terms of hue, lightness and saturation, maintain a tonal and color scale.

The main form of teaching painting in the open air is a sketch from nature. The consistency of the integration pedagogical technology of vocational training in the open air for students of higher education institutions of artistic profiles is:

- technology must have all the features of a system: a logical process, the interconnection of all its parts, integrity.

- the element of manageability implies the possibility of diagnostic goal-setting, planning, designing the process of teaching students of artistic profiles, step-by-step diagnostics, varying means and methods in order to correct the results. Students must be directed to a positive result in the development and application of knowledge.

Efficiency in the learning process in the open air implies the possibility of using the learning technology of operational feedback, which permeates the entire

educational process, determining the nature of pedagogical influences on students. In general, it can be argued that the technology of professional art education provides the teacher with a wider range of choice of individually preferred techniques, means, methods, techniques for implementation in pedagogical activity. In turn, the technology of professional integration training imposes more stringent, standardized requirements on the organizational aspect of the teacher's activity, which are fixed in the content-structural basis of the Federal State Educational Standard of Higher Education (FGOS 3++).

The structure of the stages of the integration artistic pedagogical technology implemented in the open air:

1. Conceptual basis (the ideological and distributing basis for conducting the plein air practice process), with the definition of goals and objectives, predicting in advance the success of performance and the assimilation of knowledge. It is important to work for the result with the search for an effective path to the final goal. Dividing the concept into a defining, intermediate and final process of learning in the open air.

Basically, plein-air practice in art universities is held in the summer. Therefore, the idea of uniform teaching of composition, drawing and painting (spring, summer, autumn and winter) in the open air is relevant in modern times.

2. The procedural system of methods and technologies for managing the learning process in the open air:

- observational method;
- method of problem presentation in plein air practice;
- didactic method;
- dialectical method in the process of educational plein air practice (application of methodology, philosophical thinking[13], methods, etc.);
- explanatory demonstration method;
- a method of comprehension and reproduction[7].

The use of these methods in the learning process, the teacher activates the independence of students, so they will successfully master the plein air material. Conduct lectures; - draw up a lecture plan; - select and study literature in accordance with the lecture plan; - draw up a summary of the text of the lecture (basic concepts, theses, diagrams). Prepare additional materials (questionnaire for the ascertaining experiment, control questions, tasks for self-study).

One of the many goals in art pedagogy when teaching in the open air is a lecture; it can serve to deepen the theoretical knowledge of students by summarizing or systematizing the educational plein air material previously studied by students. Expanding the scientific horizons of students through the presentation of different points of view of scientists on the problem of plein air practice; - to form in them the adequacy of the studied phenomena by interpreting the most complex issues of

the topic, analyzing stereotypes, typical misconceptions and mistakes - developing the flexibility of thinking, etc.

To achieve this goal, the content of lectures in plein air practice must meet the following requirements:

- logical sequence and coherence of presentation;
- scientific reasoning;
- accessibility for understanding;
- a reasonable combination of rational and emotional;
- support of the illustration program with methodical instructions;
- the presence of a learning process and a response dialogue from students.

**Conclusion;** this technological concept is interpreted as an integral system in which the goals and objectives of artistic education in the open air, and the ways of their implementation are an integration complex of interrelated provisions and principles. For the successful implementation of this concept, an experimental illustrated program was tested (June, July 2023), aimed at training in the field of disciplines in composition, painting and drawing in the open air.

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文化能力作为历史教师专业培训的主要标准  
**ACMEOLOGICAL COMPETENCE AS THE MAIN CRITERION  
FOR THE PROFESSIONAL TRAINING OF A HISTORY TEACHER**

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注解。 本文讨论历史教师的专业培训问题。 分析了专业能力和教学行为学在教师人格逐步发展中的作用。 指出了教师专业水平和标准。

关键词：能力、教师、专业精神、教学学、教学技能、教学教学学。

***Annotation.** The article deals with the issues of professional training of a history teacher. Professional competence and the role of pedagogical acmeology in the progressive development of the teacher's personality are analyzed. The levels and criteria of the teacher's professionalism are indicated.*

***Keywords:** competence, teacher, professionalism, acmeology, pedagogical skill, pedagogical acmeology.*

Today, one of the main tasks facing education is to increase attention to the training of highly qualified teachers.

The relevance of the problem under study is need to study the role of acmeological competence in improving the effectiveness of the professional training of a history teacher in the senior courses of historical faculties (the subject “Methods of teaching history” and “Innovative methods of teaching history” is taught in the senior courses of historical faculties). the last courses).

One of the important strategic directions of the «State Strategy of Education Development in the Republic of Azerbaijan», approved by the Decree of the President of the Republic of Azerbaijan dated October 24, 2013, is modernization of personnel in the field of education. This direction serves the formation of a competent teacher, applying new methods of teaching, ensures the effective development of the content of education and includes raising the professionalism of teachers, the creation of new systems for assessing the achievements of students, creation of advanced teaching methods, as well as identification and development of talents of students (3).

We have tried to substantiate the role of acmeological competence in increasing the effectiveness of the teacher's training of history, including it in the educational competence of each teacher. In this connection, we, generalizing many years of experience in the formation of educational competence among students, have set ourselves the goal, which is to systematize and generalize the role of acmeological competence in the professional training of the future specialist

In modern conditions, the issue of professional training of a history teacher focuses on the cultural, moral development and creative independence of the future specialist, his professional growth. «Competence», «professionalism» and «pedagogical position» in this case are the main categories of acmeology.

By definition of teachers and psychologists, the professional competence of a teacher of history consists of: informative (knowledge of history), technological (possession of modern methods of teaching history) and personal (possession of some features of personality) components. The course «Methods of teaching history», which is taught at the History Faculty of the University, has a special place in the training of history teachers and the formation of their respective competence. «Professional competence of a teacher», today it is a criterion of quality of preparation of graduates of higher educational institutions with pedagogical orientation (7, p., 25-31).

According to research, pedagogical activity becomes developing and productive if it is understood. When a teacher changes the nature of his activity, he sets new goals, meets new methods and methods of teaching, there is a need to develop professionalism. The qualitative change from the state of meaning to the state of awareness, is the essence of his professionalism, i.e., the accumulation of new knowledge and understanding of the essence of the profession, and consequently the mastery of skills and abilities, to implement meaningful and informed.

To be successful in his field of specialization, a teacher must have the level of knowledge he needs. The teacher must also possess high moral qualities. In addition to systematic thinking, he must have the necessary skills to master pedagogical innovations and the ability to adapt to the changing pedagogical environment. It is therefore very important to improve the professional competence of teachers (13).

We have carried out scientific analysis of pedagogical and psychological literature; generalization and systematization of the obtained scientific information. In generalizing the materials we used the integration method and descriptive method.

For this study we selected materials from the following provisions of the «State Strategy of Education Development in the Republic of Azerbaijan» (October 24, 2013) (3), as well as from the works of Ilyasov M.I. (14), Musaev D.M. (7, 8), Khutorsky A.V. (12), Ushakov A.A. (11); Derkacha A.A. (5), Bazilevskaya S.V. (1), Slastenina V.A. (10), Borodulina E.M. (2), Kashapova M.M. (4), Portnova A.G. (2), Kagan E.S. (11), Markova A. K. (6), Raven J. (9), etc.

The methodological basis for consideration of the problem of formation of acmeological competence is the set of theoretical and practical methods of research: at the theoretical and empirical levels, the analysis of domestic and foreign research was carried out, using the component analysis method.

The main tasks arising from the educational reforms implemented in Azerbaijan, in particular from such important programs and concepts of state importance as «The concept and strategy of continuous pedagogical education and teacher training in the Republic of Azerbaijan», «National Strategy of Education Development in Azerbaijan for 2011-2021» and Concept of Development «Azerbaijan-2020: Vision for the Future» from «Concept of Development» increase the need for teachers with new pedagogical thinking. The need for such teachers increases as society stands on the «shoulders of competent teachers», who in the broadest sense of the word are true masters of their work, combining their profession and love for children. However, it is a matter of great concern that not all applicants (graduates) who have chosen the teaching profession, come to this sphere with a heartfelt desire. Unfortunately, this is confirmed by the results of surveys conducted among students (14, pp.140).

The formation of educational competence, as well as the pedagogical competence of the teacher, is a new indicator of the quality of the graduate's training, the result of pedagogical and professional training of the history teacher. The task of the modern higher vocational education - is to develop the criteria of the acmeological competence of the future teacher.

Graduation course is an important stage in the formation of the future specialist, because it is here that the future self-determination related to the profession and profile of activity is concretized.

The main responsibilities of the teacher of history are multifaceted, ranging from the global goals set by the social demands of society to the specific ones defined by the age and cognitive capacities of students. Pedagogical tasks are always non-standard and require the teacher to be innovative and creative. The main result of the teacher's work is the presence of qualitative changes in the mental and personal development of students: in the provision of a complex of HSS - knowledge, skills and skills, in accordance with educational standards; In the formation of important qualities of personality, which are necessary for active activity in society. Thus, the essence of pedagogical acmeology can be determined in the establishment of ways, on achievement of the pedagogue humanistic orientation of professionalism, which is focused on the development of the personality. human.

According to the definition of Markov A.K., that acmeology in translation from the Greek «acmé» is the highest degree of anything, «logia» is literally the science of vertices - the set of sciences that study the peaks in the development of each person and the commonality of people and the conditions of their achievement (6, pp.2-3).

A.Ushakov notes that the science about the laws of human development, the achievement of his professional maturity is called acmeology. He notes that «acme» is achieved as an interaction of objective and subjective conditions and circumstances: - objective factors - conditions of education and upbringing, quality of education; - subjective factors -mental and physical health of a person, his abilities and talent (11, p. 5-6).

Acmeology studies methods, forms, strategies and technologies for the development of high-class professionals in various fields of human activity. Achievement of «acme» depends on the sphere of professional activity of the person.

Pedagogical Acmeology studies the mental functions of the teacher, studies the regularities of self-realization of his creative potential on the way to the top of professionalism throughout the pedagogical activity.

Acmeology achieves the highest professional level in various aspects:

- studies factors that determine qualitative and quantitative criteria «acme»;
- studying the transformation of universal human values into professional, analyzes the possibilities of moral education of the specialist;
- Explores the contradictions between time and the growing amount of information needed to master it;
- summarizes and specifies the various features that are manifested in the process of human activity;
- Studies the relationship between the characteristics of a person's professionalism and his behavior outside the professional activity.

Relevance of acmeology is expressed in the necessity of continuous personal self-development of the specialist as a subject throughout his professional activity. In this case, the creative potential of a person is used to the maximum, which contributes to the realization of his abilities. In this way, ensuring wide recognition of its theoretical and practical attractiveness, subordinated to the vital interests of each individual of society, acmeology develops its own solutions (4, p.35).

According to Ushakov A., being the cognitive component of the system of pedagogical professionalism - «acmeological competence», includes acmeological knowledge about the ways, principles and regularities of progressive development of the personality in the profession (11, pp.115).

The structure of the pedagogue's acmeological competence consists of three interconnected components: motivational, research and reflexive assessment. Taking into account these components, it is possible to predict the success of professional pedagogical activity, to develop the most effective technologies of acmeological aspects of professional activity of a teacher, thus to use this in the construction of an individual educational self-development program (5, pp.57-59).

Teaching practice plays an important role in the formation of acmeological competence among future teachers. The teaching practice of students is important



in the training of highly qualified, professional and competent teachers. It is here that students for the first time try their hand, go to the practical field of the pedagogical profession. They not only apply their theoretical knowledge in practice, but also visually learn what is the content and essence of the pedagogical profession (14, p. 146-147).

All sciences go the way of their formation and development, from the emergence to the modern state. In general, as science, acmeology is a relatively young science that emerged as a separate branch in the 20th century, despite the fact that acmeological ideas were developed in the ancient period by Romans and ancient Greek thinkers.

The concept of creative self-realization of the person, who is essentially an acmeological, is inextricably connected with the ideas of thinkers and philosophers. These ideas are found in Plato, Leonardo da Vinci, traced in the works of M.I. Ilyasov, A.H. Pashayev, M.M. Amirov, I.B. Dzhabrailov, F.A. Rustamov, A.V. Khutoroskogiy, V. Hatmacher, A.K. Markova, A. A. Ushakov, V.N. Maksimova, M.M. Kashapova, N.N. Abakumova, V.A. Slastyenin, I.Y. Malkova, E.N. Bogdanov, V.G. Zazykin, surgeon N.I. Pirogov, psychologist V.M. Bekhterev. Acmeological ideas are also noted in poetry works by Nizami Ganjavi, A.A. Akhmatova, N.S. Gumilev, O.E. Mandelstam, etc.

The formation and development of acmeology is directly related to the names of such scientists as J.Raven, A.A. Derkach, N.V. Kuzmin, A.A. Bodalev, O.S. Anisimov, etc.

In the course of its development, acmeology studied the professionalism of teachers. Over time, such independent scientific directions as military acmeology, pedagogical acmeology, administrative acmeology, etc. Social, medical, legal, sports and economic acmeology are at the stage of formation.

Pedagogical Acmeology studies ways to achieve competence and professionalism in the work of teachers. The acmeological approach in pedagogical education is to increase professional motivation, to achieve success in the professional activity of the teacher, to stimulate his creative potential. The development of pedagogical acmeology has led to the development not only of acmeology itself as a science in general, but also of its components.

Further study of the acmeology of higher education remains relevant, requiring the identification and improvement of professional competence of specialists in the field of education. Acmeology - should be one of the basic educational disciplines in the educational system of universities with a pedagogical orientation. Deep understanding and full mastery of the content of acmeology is considered to be the most important condition for the improvement of the specialist in the field of education, as well as his achievement of the peaks in personal and professional development and self-development.

By A.A.Ushakov the content of pedagogical acmeology determines the acmeological approach to the work of the teacher. In the subject area of acmeology, he highlights topical problems of education:

- motives and meanings of achievements of professional pedagogical activity;
- study of the processes of levels of education;
- regularities and ways of achieving the peaks of collective activity, which are connected with the solution of pedagogical problems;
- individual ways to achieve professionalism in pedagogical activities;
- Professionalism of the teacher, factors and conditions of reaching the peaks in his pedagogical activity (11, p., 22-23).

Pedagogical Acmeology is defined as the science of ways and methods of achieving professionalism in the work of the teacher of history. The object of the work of the teacher of history is the psyche of students who are active subjects of the pedagogical process, who have their own goals, motives, their logic of behavior, and are in the process of formation and development.

The International Institute of Acmeological Pedagogy determines the professionalism of the teacher according to the following criteria:

- objective criteria: the effectiveness of teaching (its main types are teaching, developing, educational functions of the lesson, as well as auxiliary in the work of the teacher - diagnostic, organizational-management, consulting, correction, self-teaching, etc.);
- subjective criteria: understanding the essence of the profession of the teacher, a positive attitude towards oneself as a professional, a desire to remain in the profession, satisfaction with their work;
- Procedural criteria: the use of innovative methods, methods, techniques and technologies in the work of the teacher;
- effective criteria: achievement in pedagogical work of results demanded by society (formation of new personality qualities of students, which can ensure their preparation for life in a rapidly changing society) (5, p.192).

The main levels of professionalism of a teacher, in the specific case of a teacher of history, represent the dynamics of his movement to high indicators of pedagogical skill:

- the level of pedagogical skills as the best examples of advanced pedagogical experience;
- the level of mastering the profession, as well as the initial mastering by the teacher of the necessary techniques, methods and technologies;
- the level of self-development of the teacher, strengthening their own positive qualities, strengthening individual style;

- The level of pedagogical experience concerning innovative methods and methods, as well as the creation of new systems of education and upbringing;
- Mastering the necessary methods of individual approach to students, in which personal-oriented education, etc. is carried out (8, p.59-60).

In the work of the teacher, acmeological technologies is a system of tasks and ways to promote the teacher to the tops of personal and professional maturity. Pedagogue Acmeogram is a program to promote the teacher to the top of professionalism, to his professional acme.

In this way, the subject of acmeology is a progressive personality, which is dynamically realized in professional activity and reaches peaks in its development.

In the modern system of vocational education, the essence of the acmeological approach is to ensure increased professional motivation, stimulate the realization of creative potential, identify and use personal resources to reach the top in the teacher's professional activities. In practical terms, acmeological technologies allow to achieve professional and personal self-development, design career paths (11, pp.5-6).

Acmeological competence is the basis of the professional standard of the teacher. For the pedagogue with the competence of the Acmeological, it is important to:

- Analytical capacity
- ability to determine the main goals and objectives of their activities;
- ability to plan methodical work and formulate predicted results;
- the ability to adjust their activities, according to the pedagogical monitoring.

The above-mentioned skills are necessary for the pedagogue-acmeologist to maintain his professional growth, to determine those peaks, the achievement of which will contribute to the improvement of the quality of education and pedagogical skills of the teacher (1, pp.765-769).

Professional pedagogical competence consists of: professional pedagogical knowledge, skills, as well as the attitude of the teacher to himself, to students, to his work and to colleagues).

1. Pedagogical or pedagogical competence, including:

- pedagogical skills: the ability to select and group educational material, the ability to study, think over information; the ability to analyze pedagogical situations and set appropriate pedagogical objectives; the ability to choose the forms, techniques, methods and means of education and upbringing, taking into account the abilities and capabilities of students; the ability to raise problems and organize research, etc. ;
- pedagogical intuition, which provides for the immediate adoption of a pedagogical decision, taking into account the anticipation of the develop-

ment of the situation without preliminary analysis of the situation;

- pedagogical forecasting, based on skills to predict the behavior of students, taking into account their own difficulties of pedagogical thinking - i.e. the ability to analyze pedagogical situations and the ability of the teacher to make decisions taking into account the abilities of students;
- knowledge of the school program (curriculum), taking into account the psychological and age and individual characteristics of students, etc. ;
- pedagogical observation - understanding the essence of the situation on minor pedagogical grounds;
- pedagogical optimism, providing an approach to students with an optimistic hypothesis, where the motivation of students is based on belief in their capabilities.

2. Communicative competence, being a component of the teacher's professionalism, contains:

- important professional qualities of the person;
- professional pedagogical roles - participant, subject, actor and humanist of pedagogical cooperation;
- Pedagogical courtesy, which includes the choice of influencing students according to their abilities.

3. Teacher's professionalism or individual competence includes:

- Knowledge of personality psychology;
- Professional and pedagogical positions: conscious individuality, self-diagnosis;
- important professional qualities: the ability to understand the others. and influence him (pedagogical abilities); the ability to plan their activities, taking into account the characteristics and capabilities of students (pedagogical targeting); pedagogical reflection and turning the teacher's consciousness to himself, to improve the quality of his lessons;
- pedagogical skills: the ability to study and develop their personal qualities, as well as the personality of students; the ability to identify the positive and negative aspects of their work, as well as the features of their individual style; the ability to implement plans for their professional self-development (6, p., 193-194).

The subjects and participants of pedagogical cooperation are: teachers, pupils and their parents. This activity is the content of pedagogic acmeology.

The main role formed skills of acmeological competence in the university. In order to identify the role of acmeological competence in enhancing the training of history teachers, studies of relevant literature were conducted.

The results of this study can be used in teaching history teaching methods at the university, and the theoretical provisions of acmeological competence can be applied to improve the professional training of teachers and other specialties.

The study helped to determine the role of acmeological competence in improving the training of history teachers.

The essence of pedagogical acmeology is determined both by the specificity of professionalism, and the uniqueness of the combination of factors and conditions, techniques, methods and technologies of the teacher's activity. The main indicators of the teacher's professionalism are: mastering the profession, manifesting pedagogical skills and pedagogical creativity, self-realization of the teacher in the profession.

Based on the acmeological approach, the professional training of the future history teacher addresses the main problem of professional and personal success.

In the modern system of professional education, the acmeological approach consists in stimulating creative potential, in ensuring the strengthening of professional motivation, in the identification and fruitful use of personal resources to achieve success in the work of the teacher.

The purpose of the implementation of the acmeological approach is to carry out acmeological and pedagogical effects on students - future teachers in the area of so that they develop their acmeological competence as the main property of educational competence and the most important indicator of professionalism.

In this way, the future history teacher's acmeological competence is the psychological basis for his willingness to work constantly on himself and his professional activities.

The constant search for effective training offers new opportunities to create improved models using innovative techniques. Pedagogical Acmeology is the science of ways of achieving professionalism, which is focused on the ascent of the individual to a higher level of competence and professional skills, taking into account the prospect of creating acmeological competence of the teacher. The changes taking place in society require not only a teacher of history's basic and professional knowledge, but also the presence of innovative thinking and the ability to solve specific educational problems.

The question of ways to achieve professionalism - pedagogical acmeology should be specified (detailed) also in the oath of the teacher, which is provided in the «Rules of ethical behavior of teachers» approved by the Board of the Ministry of Education of the Republic of Azerbaijan on November 6, 2014.

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发展数字文化对未来教师的重要性：心理和教学方面  
**THE IMPORTANCE OF DEVELOPING DIGITAL CULTURE IN  
FUTURE TEACHERS: PSYCHOLOGICAL AND PEDAGOGICAL  
ASPECTS**

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抽象的。 本文强调了在人类进化和社会数字化背景下发展数字文化对未来教师的重要性。 它探讨了与未来教师数字文化形成相关的心理和教学方面。 本文强调了获取数字技能和能力、通过数字技术整合调整教育流程、培养创造力和创新、支持数字福祉和道德行为、发展数字通信和协作技能以及培养持续学习心态的重要性 并利用数字数据进行评估和反馈。

关键词：心理和教学方面、形成、数字文化、未来教师、数字沟通与协作、道德行为、教育创造力和创新、适应。

**Abstract.** *The article emphasizes the relevance of developing digital culture in future teachers within the context of human evolution and societal digitalization. It explores the psychological and pedagogical aspects associated with the formation of digital culture among prospective teachers. The article highlights the significance of acquiring digital skills and competencies, adapting educational processes through the integration of digital technologies, fostering creativity and innovation, supporting digital well-being and ethical behavior, developing digital communication and collaboration skills, and cultivating a mindset of continuous learning and utilizing digital data for assessment and feedback.*

**Keywords:** *psychological and pedagogical aspects, formation, digital culture, future teachers, digital communication and collaboration, ethical behavior, creativity and innovation in education, adaptation.*

Humans actively contribute to the creation of a cultural environment that encompasses their highest achievements and values, including technological advancements. The technological boom has significantly transformed processes in the natural world and necessitated human adaptation. The close coexistence of technology and humans shapes their cultural environment and values. It is worth noting that the youth exhibit greater adaptability and a propensity for embracing

changes. As the predominant segment of the population, the youth begin to establish their values and norms, which individuals across different age groups must adjust to.

Values are dynamic and characterize specific historical periods. They serve as a bridge between parents and children, as well as in the relationships of individuals and diverse social groups. Values influence the future development of society and prevent generational gaps.

Education, as a social institution, fosters connections between generations, transmitting knowledge and values of society and the nation. It should prepare the new generation to embrace societal changes and facilitate their integration without sacrificing their well-being. Moreover, the field of education functions as a production system that meets the societal demand by equipping individuals with specific skills and competencies based on the needs of society and industry.

In recent times, digitization has become an all-encompassing social trend, marking a new stage in human life. The close and active interaction between technology and humans has led to a greater reliance on technology, where individuals find it hard to imagine life without it. The new way of life requires constant integration of technology into human life, thereby creating a new environment. In his work, Strokov A.A. describes digitization as the transformation of significant information into digital form to ensure its effective use in various areas of human activity and the formation of new communicative and cognitive possibilities.<sup>1</sup> By expanding these possibilities, digitization itself creates new digital and technological environments for human habitation, distinct from reality but aspiring to be its more advanced replacement.

In their article, V.G. Khalin and G.V. Chernova associate digitization with economic development and describe it as a trend based on transforming all information into digital form, which will subsequently lead to an efficient economy and improved quality of life.<sup>2</sup>

Having studied these works, it can be concluded that digitization has affected all spheres of life, from production to art and everyday life, necessitating the preparation of individuals for interaction with the digital space with its own norms, laws, conditions, and environment.

The formation of digital culture is essential for future teachers to adapt to the modern requirements of education, develop digital competencies, enhance the learning process, and prepare students for the contemporary world. It enables

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<sup>1</sup> Строкков А.А. Цифровая культура и ценности российского образования Александрович: диссертация .... канд философских наук: 09.00.13 / Строкков **Алексей Александрович**. Нижний Новгород - 2021

<sup>2</sup> Халин В.Г., Чернова Г.В. Цифровизация и ее влияние на российскую экономику и общество: преимущества, вызовы, угрозы и риски // Управленческое консультирование. - 2018. - № 10. - С. 47.



teachers to effectively teach, educate, and nurture the new generation of students in the digital era.

The formation of digital culture in future teachers is an important task for several reasons:

Firstly, in today's information society, digital technologies play an increasingly significant role in various areas of life, including education. Future teachers need to be prepared to use these technologies in their pedagogical activities to effectively teach and prepare students for life in the modern world.

Secondly, digital tools can make the educational process more interactive, engaging, and personalized. They enable the creation of innovative learning environments that stimulate active student participation, develop their creative skills, and enhance knowledge acquisition.

Thirdly, in the modern world, most professions require digital skills and competencies. Preparing students for future careers is a crucial task of education, and the formation of digital culture in teachers plays a key role in this process.

Moreover, digital culture in teachers helps them to be flexible and adapt to constant changes and new technologies. This allows for the creation of innovative teaching methods, personalized approaches, and effective utilization of resources and tools available in the digital environment.

Finally, the formation of digital culture in teachers contributes to the creation of an inclusive educational environment where every student can have equal opportunities for learning and developing their abilities. Digital tools allow for personalized learning, taking into account the unique characteristics of each student, and creating conditions for successful knowledge acquisition.

The formation of digital culture in future teachers involves a number of psychological and pedagogical peculiarities. Key aspects of this process include:

- Initial mastery of digital skills and competencies. Future teachers need to acquire basic skills in working with digital tools, understanding the fundamental principles of digital literacy and online safety.
- Adaptation of the educational process using digital technologies. Teachers should learn to integrate digital tools and resources into instructional practices to create more interactive and engaging lessons, as well as to personalize learning according to the needs of each student.
- The development of creativity and innovation in the educational process. Digital technologies provide opportunities for creating new teaching methods, interactive materials, and projects that foster creativity and active student participation.
- Supporting digital well-being and ethical behavior. Teachers should educate students about ethical use of digital technologies, awareness of the consequences of their actions online, and adherence to digital safety rules.

- Development of digital communication and collaboration skills. Teachers should be proficient in effective communication and collaboration through digital platforms, using online tools for communication and collaborative work with students and colleagues.
- Readiness for continuous learning and adaptation to changes. The field of digital education is constantly evolving with new technologies emerging. Future teachers need to be prepared for self-development, learning, and adaptation to new digital tools and pedagogical practices.
- Assessment and feedback based on data. Digital technologies enable more effective assessment of students' learning achievements and provide them with feedback. Teachers should develop skills in assessment using digital tools and use data to improve teaching and support students.

These aspects will help future teachers successfully shape digital culture and prepare students for the modern information society.

The formation of digital culture in future teachers is an important task in modern education. The development of digital technologies and the information society requires teachers to be prepared to use modern tools and teaching methods. This will ensure more effective and interactive education, individualization of the learning process, and the development of digital literacy skills among students.

The formation of digital culture in teachers involves their mastery of basic digital skills, adaptation of the educational process to the use of digital technologies, the development of creativity and innovation, support for digital well-being and ethical behavior, the development of digital communication and collaboration skills, readiness for continuous learning and adaptation, as well as the use of digital data for assessment and feedback.

Teachers' digital culture will enable them to effectively use digital tools and resources, create innovative educational materials and methods, ensure safe and ethical use of technology, collaborate and communicate with students and colleagues, and constantly improve their skills and adapt to changes.

In conclusion, we can say, that the formation of teachers' digital culture is a key aspect of modern education that helps teachers be successful in the development of their students and prepare them for the digital society. It plays an important role in creating an educational environment that promotes student development and ensures their successful integration into the modern world of information technology and communication.

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俄罗斯和中国的民间教育学和教育传统  
ON FOLK PEDAGOGY AND EDUCATIONAL TRADITIONS IN  
RUSSIA AND CHINA

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注解。 本文以民间传统和下一代教养体系的民族特色领域的研究为例，探讨了俄罗斯和中国之间互动的一些方面。 笔者参考了“中华第一师”孔子和“师中之师”K.D.的一些思想。 乌申斯基； 关注民族教育学作为一门科学； 根据俄罗斯和中国的历史传统和民族教育经验，得出对儿童教育同样认真的态度； 强调这样一个事实：尽管俄罗斯人和中国人的心态存在众所周知的差异，但民族教育学和教育传统的共同点表现在人文主义、精神成长和理想人类形象的可用性上。

关键词：中国、俄罗斯、教育学、民族、教育、科学研究、国家体系。

**Annotation.** *The article deals with some aspects of interaction between Russia and China on the example of research in the field of folk traditions and national peculiarities of the upbringing systems of the rising generations. The author refers to some ideas of “the first professional teacher of China” Confucius and “the teacher of all teachers” K.D. Ushinsky; pays attention to ethnopedagogy as a science; makes a conclusion about identical careful attitude to the education of children which is based on historically established traditions and national educational experience in Russia and China; emphasizes the fact that despite all well-known differences in mentality of Russians and Chinese, commonality of traditions of national pedagogy and education shows itself in humanism, spiritual growth and availability of an ideal human image.*

**Keywords:** *China, Russia, pedagogy, nation, education, scientific research, national systems.*

At present the interaction between the People’s Republic of China and the Russian Federation is generally characterized by a variety of cultural, humanitarian, scientific and pedagogical relations based on respect for carefully preserved national peculiarities and historically developed experience, observing the princi-

ples denoted as “Shanghai spirit”. [17, p.6]. The consideration of general tendencies in the development of higher education institutions in China and Russia in the context of modern globalization [7], the implementation of integration at the international level in the field of training of teachers [9], joint large-scale events and scientific research in different areas [18, 23, 24], successfully implemented research, including in the field of reforming general and pedagogical education [13, 22], are caused by mutual professional interests, the desire to expand harmonious cooperation, establishing a constructive dialogue for the sake of common intercivilizational progress.[16].

An illustrative example of deepening, enriching and exchanging best practices of actively developing multifaceted partnership, the actualisation interaction between Russia and China in the field of pedagogy is the scientific and educational forum “The Russia - China Business Forum: New Facets and Prospects For Humanitarian Cooperation”. The event was held on 17 - 18 October 2019 at the Russian Academy of Education and was dedicated to the 70th anniversary of the establishment of diplomatic relations between Russia and China, as well as the 20th anniversary of the Committee on Humanities Cooperation between our countries. The most important goals and key areas of the Forum are described in some detail in one of the scientific publications [6]. Here I would like to draw attention to the presentation of a collective monograph by scientists [15] with an original concept, including “A View from China” and “A View from Russia”, which took place during the work of the Forum.

The prepared publication is a fundamental scientific work, which thoroughly reveals many facets of the longitudinal research initiated in 2006-2007. The comparative analysis of different spheres undertaken by Chinese and Russian researchers and the presented analytical materials comprehensively cover and reveal in detail the strategies and tactics of education reforming in the conditions of globalization, show resources for managing development of educational systems, outline urgent issues of integration in education and reforming its content at existing levels (preschool and school, vocational and higher as well as pedagogical), set out the prospects of cooperation in the field of educational systems of both countries. Particular attention is paid to the main trends and practical aspects of the reform of modern education, including moral education, with a focus on its essential and irreplaceable role and place in practice. In this regard, of great scientific and pedagogical interest are the historically established folk traditions and national peculiarities in relation to the educational systems of the growing generations in Russia and China.

Referring to the statements of the great Russian teacher K.D. Ushinsky, whose 200th birthday is being celebrated this year, I want to emphasize the enduring significance of his views for present and future human upbringing in the context

of the principle of nationality. Furthermore, according to Konstantin Dmitrievich, every nation has its own national system of education. According to Ushinsky, education “created by the people themselves and based on folk principles” incorporates the *national* in the entire set of values, traditions, language and specifics and “has that educational power which the best systems based on abstract ideas or borrowed from another people does not have”. It reveals “the secrets of the national character”, developing not only intelligence but also national self-consciousness and connecting new generations with “outmoded generations” on the basis of a “common spiritual life”; Let us also emphasize the deep conviction of K.D. Ushinsky that “the stirring up of public opinion in the cause of education is the only solid foundation for any improvements in this field” [8]. [8].

The ideas of the Russian “teacher of all teachers” and one of the founders of national pedagogy as a science of the 19th century are reflected in the fundamental works of G.N. Volkov (1927 - 2010), scientist and teacher, publicist and writer, laureate of the K.D. Ushinsky Prize of the USSR Academy of Pedagogical Sciences (1967) and holder of many other awards. Gennady Nikandrovich is widely known in our country and abroad thanks to his theoretical contribution to the formation and development of one of the most important areas of knowledge - ethnopädagogy as a science ‘about the empirical experience of ethnic groups in the upbringing and education of children, about moral, ethical and aesthetic views on the primordial values of family, tribe, nation, nationality’. [5, p.4]. It is difficult to overestimate the theoretical and practical importance of the first in our country manual on ethno-pädagogy for future teachers, authored by G.N. Volkov.

The manual created by the researcher and teacher explains the basics of national ethno-pädagogical system, shows it as a national, universal phenomenon; reveals the relationship and unity of historically formed methods and tools, pedagogical techniques of public education of children; outlines the resources of folk pedagogy in relation to the present, the possibility of its practical application and continuous improvement. Special mention should be made of the factors of folk pedagogy and folk upbringing highlighted by G.N. Volkov, including “nature, game, word, deed, communication, tradition, everyday life, art, religion, example and ideal”. [5, p. 78]. Each of the above factors is of particular importance in the Russian system of raising children and adolescents. In terms of folk art, its origins and nature, its influence on people, diversity of its manifestations and vital content, established traditions, collective nature of artistic and creative activity, we should outline very important communicative and aesthetic functions of the verbal and musical art of our nation as a center of the spiritual memory of generations. Volkov’s conceptual ideas are continued in contemporary studies [1, 2, etc.]; the ethno-pädagogical theory of modern China is presented, for example, in one of the Russian publications [16].

One of the most important areas of focus of the Russian Museum of Ethnography, “Russian Folk Pedagogy”, is remarkable in terms of continuous scientific study and preservation of national traditions and comprehensive implementation of the educational and pedagogical function. [20]. The content of the section organically and fully reflects the key priorities of the established system of our traditional folk pedagogy. These are attention and extraordinary care for the child during the entire first year of life; emphasis on respectable relations between parents, “elder parents” and children, brothers and sisters in the family as a role model; love for one’s home, native land and nature, sense of self-esteem and gradual immersion in religious life, compassion and mercy for the surrounding adults and peers; game as an opportunity to master necessary norms of behavior and holistic comprehension of the world in all its diversity and harmony; responsibility, support and mutual assistance, gradual accustoming to work and fulfilling the necessary household duties, respect for elders, respectful attitude towards relatives and friends. The research by I.V. Popovicheva and Zheng Hao [14] is of great interest in the context of comparing the traditions of family education in China and Russia.

It is well known that Chinese folk pedagogy has concentrated the centuries-old wisdom of outstanding thinkers, many of whose ideas in one way or another have influenced modern scientific ideas about harmoniously developed human beings and the system of raising children in general. The legacy of the world-renowned philosopher Confucius (circa 551 B.C. - 479 B.C.), the universally recognized “first professional teacher of China”, all his teachings, the created ideology of preserving the cultural traditions of a bygone dynasty and the proposed theoretical model of the ideal personality is not ignored by modern researchers, actualizing scientific searches solving the problems of raising a person in the 21st century [3, 4, 11, 21]. Education and moral perfection, fulfillment of commitments, culture, sustainable adherence to generally accepted rules, etc. - is a kind of etalon, “portrait” of an ideal man, a model of improvement for each resident; aspiration to the ideal according to Confucius is predetermined first of all by persistent efforts of man himself, his constant improvement in accordance with value criteria (spirituality, activity, virtue, humanity, etc.) [3, p.93].

At the same time Confucius presents the embodiment of the negative in a man, including the desire for wealth by any means, focusing only on personal gain, unwillingness and inability to learn [3, p.94]. Chinese popular pedagogy has historically developed a system of so-called intellectual upbringing of children, the responsibility for which was placed mainly on the family [10]. Traditional for Chinese families are folk arithmetic tasks and mathematical riddles, native speech with transmitted reflections and beliefs, historical events “by word of mouth”, mastering of Chinese measures of length and system of monetary units at oral account, general idea of time and its reasonable distribution; elementary activity

and general knowledge about nature with education of careful attitude to it during familiarization; initiation to arts and crafts and making home objects with orientation. The cult of mind, which for the Chinese people is “more precious than gold”, can be considered one of the striking traditional manifestations of Chinese popular pedagogy.

The extent to which ethno-pedagogical traditions are deeply and comprehensively embodied in the educational practice of China, one can get a holistic idea when referring to one of the studies of the early twenty-first century. The work shows characteristic moral, moral and intellectual qualities of a Chinese individual developed on the basis of existing educational system and reflecting national psychology together with multifaceted traditions (attitude to the world, labor, people around, collectivity, moderation, mutual help, etc.); we should note some fundamentally important points, including a set of progressive, new ideas and unique experience of previous generations, the relationship between folk experience in the upbringing of new generations and pedagogical. The researcher mentions main reasons that hinder implementation of ethno-pedagogical traditions such as pedagogical problems (teachers lacking knowledge and understanding of national ideals and philosophy, the level of relevant skills in upbringing methods in the context of ethno-pedagogical traditions formed historically, etc.); social problems such as loss of certain folk traditions and disappearance of certain traditional customs typical for previous generations, which are the foundation of ethno-pedagogical culture.

For all the well-known differences in the mentality of the Chinese and Russian peoples, there is an identical attitude to the education of children, historically established traditions, folk teaching experience that has been formed over a long period of time; the common desire to preserve, fully support and promote traditions in teaching practice is obvious. The draft Concept of National Education in China is mentioned in a study from 2004 [21, p. 3]; for Russia, the approval of the “Fundamentals of State Policy to Preserve and Strengthen Traditional Russian Spiritual and Moral Values” is indicative. [19]; let us also recall the implementation of a special educational program in general educational institutions in Russia [12], etc. Spirituality, spiritual growth, spiritual and moral origins, spiritual memory of the people - all these are especially important in the existing national systems of upbringing of growing Chinese and Russians, as well as humanism in all its manifestations. The presence of an ideal image for a growing person and the focus on continuous improvement of personal qualities are also inherent in the folk pedagogy of both countries, as well as in the traditions of upbringing of the younger generation. Ethnopedagogy as a science and research in this field are the most important link for Russia and China, predetermining further preservation and strengthening of “centuries-old traditions of harmonious coexistence of different nationalities and religions”. [17, p.19].

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学前教育组织教师工作中的信息技术：性别方面  
**INFORMATION TECHNOLOGIES AT THE WORK OF TEACHERS  
OF PRESCHOOL EDUCATIONAL ORGANIZATIONS: GENDER  
ASPECT<sup>1</sup>**

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抽象的。新技术的开发对于学前教育组织的专家在日常生活和专业活动中都极为重要。儿童越来越多地参与互联网技术的使用，成为互联网环境的正式参与者，并独立使用可上网的设备。为了与互联网一代的代表成功互动，幼儿园教师需要使用信息通信技术，将各种互联网资源和在线活动纳入其专业活动中。应特别关注外籍人士的性别群体，包括男性教育工作者，他们在履行专业职能时往往与女性同行处于不同的地位。

关键词：教育工作者；文化遗产年；互联网；信息技术；孩子们；学龄前儿童；性别方面。

**Abstract.** *The development of new technologies for specialists of preschool educational organizations both in everyday life and in professional activity is extremely relevant. Children are becoming more and more involved in the use of Internet technologies, are full-fledged participants in the Internet environment and independently use devices with Internet access. For successful interaction with representatives of the Internet generation, kindergarten teachers need to use ICT, include a variety of Internet resources and online activities in their professional activities. Particular attention should be paid to the gender groups of expats, including male educators, who often have a different position from their female counterparts in the performance of their professional functions.*

**Keywords:** *educators; year of cultural heritage; Internet; information technology; children; preschoolers; gender aspect.*

<sup>1</sup> The work was carried out within the framework of the RSUH project “National Model of Gender equality: interdisciplinary and expert approach” (competition “RSUH Project research teams”, 2023)

Most of the scientific works of the last decade provide data on the underestimation of the role of women in the professional field, it is considered as a marginal position of women in different professions (technical, operational and service activities etc) [1;2]. However, it is obvious a certain asymmetry in the distribution of male and female professions, which is partly due to stereotypes that have developed in society, as well as existing practices in society. The concentration of women in the traditional profession through socialization and other process in industries that require the performance of roles included in the main role set for women in the family.

The professions with a predominance of women continue to be the following industries: education (according to statistics 82% of employees), healthcare (79%), hotel business and public catering (more than  $\frac{3}{4}$  of all employees) [3].

A one-sided view on the problem of asymmetry in the professional field by women workers don't give a complete picture and there is a need to change the research focus and find out those small gender groups of expats work in a foreign professional field.

The purpose of the study to determine the role of social institutions and organizations in the activities of educators of preschool educational organizations in introducing children to cultural heritage. More than 3,300 respondents took part in the online survey, the target sample included active members of professional communities of educators from 8 federal districts and 54 constituent entities of the Russian Federation [4].

Half of the respondents live in small towns (49.5%), a third from large cities (33.4%), every tenth is a rural resident (10%), 6.8% of informants were from millionaire cities. 88% of the respondents work as educators, 12% as head educators, and 98.5% work in public kindergartens.

The sphere of pre-school education definitely belongs to the "women's professions". It is obvious that any quantitative comparisons of the male group with the general array of female respondents (99% of the respondents were women) are not correct from the point of view of sociological analysis. However, we consider it extremely important to address this small group of respondents in our study and try to answer a number of research questions about the proportion of men working in traditional "female positions" in education, and whether a particular view of male educators on the use of information technology in their work?

Among the educators we interviewed, there were 21 male respondents, which accounted for less than 1% of all respondents. Compared to the female audience, men are more likely to define their profession as prestigious and respected. We assume that this is due to the attention specifically to male educators, while they are "exotic" in the professional landscape and perhaps the press and management turn to them more often, they represent their institutions in competitions and festivals.

For women, among the priority measures in the first place with a large margin from the rest the option stood out – the development of education (quality, accessibility, etc.). For men, this option is also a priority, but the item isn't inferior to it - the organization of a developing environment, places for leisure, games and entertainment. The second most important place for men is the protection of the safety of children in public space, while for women this is already the fourth position, giving place to the support of traditional cultural locations for children (libraries, museums, theaters, etc.).

The widespread mixing of online and offline reality dictates the need to master new technologies both in everyday life and in professional activities. The role of the Internet in the life of the younger generation is growing not only for those who have reached school age, but also for children attending preschool educational organizations. Children are becoming more and more familiar with the use of Internet technologies, already at preschool age using the Internet on their own [5]. The digital activity of preschoolers is quite comparable today with the activity of elementary school students. Parents estimate that two-thirds of preschoolers and half of younger students spend less than an hour online on weekdays, while the rest spend 1-3 hours online. On weekends, every second child spends 1 to 3 hours on the Internet, and according to the children themselves, there are already two-thirds of them. [6, p. 30].

According to the results of the survey, three age groups of educators were identified: up to 35 years old, 36-55 years old and over 55, as well as groups depending on the area of residence – a millionaire city, large and small cities, rural areas.

In order to establish the extent of the use of modern Internet technologies by educators in their work to familiarize children with the cultural heritage of the nations of Russia, the questionnaire asked what cultural events educators and their pupils took part in. In general, respondents preferred contests, readings and festivals. Online events were at the bottom of the list: in different age groups, they occupy positions 4 and 5 – they were indicated by 20% and 21% of respondents aged 36-55 and over 55 y.o., and 16.6% under the age of 35 y.o.. In groups by territories of residence, this type of cultural events occupies the 3rd position in cities with a population of over one million and large cities; in small towns and rural areas 4 and 5, respectively, which can be explained by the quality of Internet access. Separately, we note that a quarter of educators in the age group under 35 didn't participate in any cultural events with their pupils. At the same time, teachers of different sexes conducted self-preparation for activities in the past year in different ways: women most often used thematic Internet resources, and men visited museums.

Among the various types of preparation for activities to introduce preschoolers to cultural heritage, the use of thematic Internet resources occupies 1st position

among respondents under the age of 55 and 2nd position among the older generation (41.5%, 49% and 42%, respectively). The older generation of educators (from 55 y.o.) prefers the study of traditions and rituals – 51.3% indicated this form of training as the most preferable. In millionaire cities and small towns, Internet resources are preferred more often than in large cities and rural areas, however, we note that the gap is minimal: in millionaire cities, 46.3% use thematic online resources, 45% study traditions and rituals; in large cities and rural areas, the gap is only 0.2-0.3%; The largest interval is observed in small towns - 2.1%. It should be noted, however, that male educators indicated that, in principle, they don't use Internet resources when preparing for classes.

In the question of information sources about education and familiarization with national culture used by modern parents, the respondents unanimously gave 1st place to the Internet – there were no differences in the answers either in age groups or depending on the territory where the kindergarten was located. Conversations with kindergarten teachers also unanimously ranked second.

Respondents were also asked to evaluate child support measures, which, in their opinion, are currently in high demand. In the course of the survey, the respondents in general gave the greatest preference to the support of education (quality, accessibility, etc.) – more than 60% in all age categories and territories of residence. Measures for the development of scientific, technical and IT creativity in the general list are in 11th place (7%), which indicates that this area is not a priority, according to educators. There are slight discrepancies in the answers depending on the age of the respondents: for example, educators under the age of 35 put this direction in 9th place (8.5%), the older age group 36-55 years old in 10th place (6.6%) and older 55 years on the 11th (3.9%), which may be due, among other things, to the level of personal digital competence of the respondent. At the same time, male educators have a different point of view – only a tenth (2 people) noted this option.

Depending on the location of the preschool educational institution, only educators working in millionaire cities put scientific, technical and IT creativity in 12th place (5.7%), in large and small cities, as well as in rural areas - at 11 (7, 6%, 6.4% and 5.6% respectively).

Summing up, we can conclude that educators are generally ready to use the Internet as a source of information to prepare for activities to introduce preschoolers to cultural heritage. At the same time, they do not actively participate in online events and prefer other, traditional forms of work, and do not consider it necessary to use special government support measures for the development of scientific, technical and IT creativity.

Speaking about such a special group as male educators, we note that their attitude to the use of information technology is mostly negative. They do not use

Internet resources for training, preferring other sources of information. Thus, it can be said that male educators are more conservative and adhere to traditional forms of preparation and work with children. From the point of view of educating preschoolers, we consider this conclusion to be positive and showing awareness and focus on the psychological and pedagogical characteristics of kindergarten students, when a complete exclusion of online technologies in working with preschool children is required. At the same time, this practice is also moving into the field of self-education of male educators, who limit the use of the Internet in order to prepare for classes.

However, at present, the digital transformation of the entire education system poses the task for teachers at all levels, including preschool, to adapt to changing conditions and find strategies for integrating digital technologies into their pedagogical arsenal [7]. In this regard, the use of Internet technologies and the level of technical competence of educators working with children is increasing and requires study, as well as additional training of teachers by competent specialists.

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现代俄罗斯青少年阅读的特点：数量、圈子、动机、偏好  
**FEATURES OF READING MODERN RUSSIAN TEENAGERS:  
VOLUME, CIRCLE, MOTIVES, PREFERENCES**

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抽象的。阅读是有助于青少年社会化和人格形成的最重要的活动。目前，青少年阅读已成为一项可选活动。这些变化很大程度上与现代社会正在发生的进程有关，包括数字技术在青少年生活中的代表性增加。我们的研究表明，超过三分之一的青少年没有形成阅读动机，阅读动机中外在动机占主导地位：利益性、娱乐性和强迫性。阅读动机呈现出随年龄变化的动态以及性别差异。社会学调查（2006年、2021年）显示，现代青少年的阅读圈由纸质书刊和电子书刊组成。与此同时，阅读的质量和地位下降。青少年的阅读正在转向肤浅地阅读互联网上的任何文本，而读书变得越来越困难。

关键词：青少年阅读、青少年阅读动机、青少年阅读圈、数字环境、性别差异、年龄动态、阅读价值观与不阅读青少年。

**Abstract.** *Reading is the most important activity that contributes to the socialization of a teenager and the formation of his personality. Currently, reading for teenagers has become an optional activity. These changes are largely related to the processes that are taking place in modern society, including the increased representation of digital technologies in the lives of teenagers. The results of our research show that more than a third of adolescents do not have a formed reading motivation, and external motives prevail among the motives of reading: benefits, entertainment and coercion. The motivation of reading shows the dynamics of changes by age, as well as gender differences. Sociological surveys (2006, 2021) show that the reading circle of modern teenagers consists of printed and electronic books and periodicals. At the same time, the quality and status of reading decreases. Teenagers' reading is shifting towards superficial reading of*



*any texts available to them on the Internet, while reading books is becoming more and more difficult.*

**Keywords:** *reading of adolescents, motives for reading of adolescents, reading circle of adolescents, digital environment, gender differences, age dynamics, values of reading and non-reading teenagers.*

Reading is the most important activity that contributes to the personal development and socialization of a teenager, including because fiction is a carrier of universal values that have passed the test of time. In the process of reading fiction, identity is formed – which is the most important age-related task in adolescence.

Reading fiction books is also important for the emotional development of children and adolescents. A characteristic feature of teenagers is a high level of emotionality: it is difficult for teenagers to cope with their own emotions, they still need to learn to recognize and manage them, as well as to understand the emotions of other people. Reading as an art form is one of the most important practices that contribute to emotional development in adolescence. Based on the works of the outstanding Russian psychologist L.S. Vygotsky [1], the famous children's poet and teacher V. A. Levin wrote that the process of reading a work of art allows us to double the spiritual experience that fills it.

This experience lives in the person himself, in his inner world, experiences, and, described in a work of fiction, is objectively presented in the text, and thus is outside the individual, which allows you to look at the experiences from the outside, separate from them and thereby better understand and study, which makes it possible to master emotions and learn manage your experiences [2].

However, currently reading has become an optional activity, it is perceived by teenagers, as well as adults, as one of leisure activities along with watching TV programs, computer games, socializing, playing sports, etc. [3]

Surveys conducted by sociologists of Russian State Children's Library in 2006 and 2021 show that adolescents aged 11-15 have a deteriorating attitude to reading. Reading today occupies the eighth place in the structure of leisure time for teenagers. The first seven places are occupied by walking and chatting with friends, listening to music, playing games on the computer, phone, chatting in social networks, watching cartoons, movies and TV series, playing sports. It can be argued that the conditions in the family for introducing teenagers to reading have seriously deteriorated. According to a comparative study, the role of parents in choosing books has significantly decreased: from 56.8% in 2006 to 45% in 2021 (a decrease of 11.8%), the number of families with teenagers in which everyone reads has decreased, from 72% in 2006 to 55% in 2021 (a decrease of 17%), the number of families with home libraries decreased from 84.9% in 2006 to 69% in 2021 (a decrease of 15.9%). In addition, there are significantly fewer teenagers

who have their own collection of books at home. In 2006, there were 76% of them, in 2021.

Perhaps the decrease in interest in reading is also due to increased demands from the school, an increase in the volume of books that the child should read. On the other hand, the number of children experiencing difficulties with the technical side of reading (dyslexia, dysgraphia, etc.) is increasing, and this can also negatively affect their attitude to reading.

Thus, for the majority of modern teenagers, reading is often either completely excluded from significant activities (there is a desire for thoughtless pastime: watching TV series and unpretentious videos, computer games, “hanging” on social networks), or is limited only to light literature that does not affect the ideological layer, which does not contribute to the formation of spiritual values, personal self-determination. These changes are largely related to the processes that are taking place in modern society, including the increased representation of digital technologies in the lives of teenagers.

What happens to the motives that encourage teenagers to read, what makes modern teenagers turn to the book? A survey of Russian teenagers aged 11-15 years conducted in 2019 [4] showed that more than half of teenagers read every day (31%) or every other day (25%); 9% of teenagers read once a week; 9% read 2-3 times a month; 18% read only on vacation; read very rarely - 3%; 5% of teenagers do not read at all. It should be noted that the survey was conducted in libraries in Russia, so the results may be somewhat biased towards reading teenagers.

Also in this study, the structure of teenagers' reading motivation was determined, in which we identified the following main motives (the percentage of respondents whose this motive is represented in the structure of reading motivation is indicated in parentheses): ***motive of benefit (22%)***: teenagers believe that reading is necessary in order to improve something in themselves; ***motive of entertainment (13%)***: reading is possible in order to have fun, not to live a boring life; ***motive of coercion (11%)***: teenagers read because they are forced by adults; ***social motive (6%)***: teenagers realize the importance of reading, but they are not interested in it in itself; ***escapism motive (4%)***: the desire to escape to another reality; ***internal motive (6%)***: reading is important for teenagers in itself, they realize the importance of reading for their personal development, the book is perceived as a value, as an interlocutor, a source of reflection and self-knowledge. Quite a large part of teenagers (35%) do not realize why they are reading, or do not want to think about this question. We attributed such teenagers to a group with uncertain reader motivation. 10% answered that they do not like to read because they are not interested, bored; there is no time; there are audiobooks; laziness; there are other more interesting activities (games, Internet); lack of patience, it is tedious; it is difficult to get books, expensive; there are no interesting books.

The motivation of reading shows the dynamics of changes by age, as well as gender differences. From the age of 11 to 15, the number of adolescents with uncertain reading motivation decreases and the number of adolescents with an internal (personal) reading motive increases somewhat. Declines in the motives of benefit and entertainment occur at 12-13 years. The motive of coercion is maximally expressed at the age of 13-14, when teenagers apparently have completely different interests, or maybe this is due to an increase in the texts that they have to read according to the program, and there is no time for free leisure reading. The social motive also has a small peak during this period (13-14 years). Escapism increases somewhat with age. At the same time, the number of teenagers who do not like to read also increases with age.

As for gender differences, girls are twice as likely as boys to have an internal, personal motive for reading. From the external motives of reading, girls have more pronounced motives of benefit and entertainment than boys. Thus, books for them are to a greater extent both a means of developing any skills and achieving goals, and a source for recreation, joy, and play. Boys, on the other hand, see less opportunities for entertainment in books, they often talked about not reading because there are other opportunities for leisure. Girls also tend to “escape” into books more often, for boys the motive of escapism turned out to be almost not characteristic. In the responses of boys, the motive of coercion sounds almost three times more often than in girls. Perhaps they are experiencing it more acutely, or parents and teachers really have to force boys to read more often. Interestingly, boys also have a more pronounced social motive than girls: it is more important for boys to understand that while reading, they are engaged in some kind of activity recognized by peers or adults, meet social requirements, fashion, preserve traditions, etc. Also, boys were almost twice as likely as girls to answer that they did not like to read.

We also identified differences in the values of reading and non-reading adolescents: for non-reading adolescents, such a value as “financially secure life” is important (this choice is more typical for non-reading boys), it is noted much less often by reading adolescents. For reading teenagers, such values as “financially secure life”, “entertainment” and “productive life” are not important, that is, values associated with an easy and unencumbered pastime. Non-reading teenagers have such values as “the beauty of nature and art”, “creativity” and “life wisdom” in the last places, that is, values related to aesthetics and cognition (to some extent this is due to the lower representation of girls in the group of non-reading teenagers). The values chosen by reading teenagers are related to education, upbringing, culture (“good manners”, “education”, “accuracy”, “honesty”, “responsibility”, “discipline”). Non-reading teenagers, compared with readers, more often choose value orientations associated with freedom and independence, strong will and the abil-

ity to defend their opinions (no significant gender differences were found here). This result may be related in general to the attitude of adolescents to reading as a cultural practice imposed by adults, or to the methods by which adults introduce adolescents to this activity.

Teachers, psychologists, social workers, library staff should pay special attention to this category of non-reading adolescents, since the absence of cultural ways of realizing the values of freedom and independence presented in literature and transmitted through reading can negatively affect their socialization and lead to deviant behavior and offenses.

Surveys (2013, 2021) show that the reading circle of modern teenagers consists of printed and electronic books and periodicals. The data of a study conducted in 2021 by Russian Public Opinion Research Center (VTSIOM) commissioned by the Russian State Children’s Library confirm the trend that emerged in 2013 towards a preference among schoolchildren for reading in paper form (Table 1):

**Table 1**  
*Preferred format for reading books among teenagers*

	<b>2013</b>	<b>2021</b>
paper books	48%	52%
on screen	23%	21%
format doesn’t matter	29%	26%

The proportions have changed towards the preference for paper reading, screen reading mainly concerns entertaining reading. If it is necessary to read serious literature, including on the school curriculum, teenagers choose the paper version.

Over the past 7 years, the practice of reading from the screen of personal computers has practically disappeared, since they are much inferior to smartphones, which attract children with their portability, mobility and versatility. However, it is the Internet that has greatly increased the intensity of teenagers’ reading, they read not only e-books on the Internet, but also news reports, encyclopedias, humorous websites, publications about celebrities and even music portals. For example, teenagers found information about books, literary novelties and opinions of other readers: on social networks (it was 30% in 2013, it became 36% in 2021); on forums and thematic communities (it was 15%, it became 11%)<sup>1</sup>.

Data from the study “Adults and children on the Internet: Digital Literacy” conducted by Kaspersky Lab in 2020 [5], it is said that only 22% of teenagers on the Internet read, not fiction, but news or articles.

As for the reading circle of teenagers, according to our research [6; 7] for the period from 2013 to 2019, minimal changes were recorded in it: so in 2019, books

<sup>1</sup> Russian State Children’s Library. Research Report. URL: <https://www.calameo.com/read/001280108c0f23e69a400> (Date of access 26.06.2023)

from the Twilight series by St. Myers practically disappeared from the circle of teenage reading, less teenagers are interested in the book by Raspe R. E. "The Adventures of Baron Munchausen"; and vice versa, "The Hobbit" by J. Tolkien and books by modern author M. Parr appeared in preferences (this is the only book by a modern author that is celebrated many teenagers as interested in them. The rest of the books of modern authors are either not read by teenagers (do not fall into their field of vision), or for some reason they are not perceived as interesting). Of the books by Russian authors, teenagers became less interested in the stories of A.P. Chekhov and V. Dragunsky, but returned to the circle of teenagers reading the books of V. Zheleznikov "Scarecrow" (Chuchelo) and V. Rasputin "French Lessons". Of the books by modern Russian authors, only the series of books by N. Shcherba "Chasodei" got into the top ten.

Thus, most teenagers indicate that they liked either books that are not included in the school curriculum, including those set as part of leisure reading (A. Pushkin, N. Gogol, A. Exupery, M. Twain, D. Defoe), or books read in childhood and re-read, since there is no problem with them difficulties in reading. J.K. Rowling's Harry Potter series of books remains the undisputed leader. Very few contemporary authors are indicated. The analysis of the reading circle of teenagers in different regions of Russia shows that there are very large differences in the preference for reading books by modern Russian and foreign authors. Thus, we can say that the possibilities of access to electronic versions of books by themselves do not affect the process of including them in the reading circle of teenagers. Apparently, a book by a modern author can get into the favorites if the library has purchased this book, any work is being done on it.

#### Conclusions:

1. Today's teenagers' reading consists of two main parts: reading paper books and periodicals and reading books and periodicals on the Internet.
2. The proportions are gradually changing towards the preference of "screen" reading, but at the same time "paper" books still dominate.
3. Thanks to the Internet, teenagers demonstrate more intensive reading compared to the early 2000s, but the quality of reading is declining.
4. The external motives of reading in Russian teenagers prevail over the internal ones, and in a third, the motivation for reading is unformed. A negative attitude to reading is pronounced in a tenth of adolescents. Thus, access to e-books rather influences the formation of external motives for reading, but does not contribute to the development of interest in the book as a source of cultural experience and a work of art.
5. The value orientations of reading and non-reading adolescents have some differences: the values chosen by reading teenagers are related to creativity, education, upbringing, culture; non-reading teenagers are more fo-

cused on material values, and also more often choose value orientations related to freedom and independence, firm will and the ability to defend their opinions, which may be due to the ways in which adults introduce teenagers to reading.

6. The repertoire of teenagers' reading practically does not change and, like twenty years ago, mainly consists of classical literature and adventure literature. The Internet and the ability to read from electronic media does not make modern teenage literature more accessible to teenagers. Thus, digitalization contributes to an increase in the volume of reading, but reduces its quality.

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俄罗斯学生联想行为的细节（基于刺激短语“人道的人”的自由联想实验）  
**SPECIFICS OF THE ASSOCIATIVE BEHAVIOR OF RUSSIAN  
STUDENTS (ON THE BASIS OF A FREE ASSOCIATIVE  
EXPERIMENT WITH THE STIMULUS PHRASE “HUMANE  
PERSON”)**

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抽象的。 本文致力于研究俄罗斯学生的联想行为特征。 这项工作的目的是确定俄罗斯学生联想反应的具体情况，包括女性和男性焦点小组代表的联想行为模式。 该研究基于一项自由联想实验的材料，西伯利亚联邦大学四个学院的 1-4 门课程的学生参加了该实验。 该调查涉及 222 名年龄在 18 岁至 22 岁之间的人：其中 142 名女学生和 80 名男学生。 响应时间限制为 1 分钟。 联想实验的结果是，获得了 433 个反应。

关键词：联想实验、联想行为、联想反应、人性化的人、心理语言文化学、语言意识。

**Abstract.** *The article is devoted to the study of the features of the associative behavior of Russian students. The purpose of the work is to identify the specifics of the associative response of Russian students, including the patterns of associative behavior of representatives of female and male focus groups. The study is based on the material of a free associative experiment, in which students of 1-4 courses of four institutes of the Siberian Federal University took part. The survey involved 222 people aged 18 to 22: 142 female students and 80 male students. The response time was limited to 1 minute. As a result of the associative experiments, 433 reactions were obtained.*

**Keywords:** *associative experiment, associative behavior, associative response, humane person, psycholinguoculturology, linguistic consciousness.*

The study of the specifics of linguistic mentality, linguistic consciousness, modeling and research of associative-verbal fields, which, according to Yu. One of the most important stages in this kind of research is the study of the characteristics of the associative response of recipients. In this paper, the analysis is carried

out on the basis of a free associative experiment with the stimulus word “humane person”.

Students of 1-4 courses of the following institutes of the Siberian Federal University took part in the free associative experiment: the Institute of Philology and Language Communication, the Institute of Space and Information Technologies, the Institute of Oil and Gas, the Military Engineering Institute, the Institute of Business Process Management and the Institute of Law. The experiment was conducted in December 2022 on the basis of the Google online survey platform, which reduced the time spent on data processing. The survey involved 345 people aged 18 to 22: 210 female students and 135 male students. All participants identified themselves as native Russian speakers. In accordance with the method of conducting a free associative experiment, the recipients were asked to write down any possible number of reactions (words, phrases, sentences) to the phrase-stimulus “humane person”. In the event that the participant in the experiment could not give the first reaction that occurred, he was asked to put a “dash” in the answer column. The response time was limited to 1 minute. As a result of the associative experiments, 647 reactions were obtained.

The analysis of the obtained associates made it possible to identify various forms of the associative response of the participants in the experiment. In this case, the criteria proposed by Yu. N. Karaulov [2], E. I. Goroshko [3] and E. N. Guts [4] were taken into account. Several types of associative response have been identified. It is important to emphasize that the formal structure of the stimulus phrase “humane person” set the most frequent way of responding - the use of a single adjective or a phrase with a supporting adjective. In the event that the subject cited a substantiated adjective-synonym as a reaction, in the course of the analysis such reactions were classified as semantic proper. All other reactions were assigned to the reaction-deployment group. Data on the ratio of the identified types of reactions is presented in the table below (see Table 1).

**Table 1.**  
*Types of response to the stimulus phrase “humane person”.*

<b>Reaction type</b>	<b>Frequency of occurrence (out of 100%)</b>
Actually semantic reactions	7,9%
Deployment reactions	49,5%
Explanation reactions	11,2%
Actually associative reactions	30,8%
Own evaluative reactions	0,3%
Negative reactions	0,3%



Thus, the classification of the associative behavior of the participants in the experiment for the stimulus phrase “humane person” is as follows:

1. Actually semantic reactions (7.9% of the total number of reactions). This type included cases when the participant of the experiment reacted to the phrase “humane person” with a synonym, for example: *humane (23), philanthropic (9)*.

2. Deployment reactions (49.5% of the total number of reactions). In the event that the participant of the experiment deployed a stimulus phrase and cited as an associate signs characteristic of a humane person (attributive reactions), actions (predicative reactions) or pointed to specific people in his understanding who can be called “humane” (nominative reactions), we referred to this type of reaction as deployment reactions:

a) attributive reactions are represented by single-word and multi-word associates. The overwhelming majority of reactions of this class constitute the core and peripheral zones of the studied associative-verbal field HUMANE PERSON, for example: kind 77, sympathetic 25, respectful 22, merciful 12, compassionate 11, tolerant 10, philanthropic 9, fair 9, attentive 9.

b) predicative reactions from a morphological point of view are represented by verb phrases and real participles. The participants in the experiment pointed out that a humane person performs the following actions characteristic of a humane person: love (“loves animals”), care (“<...> takes care of it [the world] and its living beings”), help (“holds out a hand help”, “helping”), respect others (“respecting others and loving person”).

c) nominative reactions are expressed by personal pronouns, nouns and substantive phrases. Recipients most often indicated the field of activity of humane people (“monk”, “animal advocate”, “philanthropist”, “philanthropist”) or noted its psycho-emotional features (“good-natured”, “empath”).

3. Explanatory reactions (11.2% of the total number of reactions). This type included all cases when the participant of the experiment reacted by means of a detailed definition. Reactions of this type are represented by complex sentences and participial phrases. In most cases, recipients, choosing this type of response, began the phrase with the word “person” (for example, “*A person who respects other people*”, “*A person who can send his kindness to another, regardless of how he treats him*”) or ended a phrase with it (for example, “*respecting others and loving person*”).

4. Actually associative reactions (30.8% of the total number of reactions). To this type of reactions, we follow A.R. Luria [23, 24] attributed such associates in which the semantic connection between the stimulus and the representation caused by it is reproduced.

Actually associative reactions are mainly represented by deverbatives and substantive phrases denoting the moral qualities and properties of a humane person,

such as: *kindness* 20, *respect* 8 (~ to the human person (2), ~ to other people (2), ~ to the person), *help* 7, *humanity* 6, *love* 5 (~ to neighbors, ~ to people), *mercy* 5, *understanding* 4, *honesty* 3, *responsiveness* 3, *care* 3 (~ about the surrounding people, ~ about people), *philanthropy* 2 / *humanism*, *goodwill* 2 (~ to others (including nature and animals)), *tolerance* 2, *compassion* 2, *empathy* 2, *altruism*, *decency*, *culture*, *sociality*, *openness*, *gentleness*, *responsibility*, *friendliness*, *condescension*, *sincerity*, *attention*, *calmness*, *good attitude*, *good attitude towards all living things*.

This class of reactions also included associated beneficiaries associated with material and non-material benefits that a humane person can receive: career, success, work, reward, education, family; approval, praise, freedom, world peace, cultural elevation of the individual. According to the reactions received, the idea of a humane person is diachronic and is connected both with the past (history) and the future (dream, future).

5. Actually evaluative reactions (0.3% of the total number of reactions). This type of reactions is represented by the adjectives “*good*”, “*well*” and the attributive phrase “*good person*” (2).

6. Negative reactions (0.3% of the total number of reactions). Among the responses received, this type of response is the least common. Represented by associates “*tolerant*”, “*weak person*”, “*irrational person*”.

Analysis of the results of the experiment also made it possible to reveal the following picture of the patterns of female and male associative behavior within the student group of recipients:

1) only among men there were refusals to participate in the experiment, the percentage of refusals from the total number of reactions was 1.5%;

2) both men and women most often responded to the stimulus phrase with adjectives (53% and 57%, respectively);

3) among male reactions to the stimulus phrase, the percentage of responses with phrases and sentences was higher (23%);

4) negatively colored evaluative reactions to the above phrase-stimulus were given exclusively by men;

5) among the responses-explanations, only in the answers of men does the semantic feature “protects others” find verbalization, and only among women does the semantic feature “compassion for others”;

6) women more often than men reacted to the phrase stimulus with functional reactions (26% in women, 16.4% in men);

7) men more often reacted with the help of associates that eliminate possible types of actions and deeds of a humane person, and women more often described his moral and psycho-emotional qualities;

8) only among women’s reactions was there a beneficial assessment of the phrase-stimulus (“*dream*”, “*success*”, “*career*”);

9) men more often than women named specific people or their occupation (“monk”, “empath”, “zooprotector”, “peacemaker”, “hero”, “Cicero”);

10) only among women’s reactions was an assessment of an intellectual nature (“education”, “smart”).

Thus, the analysis of the empirical material made it possible to identify the specifics of the associative response of Russian students, including the patterns of associative behavior of representatives of the female and male focus groups. In the course of the study, it was found that the most frequent type of response is actually associative reactions. Own evaluative reactions and reactions of explanation to the given phrase stimulus “humane person” are less characteristic of the associative behavior of Russian students. In the course of the analysis of associates, it was also found that the associative behavior of Russian students is due to the gender characteristics of perception. The prospect of further research is to study the specifics of the associative behavior of Chinese students, as well as to conduct a comparative analysis of the associative response of student youth in these two states.

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言语产生作为语言学的独立领域很重要

## SPEECH PRODUCTION MATTER AS INDEPENDENT FIELD OF LINGUISTICS

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注解。文章提出了作为语言学独立领域的言语产生问题的问题。给出了言语研究的原则和规则。最令人信服的似乎是言语创造的概念，它适用于人类言语活动，无论他/她的年龄和书面和口头形式的熟练程度如何。

关键词：语言单位、语音单位、短语、句子、句法、文本、话语。

**Annotation.** *The question of speech production matter as independent field of linguistics is raised in the article. The principles and rules of speech study are given. The most convincing seems to be the concept of speech creation which is applicable to human speech activity regardless of his / her age and proficiency in light of its written and oral forms.*

**Keywords:** *language unit, speech unit, phrase, sentence, syntagma, text, utterance.*

Language is the most important national and social phenomenon. As the main tool of any activity it is at the core of every community's and every person's life. The history of any nation represents the development of its speech activity. All its actions, achievements, events come with thinking and speech which completely reflects practical life, skills, science, culture, customs, traditions and mentality. That is the reason that causes the interest to speech accompanying their existence from generation to generation, defining perspectives of development.

Linguistics has accumulated much information referring to its fundamental problems and issues which help answer many actual questions of theory and practice of speech activity. However, modern theory is characterized by problems and contradictions.

Many questions cause discussions. Such as, for instance, the sphere of language and the sphere of speech, nomination and communication, intonation and its role in speech creation and perception, real initial speech units, a word in the system of the language and in the sphere of speech, language units and speech

units, oral speech units and written speech units, speech creation units and structures of its traditional formation, members of the sentence and its real authorial units reflected in intonation delimitation of speech by its subject, a word and a word combination and their role in speech constructing, a scheme of the sentence and its relation to speech organization and so on.

Weakness and inconsistency in defining initial speech units are a natural result of inconsequent differentiation of language sphere and speech sphere which leads to confusion of language units and speech units, insufficient elaboration of real foundation for speech constructing, application of methods and techniques mismatching the subject, the sphere and aims of the research.

The confusion of oral speech units and written speech units will not contribute to successful analysis. There is no clear differentiation of speech units as for their participation in speech creation or its traditional formation. There are only some attempts to differentiate speech units as for their relation to speech forms carried out by certain scholars [Andreeva, 2007].

Theories of speech (sentence) constructing on the basis of structural schemes by means of so-called separate lexical suppliers appear to be contentious and unconvincing.

Attention should be paid to the fact that recently linguists have changed their approach to the object of the research. Throughout the existence and development of linguistics the object of their research was the language as the arsenal of linguistic tools, as the system of rules, norms, grammar paradigms, schemes and models. But the study of linguistics on the level of the language that is on the level of generalizations and abstractions often takes researchers nowhere as the world of linguistics is binary by its very nature. It comprises the language sphere as a static nationwide part submitted in a subject-verbal form and the speech sphere as a dynamic field of a man's individual creative mental activity.

Linguistic realities and categories are established on the basis of speech and do not go beyond it, whereas speech facts are always broader, richer and more diverse than linguistic ones. Therefore, speech activity requires special attention and careful study.

Ignoring the sphere of speech by researchers led to the fact that many linguistic developments ended in contradictions, causing doubts and objections. In this regard, many problematic issues have been accumulated. Especially in the part related to speech. These are introductory words, their status, place and role in speech; address, its status and place in speech. Strange thoughts are expressed that these are optional components which can be omitted without compromising to the structure and content of the sentence. On the one hand, the address is defined as an optional component for the structure of the sentence, on the other hand, it is claimed that there are special vocative sentences. At the same time, no one men-

tions that the address is an extra component, no one asks whether it is possible to omit it in vocative sentences “without compromising to the sentence”, because the curiosity of the situation is obvious. How legitimate is the statement that some components can be regularly omitted in a sentence without damage to its content? If they can be omitted without damage to the content, then it is more appropriate not to include them in the sentence at all.

The sentence itself is also very doubtfully represented in science as a syntactic structure, its construction, status, division into constituent components, its actual division, the sphere of functioning and place in speech. The word combination and its functions, the doctrine of the members of a sentence and the order of words in it, and many other issues that can be objectively and convincingly covered only by means of the results of the specific speech study are presented contradictorily.

It is necessary to clearly and consistently distinguish the spheres of language and speech and their units. It is important to differentiate speech units according to their purpose, features and functions, to establish the real initial components of speech creation and perception, to identify their typological features, to substantiate the main methodological principle of speech study, to identify relevant methods and techniques. Without knowledge of the real foundations of speech many concepts in the field of syntax remain unconvincing. It stipulates the importance and perspectives of the problem.

Up to now the coverage of many items remains unconvincing. In the process of verification of the offered concepts, it turns out that they do not correspond to speech activity.

Speech activity includes four types: two productive (speaking and writing) and two receptive (listening and reading), two in its oral form (speaking and listening) and two in writing (writing and reading). Turning to the oral form of speech and correlating it with written speech, one can see that the existing theory often does not correspond to either its types, or real units, or the nature of its creation.

On the issue discussed in the article, the latest publications in English, presented in open access, were studied [Aarts, 2001; Baker, Hengeveld, 2012; Denham, Lobeck, 2013].

The existing concept of speech constructing raises doubts about its compliance with real speech activity. What connections and relationships exist between language and speech, word and thought, phrase and sentence?

According to the dominating opinion in modern science, speech is constructed from words as nominative means of language, reflecting the triad of linguistic units: word, sentence, text. But it was V. von Humboldt who very accurately noticed that it is not speech that is created from words, but, on the contrary, words appear from speech [Humboldt, 1964: 100]. He was the first to draw attention to the fact that the theory of constructing speech from words does not correspond to

the nature of speech activity. Thus, he outlined the priority of speech in the historical development of language and its study.

As for written speech, into which, if necessary, its oral (or internal) form is transformed, it is perceived on the basis of the same speech units – syntagmas, which in this case receive a graphic form of expression. So in writing, the content that previously “passes” through the oral form (or internal speech) is transmitted, therefore, for the author it is always unambiguous in both forms and so it should be for the reader as well. Only in this case we can talk about the author’s content exact understanding.

The speech creation as a type of mental activity is unitary, while the forms of its expression are different: oral and written. Different means are used for them, and therefore they have different perceptions – auditory and visual. But the content is the same – authorial. It does not involve any search for additional semantic nuances and shades of meaning, because this will be a completely different content.

In oral communication, adequate speech perception is carried out due to the speaker’s intonation – melody, accents, pauses – and therefore it does not cause difficulties for listeners. With written speech, the reader needs to learn how to work independently in order to achieve its exact understanding. He needs to understand its author’s intonation, which will allow him to identify the real (author’s) structure of its initial units and define the transmitted content.

Many mistakes in reading are caused by insufficient knowledge and speech experience of the reader, as well as flaws in linguistic science. Thus, according to the dominating concept in linguistics, a sentence as a central speech unit is built from separate words, and therefore reading is taught based on the word. Its supporters do not pay attention to the fact that speech is not perceived as a result of the summation of the meanings of these words. It turns out that it has different principles of encryption and decryption, and it is not taken into account by its supporters. We could not find a single person, even among the representatives of this concept, who would build sentences in their speech in accordance with the declared theory.

In our opinion V. von Humboldt presented a very convincing picture of the speech creation and therefore it is advisable to accept his idea as the first and main methodological principle of speech study and guidance in assessing the conclusions made and their verification.

Supporters of the speech-creating function of the word do not take into account the fact that oral speech and all its phrases (in writing – all its sentences) are not perceived on the level of the meanings of words as separate, independent units of the language as a result of the sequential summation of their meanings. They agree with this fact, but for some reason they do not take it into account. For them, the speech creation and speech perception are not united by the same principle. But if speech is not perceived on the level of the meanings of separate words, therefore,

it is not composed of them. Without finding out the reasons for this contradiction, it is difficult to present a convincing concept of speech creation and perception. In addition, it is impossible to hope for any success in teaching language and reading with an adequate understanding of the content.

The second principle of the study becomes obvious: the structure and content of speech are directly composed of those linguistic units by means of which they are perceived.

So it is necessary to take into account (1) the differentiation of linguistic units, (2) the structure of speech units and (3) real units of speech perception in order to objectively obtain genuine units of its construction. They are the basis of any communication – oral and written.

In oral communication, due to intonation, minimal speech units are easily perceived by listeners. When oral or internal speech is transformed into written speech, they receive graphic expression and make up the format and content of all sentences and the text as a whole.

In the study of speech the following principles are taken into account:

1) the speech creation is carried out as a result of a sequential linear build-up of minimal speech units (syntagmas), but not as a result of the implementation of the structural scheme of the sentence by filling in its typical syntactic positions;

2) the consistent differentiation of the language sphere as a common arsenal of linguistic means and the speech sphere as their individual spontaneous use in the process of speech activity;

3) the consistent differentiation of language units and speech units;

4) the differentiation of speech units of oral and written speech;

5) the differentiation of speech units depending on their participation in the speech creation or in its traditional formation;

6) a single undifferentiated component of the content can be conveyed by the corresponding unified speech structure (syntagma), which is the ultimate minimal speech unit;

7) a syntagma is a minimal, non-discrete speech structure that reflects the elementary component of the content, even if it includes several elements of the language, since there are no speech units smaller than syntagma;

8) real units of speech perception are easily manifested in oral communication as its natural form as a result of their intonation delimitation by the speaker; from them he makes up the structure and content of his speech, on their basis it is perceived by listeners;

9) oral speech is perceived syntagmically and is a reliable support for the verification of research results, since it is conditioned by nature, clearly represents its structure, people master it independently already in childhood, whereas written speech is an artificial form that requires a long and comprehensive study.



As a methodological basis for the study of speech problems, the concepts of V. von Humboldt [Humboldt, 1964], H. Paul [Paul, 2002], A. A. Potebnja [Potebnja, 1993], J. N. I. Baudouin de Courtenay [Baudouin de Courtenay, 1963], L. V. Scherba [Scherba, 2004] and V. V. Vinogradov [Vinogradov, 1975] are most appropriate.

The methodological base of speech study is represented by various methods and techniques, among which the following can be distinguished: the method of observing speech in different speech spheres; the method of system analysis of speech, which makes it possible to realize it as a system of typical minimal initial authorial speech units, on the basis of which thoughts and the content of speech as a whole are presented and perceived; the comparative method – when analyzing speech in its oral and written forms when determining its real authorial structure and specific source units; the method of verification of the obtained results and conclusions as a way to verify their scientific validity; analysis of personal speech activity as one of the verification techniques; the method of syntagmatic speech recording; the method of component (syntagmatic) analysis; the technique of enhancing clarity, in which, on the basis of the delimitation of speech, all the selected syntagmas are sequentially recorded, while each of them is assigned a separate line, so that when reading, all the author's syntagmas and phrases are more easily realized, it becomes possible to compare phrases with author's sentences, find out their correspondences and inconsistencies; speech analysis with such stages: allocation of the initial minimal speech units (syntagmas) and the allocation of composite speech units of secondary segmentation (phrases, sentences, utterances, text).

Verification of the declared statements, conclusions and concepts is the establishment of their scientific reliability, thoroughness, their verification by means of the most appropriate actions, methods and techniques for compliance with their speech activity, therefore with the truth.

When verifying the results of the study it is advisable to rely on oral speech since this is the primary form of communication, it is given to a man by nature, every child masters it independently, it is enough for him just to be in a circle of communicating people.

Written speech is an artificial form. It was created by people. To master it, you need to study it for a long time, form and develop the necessary knowledge, skills and abilities. The writing is the result of the transformation of the sound form into a graphic one. That is why, when verifying its provisions, it is necessary to correlate them with oral speech, as the primary form on the basis of which the written speech was developed. People are endowed with oral speech by nature, but the written one was made up by them.

The need for such an approach is dictated by the emergence of linguistic concepts which do not always correlate with speech activity and often contain

hypothetical, virtual information and therefore raise doubts about their reliability and relevance. For example, the dominating concepts of introductory words and addresses state that introductory words and addresses are not members of the sentence, they are grammatically unrelated to members of the sentence or the sentence as a whole, occupying an optional position in it. Therefore, they may be omitted without any damage to the structure and content of the sentence.

However, during verification, it turns out that the introductory words in the sentence refer either to some member of the sentence, or to the sentence as a whole. This is the first discrepancy. It is impossible to remove the introductory word from the sentence, since the meaning of the sentence is violated. Moreover, the introductory word can convey the main semantic accent, and in this situation, even the main members of the sentence can be omitted, but the introductory word cannot be omitted. It is the second discrepancy. Cf.:

- *Speaking is the most difficult aspect of learning English. – Definitely.*

The same situation is with the verification of the concept of address. They say that the address is an optional component, not mandatory for the structure and content of the sentence. To show the impropriety of such a conclusion we give the following lines by Ogden Nash:

*Come, **children**, gather round my knee,*

*Something is about to be.*

*Tonight's December thirty-first,*

*Something is about to burst.*

*Hark! It's midnight, **children dear**.*

*Duck! Here comes another year.*

Try to omit the highlighted addresses. What will happen to the poetic lines? And most importantly, how appropriate and legitimate will such actions be?

As we can see, the existing concepts of introductory words and addresses at the first attempts to verify them raise doubts about their compliance with speech activity and scientific truth. Therefore, they cannot be accepted. And such concepts are not sporadic in modern science.

In the process of mastering knowledge one should constantly rely on verification techniques – both to establish true thoughts and to identify erroneous statements.

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从认知角度进行翻译教学

## TEACHING TRANSLATION WITHIN COGNITIVE PERSPECTIVE

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抽象的。当今的翻译教学应该涉及认知翻译学研究的理论发展和实践成果。认知方法将翻译过程呈现为一种概念活动，其中译者形成源文本的概念结构，创建目标文本的概念结构，然后用目标语言的单元表达结果结构。翻译过程被视为由某些阶段组成。这些科学发现可以运用到翻译培训实践中，使其更加有效、更符合当代研究思想。

关键词：翻译教学、认知翻译学、概念结构、翻译过程。

**Abstract.** *Teaching translation of today should involve theoretical developments and practical results of the research in cognitive translatology. Cognitive approach presents the process of translation as a conceptual activity, in which the translator forms a conceptual structure of the source text, creates a conceptual structure of the target text, and then expresses the resulting structure with units of the target language. The translation process is seen as consisting of certain stages. These scientific finds can be used in the practice of translators' training to make it more effective and compliant to contemporary research thought.*

**Keywords:** *translation teaching, cognitive translatology, conceptual structure, translation process.*

Training prospective translators, interpreters, and teachers of English who are also supposed to have the ability to translate should go hand in hand with current developments and achievements in Translatology as a science. One of the most prominent developments in this field is cognitive approach to translation. This approach is distinguished by acute attention to mental operations in the course of translating, to cognitive mechanisms of translation process, as well as personal characteristics of a translator.

From the cognitive viewpoint translation is considered to be based on conceptual domain that contains all kinds of knowledge, experience, perceptions, feelings acquired by a person during his/her life. Constituent elements of a conceptual domain are concepts which can form combinations or sets. Not all concepts in the

human mind are verbalized, i.e. many mental formations exist only in the sphere of cognition; when there appears the need to express a concept verbally, a corresponding linguistic unit is created. It means that conceptual domain is broader than a language.

The essential finds made by cognitive science can be effectively applied to teaching translation. Cognitive translation studies emphasize that “translation is more than merely coming to grips with the juxtaposed lexico-semantic units and their transfer depending on the linguistic system knowledge. Rather, it is to be taken as a dynamic process of rendering a range of extra-linguistic, perceptual and conceptual structures” [Baaziz, 200].

The prominent Russian scholar and translation teacher A. Minchenkov with the help of think-aloud protocols technique found out some problems, difficulties and shortcoming that arise in translation process, and proposed the ways of dealing with them. He also accentuates the necessity of teaching students to use such sources of knowledge, as monolingual dictionaries, especially so called learner’s dictionaries, collocations dictionaries, dictionaries of synonyms or thesauri, language databases and corpora, and Internet sources as they provide conceptual information, which is crucial for producing relevant translation [M].

It is obvious that teaching translation within cognitive paradigm should start with theoretical basics of cognitive translatology. The students are to learn the understanding of translation as “a heuristic process of verbalization by means of target language (TL) units of the conceptual structure formed in the translator’s mind on the basis of a source language (SL) text” [Minchenkov, 2011: 160], the stages of translation process, the role of a translator’s personality in translation activity, and other significant postulates gained in cognitive translation studies. The purpose of this series of classes is to prepare would-be translators for conscious, reasonable, and knowledgeable activity.

It seems logical that the practical part of translators’ training should follow the sequence of translation process as described by cognitive translatoologists. So the starting point will be reading of the source text (ST). Research works state that translator’s reading is quite different from ordinary reading. While reading the ST, the translator simultaneously forms its conceptual structure. This is based on the assumption that the conventional meaning associated with a particular linguistic form is simply a ‘prompt’ or an access point for reaching the conceptual system where conceptualization occurs [Baaziz, 182].

The work on a text can start with the first reading it as a whole to get the general idea. After the text is read, the teacher conducts discussion asking the students what the text is about, what the main points are, what parts are difficult to understand.

If the contents of the text present difficulties for understanding, the mental operation of cognitive search is necessary. “The cognitive search involves the in-

terplay in the translator's mind of structures of knowledge of the world, people and the SL and culture, together with the knowledge acquired as the translator is analyzing the situation described in the text" [Minchenkov, 74]. At this first stage of the translation process the sources of conceptual knowledge must be suggested, and students should be shown how to use them. It is very important to recommend students reading whole paragraphs, not separate sentences, as paragraphs provide the context. The translation students should learn that cognitive context affects and restricts translation. In the translation process, cognitive context is an important factor that translators must consider first [Chen, 42].

Working together under the teacher's guidance, the students can identify the units in each paragraph of the ST that have to be clarified. Then the teacher gives an example of referring to a monolingual dictionary or an encyclopedia where the words and phrases with vague meaning are explained. After that the students can be suggested to do the same with the other paragraph. The results of the individual work are then discussed and compared in the group.

For training in the formation of conceptual structure of the text a number of exercises can be suggested, for instance:

- identify in the ST key information, as well as repeating, clarifying, additional and even zero information;
- identify the key concept of the work and its nominees;
- exchange the information with classmates, comparing and contrasting it;
- make a pictorial diagram of the proposed conceptual sphere of the text on the basis of the data obtained;
- specify basic problems of the analysis of the suggested text [Boyko, 65].

The second stage of translation process is verbalization of the conceptual structure of the ST in the target language (TL). This often means recombination of the concepts formed at the previous stage in order to express them with the units of the TL. S.A. Boyko suggests the following complex of exercises for this stage:

- secure key information of the original text and perform its translation;
- write down the key and basic concepts of work, their nominees and lexical verbalizations;
- locate in the national texts' corpora original language units;
- collect available information on basic concepts, as well as their nominees;
- compare the set of lexical verbalizations of key and basic concepts of the original text with the samples from the national text's corpus of original language;
- locate in the national text's corpus of the language of translation available information identifying the key and basic concepts, as well as their nominees;
- compare and contrast the set of lexical verbalizations of key and basic concepts of the original text with samples from the national texts' corpus of the target language;

- make a clear scheme of conceptual sphere of the proposed text;
- translate the text, taking into account similarities and differences of verbalization key values and basic concepts in the source and target languages, as well as features of conceptual sphere of the text;
- compare received text translation options with your classmates, analyze the differences and similarities;
- match your scheme of conceptual sphere of a proposed text, analyze the differences and similarities;
- specify your joint variant of the scheme of conceptual sphere of the text, as well as its translation [Boyko, 65-66].

At this stage the use of valuable sources of knowledge, such as learner's dictionaries, collocations dictionaries, dictionaries of synonyms or thesauri, language databases and corpora, and Internet sources, is also of great importance. It is these resources that help solve the problem of organizing meaning in a particular cognitive domain in the language of translation and the way a particular meaning is expressed in that language. The stage of auto-correction is meant to complete and perfect the target text with the view of naturalness. Naturalness means that the text is clear and fully understandable for the target reader, that there are no odd or inappropriate elements in it. For this students may be asked to read the translated text as if they were native speakers of the TL, or to ask a native speaker to read the text and assess its naturalness.

The ultimate purpose of the system of tasks and exercises is to provide would-be translators with the skills first to accurately grasp the context of the original text, put themselves in the cognitive context of the original author to understand it, and then correctly present the full meaning and intention of the original author. The translator must take full care of the cognitive context of the readers of the translation [Chen, 41].

It should be noted that many researchers point out that translation is a highly creative and individual activity, that each act of translation is unique and singular, as the translator's personality with its specific conceptual domains, mental processes, intuition, world view, and other features of cognitive nature plays a pivotal role in translation. But what students should also realize is that creativity and intuition are built up on the basis of solid knowledge and essential skills.

Nowadays education of future translators is hardly possible without involvement of cognitive methods and techniques. Undoubtedly, the results of cognitive research in translation studies give innovative viewpoints and approaches for training effective translators. Cognitive viewpoint provides students with understanding of mental mechanisms of translation, its stages and operations.

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神话构建与意识形态实践：相互作用线  
MYTHBUILDING AND IDEOLOGICAL PRACTICE: LINES OF  
INTERACTION

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注解。 本文致力于研究公众心目中神话与意识形态的关系和相互作用的辩证法。 分析神话基因纳入意识形态建构的机制，不仅被视为社会哲学的理论问题，而且被视为意识形态和社会实践的问题。 为了识别神话与意识形态之间的相互作用模式，作者引入了理性、象征主义、象征（理性化）原型的概念。 以米兰娜·阿尔达洛娃 (Milana Aldarova) 的书《Dedalus》为例。 《清唱剧》一文表明，现代意识形态实践中的神话创造现象不仅可以履行意识形态和政治功能，而且还可以履行使现代地球社会人性化的精神和道德使命。

关键词：神话、神话、神话制作、意识形态、理性、象征、原型、米拉娜·阿尔达洛娃、代达罗斯。

**Annotation.** *The article is devoted to the study of the dialectics of the relationship and interaction of mythology and ideology in the public mind. The analysis of the mechanism of inclusion of mythologemes in ideological constructions is considered not only as a theoretical problem of social philosophy, but also as a problem of ideological and social practice. To identify patterns of interaction between mythology and ideology, the author introduces the concepts of rationality, symbolism, symbolic (rationalized) archetype. On the example of Milana Aldarova's book "Dedalus. Oratorio" the article shows that the phenomenon of myth-making in modern ideological practice can perform not only an ideological and political function, but also a spiritual and moral mission of humanizing the modern planetary society.*

**Keywords:** *myth, mythology, mythmaking, ideology, rationality, symbol, archetype, Milana Aldarova, Daedalus.*

Global transformations in the modern world stimulate the process of mythologization of public consciousness. New threats and challenges actualize the problem of creating a new ideology that can organically combine national goals and ideals with universal guidelines, and the inability of the scientific community to

apply traditional methodological paradigms creatively to analyze crisis processes leads to filling the ideological vacuum with the corresponding mythologemes. In other words, today the interaction of mythology and ideology is a problem not only of theory, but also of social practice.

It must be borne in mind that, on the one hand, the mythologization of individual and social consciousness is a natural phenomenon, objectively conditioned. Myths are not exclusively illusory images of the world: they combine elements of fantasy and reality. Being one of the ways of understanding the surrounding reality, they implement the unconscious desire of people to harmonize it, arrange it in accordance with certain ideals, moral principles, ideas of good and evil, justice, and holiness. Myths are the result of collective imagination, when real images are completed to an ideal model with the help of collective fantasy [8]. On the other hand, socio-political myth-making can be purposeful, acting as a tool for manipulating mass consciousness and behavior.

A significant number of serious theoretical works are devoted to each of the noted aspects of this topic. At the same time, however, the mechanism of incorporating mythology into ideological practice remains relatively little explored. How do mythologemes become integral parts of ideological constructions? What is the dialectic of the relationship and interaction of mythology and ideology in the public mind? An attempt to answer these questions was made by the author of this article.

The condition for a scientific study of the interaction of any phenomena is the definition of a criterion for their preliminary convergence, i.e. the main key component of this process, its “driving force”, which allows to reveal and analyze its essence and dynamics. Mythology and ideology have such common features as irrationality, axiological (the presence of value orientations), praxeological (general functional orientation) and others. However, none of these properties can serve as a sufficient basis for bringing together the mythological and ideological phenomena and revealing the mechanism of their interaction. In our opinion such a basis can be only rationality as the main common property of mythology and ideology.

The study of the rationalization of mythology with the purpose of its application in ideological practice originates in European Antiquity, primarily in the works of Plato [9]. Considering mythology as untrue, illusory knowledge, the philosopher, nevertheless, considered it expedient to use rationalized myths as an instrument of social control and education, i.e. material for ideological models. The desacralization of mythology does not interfere, as ancient thinkers believed, with the fulfillment of its social functions; on the contrary, it contributes to this [7].

Further comprehension of the phenomenon of mythological rationality went in the direction from the perception of myth as a cultural relic to understanding it as a universal socio-cultural phenomenon, one of the enduring and necessary ways

of holistic understanding of the world with its own special, mythological, logic. In the works of C. Jung, C. Levi-Strauss, C. Huebner, R. Barth and other scientists, rationality is considered as one of the essential properties of mythology, reflecting the specifics of the latter, for example, the dominance of emotional-affective components over cognitive ones, the absence of a rigid subjective- object determination [11; 6; 10; 2]. All researchers also drew attention to the fact that the complexity of the procedure for conceptualizing and systematizing social experience in the form of a myth is due precisely to this - the fundamental difference between mythological rationality and scientific rationality. However, at the same time, the concept of mythological rationality remained insufficiently studied, which, in turn, prevented the identification of its directly instrumental role in the process of including mythologemes in ideologemes.

The complexity of the study of mythological rationality is connected, first of all, with the fact that as a worldview paradigm, mythology is not inherently reflexive. Elements of rationality are included in it implicitly - they do not have obvious manifestations. Under the influence of scientific rationality, traditional mythology is desacralized and destroyed. We should not forget the fact that it was rationality that at the time gave rise to ideology as an independent social phenomenon: the development of philosophy and science based on the rationalization of public consciousness led to the disintegration of the traditional synthesis of mythology and ideology. In other words, the phenomenon of rationality is socially conditioned: it reflects the features of various cultural traditions and historical stages. This socio-historical conditionality of rationality just allows it to serve as a common space for the interaction of mythology and ideology.

The desacralization of traditional mythology as a result of rational reflection creates the possibility of a theoretical analysis of the content of myths, transforming their images and events into symbols [5]. Symbolism, inherent (although to varying degrees) in both mythological and scientific rationality, can act as another common space for the interaction of mythology and ideology. At the same time, as K.G. Jung, the semantic content of mythological symbols allows us to interpret them as archetypes of social behavior [13]. In other words, the process of destruction of mythology under the influence of scientific rationality is the division of traditional mythological integrity into separate archetypes that take the form of symbols. As stable semantic components of the myth, they not only reflect the archetypes of the collective unconscious, but also integrate social experience, turning into behavioral models. It is these symbolic archetypes, i.e. archetypes that convey the meaning of the myth in an implicit, symbolic form, and ideology borrows from mythology, using it in ideological practice [12].

The insufficient effectiveness of ideology as a factor in social integration and communication was comprehensively argued at the time by University of Michi-

gan professor Elton Wiener in his book *The Majestic Myth: Models of Social Control in a Post-Industrial Society* [14]. The author showed that, being an instrument of social control and political struggle, ideology inevitably acquires an opportunistic and situational character - it is created in accordance with the political interests of specific social communities. The presence of traditional spiritual and cultural foundations that allow to evoke a massive emotional response is not able to turn it from an artificial structure into an integral system of worldview. Such a worldview is provided by mythology, interaction with which, according to the author, is a necessary condition for any modern ideology to fulfill its communicative function. Having absorbed the basic mythological symbols-archetypes, ideology acquires the ability to influence society not only at the level of mass consciousness, but also at the unconscious level.

However, it should be borne in mind that mythological meaning formation can serve not only as a tool for increasing the effectiveness of the impact of political ideologies, but also as a way of integrating and channeling the positive spiritual energy of modern humanity. A brilliant (and so far the only) demonstration of the possibility of creating a planetary humanistic project by rationalizing the ancient mythological symbols-archetypes is the book by Milana Aldarova "Dedalus. Oratorio" is the first artistic reconstruction of the myth of Daedalus in the history of world literature using the cultural and scientific baggage accumulated by mankind [1]. This unparalleled artistic and scientific work allows one to penetrate the secrets of mythological meaning-making, to re-master the space and polyphony of the ancient myth as the basis for creating the ideology of a new humanism of the 21st century [4].

The reconstruction of antiquity is carried out by Aldarova for the sake of re-thinking the essence and existential purpose of man, since the exit of mankind to a saving trajectory involves the search for a hero who can embody the universal vocation. The hero - and, therefore, the object of mythologizing - among all peoples is considered the one who accomplished a feat, a breakthrough beyond the limits of natural human capabilities, who managed to "switch" the will and strength of the spirit from the temporal to the eternal. This can be not only a feat-impulse, a feat-throw, but also a feat of creation, creativity, intense sacrificial work-mission in the name of the future. The dual ancient Greek archetype of a creative feat and an unconditional moral imperative takes the form of a symbol in the person of Daedalus, a mythical ascetic-master, whose image became a universal semantic paradigm in Aldar's *Oratorio* [3].

Thus, the phenomenon of myth-making in modern ideological practice can perform not only ideological and political, but also (which is much more important) soteriological and eschatological functions. Universal humanistic symbols-archetypes can contribute to the salvation of mankind from self-destruction, the separation of the temporal from the eternal - both in the world and in man himself.

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俄罗斯人对国家原则和社会政策的要求  
**REQUESTS OF RUSSIANS REGARDING THE PRINCIPLES OF  
THE STATE AND ITS SOCIAL POLICY**

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注解。 该作品以作者2020年初进行的社会学研究的材料为基础。俄罗斯近几十年来国家社会政策的不一致（社会主义原则与资本主义原则之间）、社会不确定性的状况以及许多新问题 对于大多数受社会变革影响的民众来说，他们有意无意地对国家的社会政策提出了质疑和怀疑。 社会学数据显示，受访者认为解决居民社会保障问题是一项紧迫、最重要的任务。 社会市场国家、民主（同时合法）和国家监管市场的国家——在历代大多数受访者眼中，这种类型的国家是最需要的。

关键词：国家类型、国家社会政策原则、人权、社会正义、社会保护、社会保障、社会团结。

**Annotation.** *The work is based on the materials of the author's sociological research conducted in early 2020. The inconsistency of the social policy of the state in Russia in recent decades (between the principles of socialism and capitalism), the situation of social uncertainty and many new problems for the majority of the population under the influence of social transformations, willingly or unwittingly, raise questions and doubts about the social policy of the state. As the sociological data show, respondents consider the solution of the problem of social protection of the population as an urgent, most important task. A social market state, democratic (and at the same time legal) with a state-regulated market - a state of this type is most in demand in the eyes of the majority of respondents of all generations.*

**Keywords:** *type of state, principles of social policy of the state, human rights, social justice, social protection, social security, social solidarity.*

The work is based on the materials of a sociological survey led by the author of the article in early 2020 (before the Covid-19 pandemic) in the Samara region on a representative sample ( $N = 620$ ), taking into account the age, gender and territorial settlement structure of the population aged 16-69 years. Three target age groups have been identified for analysis – junior, middle and senior.

At one time, the Soviet state covered with its policy (planning and management in the spirit of social paternalism) almost all aspects and spheres of life of

society as a whole, including with certain consideration of the specifics of individual social groups and generations. By some inertia, the post-Soviet Russian state formally (and in accordance with certain provisions of the Constitution of the Russian Federation) tried to follow the Soviet social tradition against the background of market reforms. But this has so far been implemented in practice only to a certain (sometimes very limited) extent for a number of reasons due to the peculiarities of social transformations and market reforms in post-Soviet Russia.

The inconsistency of the social policy of the state in Russia in recent decades (between the principles of socialism and capitalism), the situation of social uncertainty and many new problems for the bulk of the population under the influence of social transformation, representatives of older generations very often evoke nostalgic memories of the Soviet era. The entire post-Soviet history of Russia, willingly or unwittingly, raises questions and doubts about the social policy of the state (Table 1).

**Table 1.**

*Distribution of answers to the question: “What kind of state does Russia need? (1-3 variants)», % of the number of respondents (N, n) and ranks*

Answers	Total		Age Groups					
	16-69 years old, N=620		16-24 years old, n=202		25-44 years old, n=205		45-69 years old, n=213	
	%	ranks	%	ranks	%	ranks	%	ranks
A social market state with social protection of the population	31,9	1	34,2	1	31,2	1	30,5	1
A democratic state with a state-regulated market	26,3	2	29,2	2	25,9	2	23,9	4
A democratic state governed by the rule of law	24,5	3	22,3	3-4	25,4	3	25,8	2-3
A democratic state with a planned economy	21,3	4	22,3	3-4	16,6	5	25,8	2-3
A socialist state with social equality	18,1	5	17,3	6	19,5	4	17,4	5
A liberal state with freedom of the market and freedom of expression	11,8	6	18,8	5	11,2	6	5,6	7
Other state	6,9	7	10,9	7	6,8	7	3,3	8
A strong monarchical state	5,5	8	4,0	8	5,9	8	6,6	6

The most preferred state by type and nature is a “Social market state with social security of the population” (31.9% in the entire sample and more than 30.0% in each of the age groups).

On the 2nd place in the entire sample - “A democratic state with a state-regulated market” (26.3%).

On the 3rd place in the entire sample - “A legal democratic state” (24.5%). However, the older generation placed “A legal democratic state” and “A democratic state with a planned economy” in second or third places (25.8% each).

As the data in Table 1 show, respondents see the solution of the problem of social security of the population as a primary task. This, of course, cannot be achieved without state regulation of the market.

A social market state, democratic (and at the same time legal) with a state-regulated market - a state of this type and nature, with such features and principles of activity is the most in demand in the eyes of the majority of respondents of all generations.

On what principles should the life of society and the social policy of the state be based? (Table 2).

**Table 2.**

*Distribution of answers to the question: "What ideas and slogans promoted in the media do you support? (1-3 variants)", % of the number of respondents (N, n) and ranks*

Answers	Total		Age Groups					
	16-69 years old, N=620		16-24 years old, n=202		25-44 years old, n=205		45-69 years old, n=213	
	%	ranks	%	ranks	%	ranks	%	ranks
Human rights, freedom of personal expression	43,4	1	53,5	1	40,0	2	37,1	2
Social justice	42,7	2	39,6	2	41,5	1	46,9	1
Social equality, public property	23,5	3	21,8	4	24,9	3	23,5	4
Free market, private property	21,0	4	30,2	3	18,0	4	15,0	6
A strong, tough government capable of ensuring order	15,6	5	8,4	7	14,1	5	23,9	3
State-regulated market	13,1	6	5,4	8	13,7	6	19,7	5
Minimum government intervention in the economy	11,5	7	14,4	5	10,4	7	9,9	7
Other	8,9	8	11,9	6	9,8	8	5,2	8

The two leading responses in the entire sample (slogans) are “Human rights, freedom of personal expression” (43.4%) and “Social justice” (42.7%). These answers received almost the same share of votes and came in first and second place in all age groups (with some change in these places), far ahead of other answers.

What is objectively behind such a distribution of responses? It seems that, on the one hand, the processes of democratization of Russian society actualize the values of human rights and freedom of personal expression, on the other hand, the demand for the traditions of Russian (formerly Soviet) society in the spirit of social justice and social protection of citizens is manifested.



And among other answers there are practically opposite answers to each other in meaning: on the one hand, about social equality and public property (23.5%), on the other hand, about the free market and private property (21.0%), which confirms the presence of “confusion and vacillation” in the public consciousness.

Along with the most popular slogans about social justice and about the democratic rights and freedoms of citizens, other slogans, views and approaches are also very noticeably represented in the public consciousness – the picture is heterogeneous and “mosaic”. At the same time, for example, for the older group, the option: “Free market, private property” is only in sixth place, and the option: “Strong hard power capable of ensuring order” is in third place. However, for the middle group, the option is in third place: “Social equality, public property”, and for the younger group, the option is in third place: “Free market, private property”.

The conjugation of the answers to the above questions additionally reveals the following points (Table 3).

**Table 3.**

*Pairing of answers to questions, % of the number of respondents (N=620)*

What kind of state does Russia need? (1-3 variants)		What ideas and slogans promoted in the media do you support? (1-3 variants)*								Total
Answers	Ranks	1	2	3	4	5	6	7	8	
A social market state with social protection of the population	1	14,7	17,6	7,4	6,1	5,2	3,5	3,1	2,4	60,0
A democratic state with a state-regulated market	2	12,4	11,0	5,6	6,5	5,3	4,4	2,9	1,5	49,6
A democratic state governed by the rule of law	3	13,2	11,9	6,3	6,8	3,4	3,5	2,4	1,5	49,0
A democratic state with a planned economy	4	10,3	11,0	4,0	4,0	3,1	3,9	2,6	1,8	40,7
A socialist state with social equality	5	7,7	8,4	6,9	2,6	3,5	2,7	1,8	1,5	35,1
A liberal state with freedom of the market and freedom of expression	6	7,1	4,5	3,1	4,4	1,3	1,0	2,7	1,5	25,6
Other state	7	3,2	2,3	1,5	1,6	0,0	0,2	0,6	1,9	11,3
A strong monarchical state	8	1,9	1,8	1,8	0,8	1,0	1,3	1,0	0,2	9,8
Total		70,5	68,5	36,6	32,8	22,8	20,5	17,1	12,3	281,1

\* *Note.* Possible answers to the question: “49. What ideas and slogans promoted in the media do you support? (1-3 variants)” in order of ranks:  
 1. Human rights, freedom of personal expression  
 2. Social justice  
 3. Social equality, public property

- |   |
|---|
| <ol style="list-style-type: none"><li>4. Free market, private property</li><li>5. A strong, tough government capable of ensuring order</li><li>6. State-regulated market</li><li>7. Minimum government intervention in the economy</li><li>8. Other</li></ol> |
|---|

The leading and most closely related to each other are, on the one hand, such principles (ideas and slogans) of the state's social policy as "Human rights, freedom of personal expression" and "Social justice", on the other hand, such types of state (by their nature) as:

"A social market state with social protection of the population",

"A democratic state with a state-regulated market",

"A democratic state governed by the rule of law",

"A democratic state with a planned economy".

These are, in general, the main requests of Russians regarding the principles of the state and its social policy. A social market state with social protection of the population

But, as the sociological data show, there is no competition for such a type of state as "A social market state with social protection of the population".

However, the presence of various value orientations among individuals and social groups is a sociological fact. Value heterogeneity is one of the factors of social changes in society not necessarily in the "conflict" version.

In recent years, much of the activity of the state and its social policy has been conditioned by the Covid-19 pandemic and the problems associated with the pandemic. The launch and conduct by Russia of a Special Military Operation in Ukraine has raised new, additional questions regarding the social policy of the state, as well as regarding the nature of the state and the social principles of its activities.

There is no doubt that serious additional measures are needed in the state and society to put into practice, first of all, the most popular ideas – "Social justice" and "Human rights, freedom of personal expression", more complete implementation in practice of the principles of such a type of state as "A social market state with social protection of the population". There is no doubt that the consistent implementation of these ideas and principles is able to ensure social solidarity and integration of the main social strata and generations of Russians to the greatest extent.

腹泻相关溶血性尿毒症综合征儿童的细胞因子  
**CYTOKINES IN CHILDREN WITH DIARRHEA-ASSOCIATED  
HEMOLYTIC UREMIC SYNDROME**

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抽象的。腹泻相关的或典型的溶血尿毒症综合征是一种严重的血栓性微血管病疾病。它的发病机制与志贺毒素有关，志贺毒素是由某些大肠杆菌菌株产生的，继而导致内皮损伤以及激活的白细胞和巨噬细胞释放促炎和促硬化细胞因子。全身炎症标志物，特别是促炎细胞因子及其可溶性受体，作为疾病严重程度的预测因子，可能对 tHUS 具有预后价值。

目的：测定 tHUS 急性期儿童的血清 TNF $\alpha$  和 rTNF $\alpha$ 、IL-6 和 rIL-6、IL-10 浓度，并评估其作为疾病严重程度和持续时间预测因子的信息性。

材料与方法：采用ELISA法研究30例tHUS急性期患者血清中上述细胞因子及其受体的浓度。对照组由 21 名处于 tHUS 随访期的儿童组成。

结果：tHUS急性期患rTNF $\alpha$ 、rTNF $\alpha$ 、IL-6、rIL-6、IL-10显著高于恢复组。rTNF $\alpha$ 和IL-6的增加最为明显。血清IL-6与CRP浓度呈显著正相关，IL-6与C3浓度呈负相关。IL-10水平与入院时白细胞数量、无尿持续时间显著相关，并且在无尿持续时间超过7天的儿童亚组中显着较高。

结论：在急性 tHUS 患者中，高水平的 IL-6 和/或 IL-10 与高白细胞增多和 CRP 水平相结合，可被视为严重和长期全身炎症反应的附加实验室标准和预测因子。严重的疾病。

关键词：溶血尿毒症综合征，儿童，细胞因子。

**Abstract.** *Diarrhea-associated, or typical, hemolytic-uremic syndrome is a severe disease of thrombotic microangiopathies. It's pathogenesis is associated with Shiga-toxin, produced by some strains of E.coli, following to damage of the endothelium and release of pro-inflammatory and pro-sclerotic cytokines by activated leukocytes and macrophages. Markers of systemic inflammation, in particular, proinflammatory cytokines and their soluble receptors, may have prognostic value for tHUS as predictors of disease severity.*

**Objective:** *to determine serum concentrations of TNF $\alpha$  and rTNF $\alpha$ , IL-6 and rIL-6, IL-10 in children with acute phase of tHUS and to evaluate their informativeness as predictors of the disease's severity and duration.*

**Materials and methods:** *The serum concentration of the above cytokines and their receptors was studied by ELISA in 30 patients in the acute phase of tHUS. The comparison group consisted of 21 children in the follow-up period of tHUS.*

**Results:** *TNF $\alpha$  and rTNF $\alpha$ , IL-6 and rIL-6, IL-10 was significantly higher in children in the acute phase of tHUS than in the catamnesis group. The increase of rTNF $\alpha$  and IL-6 were most pronounced. Significant positive correlations of the serum concentrations of IL-6 and CRP, negative correlation of IL-6 and C3 were revealed. The level of IL-10 was significantly correlated with the number of leukocytes at admission, with the duration of anuria and was significantly higher in the subgroup of children with more than 7 days anuria duration.*

**Conclusion:** *in patients with acute tHUS a high level of IL-6 and / or IL-10 in combination with high leukocytosis and the level of CRP, can be considered as an additional laboratory criterion of severe and prolonged systemic inflammatory response and a predictor of severe disease.*

**Keywords:** *hemolytic-uremic syndrome, children, cytokines.*

## **Introduction**

Diarrhea-associated, or typical, hemolytic uremic syndrome (tHUS) is a disease from the group of thrombotic microangiopathies, the cause of which is an infection caused by Shiga toxin (Stx) -producing microorganisms, primarily enterohemorrhagic Escherichia coli. The disease most often affects children from 6 months to 5 years, although it is possible at any age, manifested by the development of a triad of symptoms - hemolytic anemia, thrombocytopenia, acute renal damage - after the prodromal period of acute intestinal infection, often hemocolitis. [1,2,3]

It was previously shown that high leukocytosis in the onset of tHUS is a predictor of the severity of the disease [4,5]. It can be assumed that other markers of systemic inflammation, such as tumor necrosis factor-alpha (TNF $\alpha$ ), soluble TNF- $\alpha$  receptor (sTNF $\alpha$ R), interleukin 6 (IL-6) and soluble IL-6 receptor (sIL-6R), and also the anti-inflammatory cytokine interleukin-10 (IL-10) may have prognostic value in tHUS in terms of the risk of cortical necrosis, neurological damage, and multiple organ failure.

## **The aim**

The aim of this work was to study the serum concentrations of TNF $\alpha$ , sTNF $\alpha$ R, IL-6, sIL-6R, IL-10 in children in the acute phase of tHUS, as well as to assess their information content as markers of the severity and duration of the disease.

## **Material and methods**

We examined 30 patients (17 boys, 13 girls) in the acute phase of tHUS and 21 children (12 boys, 9 girls) in the follow-up history. All children underwent ultrasound examination of the kidneys with dopplerography, a study of labora-

tory parameters characterizing the activity of TMA and hemolysis (hemoglobin, platelets, LDH), the severity of inflammation (leukocytes, C-reactive protein, C3 component of complement), the state of the coagulation system (RFMC, D-dimer), degree of renal damage (urea, creatinine). Serum samples to study the content of TNF $\alpha$  and sTNF $\alpha$ R (60 kDa), IL-6 and sIL-6R, IL-10 for children in the acute phase of tHUS were taken on the first day from admission to the department (on days 2-4 from the onset of tHUS symptoms), children of the comparison group - with a routine follow-up examination. The above cytokines and their soluble receptors were determined by ELISA using test systems from eBioscience (Austria).

**Results**

The content of cytokines and their soluble receptors in children of the main and control groups are presented in table. 1. Since the data in the groups had a different distribution than normal, they are represented by the median (M) and the interquartile gap (Q1-Q3).

**Table 1**

*The content of cytokines and their soluble receptors in the blood serum of children with acute phase tHUS and catamnesis (median, Q1-Q3*

Criteria (normal values)	Acute tHUS, n=30	Remission of tHUS, n=21	p
TNF $\alpha$ ng/ml (0-6)	3,4 (2,2-4,6)	1,9 (1,8-2,2)	0,004
sTNF $\alpha$ R (60 kDa) ng/ml (1,47-4,16)	3,2 (1,4-4,2)	0,1 (0,0 – 0,4)	0,003
IL-6, pg/ml (0-12,7)	17,1 (13,2 – 67,9)	2,8 (2,6 – 3,0)	0,0008
sIL-6R, pg/ml (65,9-202,7)	187,5 (150 – 225)	125 (100-150)	0,02
IL-10 pg/ml (7.9-12,9)	8,7 (6,8-79,4)	6,1 (5,2-9,1)	0,02

In children of the comparison group, the level of the studied cytokines did not go beyond the reference indicators, and sTNF $\alpha$ R was not determined (0 pg / ml) in 47.6% of children in the control group. In the acute phase of tHUS in children, both normal and elevated values were noted.

Thus, the level of TNF $\alpha$  in all children in the acute phase of the disease was within normal limits (although higher than in the control group). TNF $\alpha$ R s level was increased in 23.3% of children, IL-6 in 76.6%, sIL-6R in 30.0%, IL-10 in 36.7% (differences with the control group were significant for all cytokines, p < 0.05).

We did not find a reliable relationship between the level of the studied cytokines and their receptors with the clinical manifestations of the infectious pro-

cess (fever and severity of hemocolitis). Reliable ( $p < 0.05$ ) positive correlations of IL-6 and CRP level ( $r = 0.76$ ), negative correlation of IL-6 and C3 level ( $-0.68$ ) were revealed. The level of IL-10 was significantly ( $p < 0.05$ ) correlated with the number of leukocytes at admission ( $r = 0.44$ ). The duration of anuria as an indicator of the severity of the disease and the risk of long-term consequences was positively correlated with the number of leukocytes at admission ( $r = 0.64$ ,  $p < 0.05$ ), CRP level at admission ( $r = 0.46$ ,  $p < 0.05$ ), and also the level of IL-10 ( $r = 0.77$ ,  $p < 0.05$ ).

**Conclusion.** Thus, in children in the acute phase of tHUS, in comparison with the catamnesis group, increased levels of a number of pro-inflammatory cytokines, as well as increased levels of anti-inflammatory cytokine IL-10, were found. At the same time, it can be assumed that with tHUS, the maximum active secretion of cytokines occurs at the height of the infectious process, at the time of prodromal Stxemia, i.e. in the prodromal period of tHUS. Subsequently, with the already developed symptoms of HUS (as in our patients), toxinemia decreases and the secretion of cytokines is declining and, since the half-life of cytokines in vivo is short, their plasma level decreases. The detection of a high level of IL-6, IL-10 in patients in the early stages of tHUS, along with high leukocytosis and CRP level, can serve as a marker of a pronounced and prolonged systemic inflammatory response and a predictor of the severe course of the disease. IL-10 can be both a marker of severe systemic inflammation (since its secretion is triggered by pro-inflammatory cytokines), and also have its own adverse effect on the pathological process in tHUS by excessive immunosuppression.

The revealed correlations of the duration of anuria with leukocytosis, CRP level, a more pronounced decrease in C3 in the subgroup of children with severe tHUS confirm the adverse effect of severe systemic inflammation and complement activation on the severity of tHUS.

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重叠综合征»(格林-巴利综合征+)。文献综述与临床观察  
**OVERLAP SYNDROME»(GUILLAIN-BARRE SYNDROME+).**  
**LITERATURE REVIEW WITH CLINICAL OBSERVATION**

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抽象的。吉兰-巴利综合征与其他疾病形式 - GBS+ 的关联,也称为重叠综合征 - 一种罕见的病理学。GBS (OMAN 和 OMSAN)的轴突形式被称为“结节病”,这是由于 Ranvier 结和副结的病变所致。对这一领域的兴趣与原发性轴突病的发展有关,在此过程中不涉及髓磷脂,通过及时指定的病理学治疗,可以完全消退神经功能缺损的病理学治疗的明显效果。讨论了淋巴结区域病变的发生机制、抗糖苷抗体在损伤机制中的作用;损伤对糖苷结构及其定位的依赖性;结节病临床表现的变异性;抗糖苷抗体测定对诊断的价值。一个临床例子表明,在患有“重叠综合征”(吉兰-巴利综合征和比克斯塔夫干性脑炎的组合)的患者中诊断 SDH+ 很困难。首次描述了中间神经和三叉神经运动部分的病变,一种肌无力的动眼障碍(由与抗体依赖性免疫冲突相关的神经肌肉突触传导受损来解释)。茎结构损坏的迹象。

关键词:重叠综合征,原发性轴突病,抗糖苷抗体。

**Abstract.** *The association of Guillain-Barré syndrome with other diseases forms of - GBS+, also known as overlapping syndrome – a rare appearing pathology. The axonal form of GBS (OMAN and OMSAN) is referred to as “nodoparaneuropathies”, due to the lesion of the node of Ranvier and paranodes. Interest to this area is associated with the development of primary axonopathy here without involving myelin in the process, with an expressed effect*



*of pathogenetic therapy with complete regression of neurological deficit with timely appointed pathogenetic therapy. The genesis of lesions of the nodal region, the role of antiglycoside antibodies in the mechanisms of damage are discussed; dependence of damage on the structure of glycosides, their localization; variability of clinical manifestations of nodopathy; value for their diagnosis of determination of antiglycoside antibodies. A clinical example demonstrates the difficulty of diagnosing SDH+ in a patient with an “overlapping syndrome” (combination of Guillain-Barré syndrome with Bickerstaff stem encephalitis). For the first time, a lesion of the intermediate nerve and the motor part of the trigeminal nerve, a myasthenic shade of oculomotor disorders (explained by impaired conduction in the neuromuscular synapse associated with an antibody-dependent immune conflict) was described. Signs of damage to the stem structures.*

**Keywords:** *Overlap syndrome, primary axonopathy, antiglycoside antibodies.*

**Introduction.** The combination of Guillain-Barré syndrome with other forms of damage to the nervous system (GBS+) in the literature is called “overlap syndrome” [1-3]. “Overlap syndrome” by A.F. Murtazina et. al. designated as “cross syndrome». They observed a patient with a combination of Bickerstaff stem encephalitis (SEB), acute transverse myelitis and acute motor axonal neuropathy [4]. M.A. Piradov et al. refer to «overlap syndrome” GBS + Miller-Fisher syndrome (MFS); GBS+ demyelinating CNS lesion; GBS+ myelitis; GBS+ Bickerstaff encephalitis; GBS+ encephalitis associated with Mycoplasma pneumonia, Zira virus infections; GBS+ myositis and et. [5]

GBS encompasses a group of peripheral nerve diseases consisting of several subtypes of acute immune-mediated polyneuropathies. Pathophysiologically, there are demyelinating and axonal forms of GBS [5-7]. 80% of all GBS cases are acute inflammatory demyelinating polyneuropathy (AIDP) [5]. Axonal forms of GBS include acute motor sensory axonal neuropathy (OMSAN) and acute motor axonal neuropathy (OMAN). They also include Miller Fisher syndrome (MFS), acute sensory axonal neuropathy.

A common pathohistological sign of AIDP is the presence of inflammatory demyelinating neuritis with focal perivascular lymphoid infiltration. Despite the fact that the activation of cellular immunity in AIDP is not completely rejected, it is believed that the primary changes in AIDP are due to the binding of autoantibodies to unidentified epitopes of the outer membrane of Schwann cells, followed by demyelination. At an early stage, demyelination is limited to the nerve roots and distal intramuscular branches of the nerves. Axons may be affected by the pathological process, but their damage is secondary to demyelination [6].

Axonal polyneuropathies that occur with primary axonopathy (axonopathy without demyelination) are mostly referred to as nodo-, paranodopathies - neu-

ropathies caused by the destruction of the Ranvier intercept, paranodes, juxtaparanodes and internodes [8, 9]. The basis of damage to these structures is molecular mimicry - aberrant cross reactivity of antibodies between bacterial lipopolysaccharides and gangliosides included in the structure of axons [10-13]. Gangliosides are a large family of sialylated glycosphingolipids. Being important components of neuronal membranes, they are involved in intra- and extracellular metabolism, signal transduction, adhesion, and affect the structure of the brain at different periods of human life [14]. They are part of Schwann cells, synaptic membranes, and neuromuscular endings. The distribution of gangliosides in the nervous tissues is uneven, their structure and immunoreactivity are not the same. Gangliosides GM1 and GD1 are expressed on motor nerves and axons, GQ1b on CN, sensory nerves are rich in GD1b [10]. ChibaA., Kusunoki S., et al. reported significantly greater ganglioside GQ1b immunoreactivity of nodes of Ranvier in nerves, innervating human extraocular muscles compared to other cranial or spinal nerves [15], to gangliosides GQ1b, -GT1a and -GD1b localized in muscles [12]. Nerve endings within muscle spindles in direct contact with intrafusal fibers were labeled with anti-GQ1b Ig G, -GT1aIgG and GD1bIgG antibodies. Kusunoki S. et al. in some large neurons of the ganglia of the posterior roots of the spinal cord, ganglioside GQ1b [16] detected.

The pathogenetic role of mimicry in nodo-, paranodopathies is proved by the fact that in a number of patients the onset of the disease is preceded by an infection caused by *Campylobacter jejuni*, cytomegalovirus, Epstein-Barr virus, *Mycoplasma pneumoniae* and *Haemophilus influenzae*, the causative agent of dengue fever, Zika virus [7, 8, 17, 18]. The axonal type of damage in nodopathies, the possible rapid and complete regression of symptoms with a timely diagnosis of Uncini A et Kuwabara S.[19] is explained by microstructural changes caused by antiganglioside antibodies in the nodal and paranodal areas.

Gangliosides contribute to the stability of proteins that support axon and myelin binding in the paranodes, sodium channels in nodes (nodes) of Ranvier [9]. Binding antiganglioside antibodies GM1 IgG or GD1a IgG to the appropriate gangliositis of the axolemma of the node of Ranvier leads to the formation of a membrane attack complex, inactivation / disappearance of voltage-dependent sodium channels, detachment of paranodal myelin with the development of primary degeneration of axons, which is accompanied by impaired nerve conduction and muscle weakness [20]. Violation of axonal conduction without demyelination and cellular infiltration, as well as the destruction of sodium channels of anti-GM1 IgG in the nodes of Ranvier, may also be due to activation of complement. Complement C3d is specifically associated with the axolem of the node of Ranvier. Its interaction with IgG antibodies leads to complement activation and recruitment of macrophages, which "target" axons, after which they penetrate into the perax-

ial space, displacing axons and separating them from the myelin sheath, thereby causing a dysfunction of Na (+) channels, but also with changes in water and ion homeostasis, as well as abnormal polarization of the axolemma [21, 22, 9]. Following the blockade of conduction, degenerative changes in axons follow, requiring long-term therapy.

Difficulties in diagnosing GBS and its variants, especially at the initial stages of the disease, and errors associated with incorrect diagnoses, are due to the possibility of atypical variants of GBS, the variability of the clinical manifestations of the syndrome, and the presence of overlap syndrome. The diagnosis is especially problematic in the so-called incomplete forms of GBS - bibrachial, acute isolated oropharyngeal; acute isolated cervicobrachial disease [5, 23]. It is not uncommon for patients to be diagnosed with stroke, myasthenia gravis, or botulism; poliomyelitis, electrolyte disturbances, hypokalemia (rare) [24]. Sometimes the detection of antibodies to gangliosides will be a clue to the diagnosis [25]. However, targeting them is very relative. This is explained by the fact that in patients with different nosological forms associated with gangliosides, the same anti-ganglioside antibody can be detected. For example, in patients with Guillain-Barré syndrome and ophthalmoplegia, with acute ophthalmoparesis without ataxia, and in patients with SMF and SES, it will be GQ1b IgG antibody; in patients with a specific nosology, different antibodies can be determined. They can also be found in perfectly healthy individuals (such as anti-GM1 IgM). Some sera from patients with GBS react with ganglioside complexes consisting of two different gangliosides, such as GD1a and GD1b or GM1 and GD1a, but not with each of them individually [10]. In about half of the patients, antibodies are not detected at all [11]. The data presented have led to the view that their detection serves only as an aid to the diagnosis and is not necessary [26]. At the same time, A. Arseniev et al. [7] present the development in the form of a table - "Brief clinical and immunological characteristics of various subtypes of GBS", which reflects the frequency of occurrence of one or another form of GBS, including SEB, the most frequently registered antigens and antibody isotopes with them. It not only emphasizes the expediency of determining antiganglioside antibodies, but also the possibility of their use for differential diagnostic purposes, and also demonstrates a wide range of antigens with which autoantibodies are associated.

**Clinical case.** Below we present the case history of a patient, aged 18, demonstrating the difficulty of diagnosing "Overlap syndrome". Upon admission, he complained of general weakness, unsteadiness when walking - "I walk like a drunk", drowsiness (I could fall asleep in any situation), a feeling of "wadding" in my legs, double vision of objects when looking into the distance, changes in speech, mood - "I'm stoned, always in high spirits." Numbness of the chin. 4 days before hospitalization, while doing chores in the restaurant, there was double vi-

sion, difficulty in moving, which he could not describe. Worked all night, attended classes. In the following days, the condition worsened - moderate headaches, dizziness ("the earth floats underfoot"), increasing drowsiness appeared; the perception of food has changed - food has acquired the taste of fish, hot - was perceived as warm, the chin became insensitive, uncertainty increased when walking, heaviness and weakness appeared in the legs, tingling in the distal parts of the legs and then numbness of the feet, unsteadiness when walking. By the time of admission - difficulty in swallowing food, slurred speech. Didn't measure temperature. He was referred for inpatient examination and treatment. I got to the hospital by public transport without accompanying people. Two weeks before the present illness, he had ARVI. The temperature at admission was 37.2, and then did not rise.

Neurological status at admission: consciousness is clear, drowsy, falls asleep during the collection of anamnesis. Oriented in space and time, executes commands. Pupils D=S, direct and connected reactions are preserved. Ptosis of the eyelid on the left to the upper edge of the pupil. Does not bring the eyeballs to the outer commissure on both sides by 3 mm, slight restriction of the movement of the left eyeball up and down, when looking into the distance marks doubling. Nystagmus is moderately sweeping when looking to the right. Hyperesthesia in the zone of innervation of the 2nd and 3rd branches of the trigeminal nerve on both sides, more on the left. The strength of the chewing muscles is reduced to 4 b. High mandibular reflex. Symptom of "eyelashes" on both sides (4 mm). Chokes when swallowing liquid, palatine curtains hang symmetrically, palatine and pharyngeal reflexes are absent on both sides. Speech with a nasal tone, dysarthria. The range of motion in all joints is not limited. Strength for all muscle groups in the upper limbs - 4 points, dynamometry on the left 15 kg/cm<sup>2</sup>, on the right 20 kg/cm<sup>2</sup>. 3.0 points in the flexors/extensors of the hips, in the muscles of the legs and feet - 4.0 points. The tone in the muscles of the limbs is physiological. Biceps and triceps reflexes are brisk S>D, carporadial reflexes are reduced D=S, knee reflexes with some predominance on the left are brisk, Achilles D=S are reduced. An analogue of Rossolimo, Babinsky on both sides; proboscis. Hyperesthesia from the lower third /of the lower legs. Deep sensitivity is preserved. Vibration sensitivity on the bony prominences of the upper and lower extremities in the distal sections - 7-8 points, proximal - 5-6 points. Performs coordinating tests with mild dysmetria. There is marked instability in the Romberg position. Gait with rough ataxia. The function of the pelvic organs controls. There are no meningeal signs.

In the next 3 days, the patient's condition worsened - he stopped going down from the second floor, answering phone calls; contact with him became impossible, he was constantly sleeping. He woke up from the state of sleep, but after one or two incomprehensible words he fell asleep, sometimes he tried to execute the command. Neurological status without dynamics. With a diagnosis of Bickerstaff

stem encephalitis, he was transferred to the intensive care unit, where immunosuppressive therapy was carried out (VVG - 2 g / kg of body weight - 3 days, methylprednisolone - 1000 mg / day - 5 days). The condition quickly improved: drowsiness almost completely regressed, he began to answer all questions correctly, but he could not remember the episodes of the disease, he confused the timing of the appearance of certain symptoms. Transferred to the neurological department (day 14 of the disease): ptosis of the left eyelid to the upper third of the pupil, on the right - to the edge of the pupil. When looking to the left, the right eyeball does not lead to the internal commissure of the eye by 3 mm, the left one - to the external commissure - by 2-3 mm (gaze paresis to the left). When looking to the right, the movements of the eyeballs are in full. With the first movements of the eyeballs in the horizontal plane, nystagmus is not detected, with repeated movements it occurs in the direction of the gaze both to the right and to the left. Irregular, large in amplitude, increases with extreme leads and when fixing the eyes in this position, "jumpy". The nature of nystagmus is the same when looking in both directions. When the eyeballs move upwards, the movements of the right eyeball are not limited, the left eyeball is slightly limited, accompanied by a slight deviation of the eyeball inward. Downward movements of the right eyeball are slightly limited. Attention is drawn to the dependence of the volume of movements of the eyeballs and the characteristics of nystagmus on the load - the repetition of movements of the eyeballs in one direction or another either reveals a defect or enhances it. Myasthenic tests - fixation of the gaze, repeated squinting, others are negative. Smoothness of the left nasolabial fold, increased palpebral reflexes S>D. Speech, swallowing, sensitivity, muscle strength recovered completely. The palatine curtain movement, tongue in the midline, palatine and pharyngeal reflexes remain reduced. Motor function in the limbs is not impaired. The patient performs a finger-nose test with a miss, more pronounced on the left. Can keep up a conversation for a long time. When tired, drowsiness appears. Cannot stand, walk without bilateral support. The width of the step when walking is changeable - it takes a step either with a wide or with a small base of support. Extremely unstable - leans in different directions, trying to stand and maintain balance.

General and biochemical analyzes (only deviations are reflected): hemoglobin up to 113 g/l (day 7 of illness, reference values 118-160 g/l), leukocytosis -  $19 \cdot 9 \cdot 10^9/l$  increase in glucose level - 6.2 mmol/l (12-14 days of the disease, against the background of the introduction of methylprednisolone), a decrease in ferritin 17.6 ng / ml. (7th day of illness, reference values 20.0-300.0 ng/ml). Rapid test for Covid-19 - negative. A study on tumor markers - no deviations from the norm were found. Antibodies to GM1, GM2, GM3, GM4, GD1a, GD1b, GD2, GD3, GT1a, GT1b, GQ1b, sulfide were determined (14 diseases). The content of antibodies to gangliosides GM1 and GM2; sulfatide - 1+ (sulfatide is found on the

extracellular sheet of the myelin cell membrane produced in the central nervous system, in the Schwann cells of the peripheral nervous system). Examination of the cerebrospinal fluid: protein - 1.07 g/l (day 6 of the disease, total protein 0.20-0.30 g/l), leukocytes 2-3. Pandy's reaction is negative, glucose is 3.65 mmol/l. Fluorography without pathology in the lungs. Electroneuromyography (ENMG) (muscles: trapezius, quadriceps femoris, abductor big toe, extensor digitorum brevis) showed no signs of conduction disturbance (days 13 and 30 of illness). Magnetic resonance imaging (MRT), performed twice - at admission and a month later - did not record any pathology. When examined after two months, no pathology was found in the direction of the neurological status.

**Discussion.** The peculiarity of the clinical manifestations in our observation was the openwork and selectivity of the CN lesion, the involvement of the masticatory muscles, the intermediate nerve (hypothermgeusia, dysgeusia), the manifestation or increase of a defect in the movements of the eyeball during repetitive movements of the eyeballs.

Differential diagnosis was made between SMF, GBS and SES. Signs confirming the likelihood of SMF [5, 27, 28] in our observation were an acute onset, a decrease in carporadial and Achilles reflexes, and a rapid progression of the process; ophthalmoparesis and ataxia. The diagnosis of SMF did not correspond to involvement in the process of cranial nerves (V, VII, IX, X, XIII), weakness in the limbs, the presence of pathological reflexes, the distribution or localization of sensory disturbances, psychological abnormalities, and peculiarities of eye movements. The presence of paresis in the limbs, most pronounced in the proximal legs, a decrease in distal deep reflexes; the presence of autoantibodies to gangliosides GM1 and GM2, sulfatide; high-protein protein-cell dissociation allowed the diagnosis of GBS. Confidence in the diagnosis of GBS according to the Brighton criteria [29], corresponded to the second level. In a patient with a double study with an interval of a month on ENMG, changes corresponding to demyelination or axonopathy were not detected. The probability of the presence of the same type of antibodies to GM1 and GM2 glycosides in both GBS [11] electrophysiological subtypes did not allow them to be used as evidence of axonal or demyelinating processes. At the same time, the ascertainment of the presence of antiglycoside antibodies indicated that the pathology under consideration belonged to nodopathies. The latter was confirmed by the structure of cranial nerve damage, which is characteristic of ganglioside-dependent autoimmune diseases; myasthenic character of oculomotor disorders. Indirect evidence for the latter could be studies by Usuki S. et al. [30], who showed that an epitope containing GM3, GD3, or GT3 gangliosides can be shared with some antigens localized in the peripheral nervous system and participate in the genesis of conduction disturbances in the neuromuscular synapse.

ENMG was done to the patient two weeks after the onset of the disease, already after pathogenetic therapy which is apparently due to the absence of changes in ENMG. The absence of changes in ENMG in patients with axonal forms of GBS in the early stages of the disease with timely prescribed pathogenetic therapy is proved by the study [9].

The clinical manifestations of SES are represented by disorders of consciousness - from somnolence to coma, dysfunction of the brain stem, including mental disorders, progressive severe drowsiness, pyramidal symptoms up to the development of tetraplegia, stem oculomotor disorders, cerebellar ataxia, hearing loss [4, 27, 31-33]. There may be a decrease in proprioceptive reflexes. It is explained by the involvement of muscle fiber afferents in the process [12, 34]. "Incomplete" forms of EBS have been described, among them EBS, manifested by isolated acute bilateral ophthalmoplegia [35].

Diagnostic criteria for SEB will be - the occurrence of neurological symptoms 1-2 weeks after a viral or bacterial infection; rapidly (within 4 weeks) developing hypersomnolence, ophthalmoplegia and ataxia; detection of anti-GQ1b IgG antibodies in the blood [5]. The pathophysiological and clinical similarity between SMF and SES is due to the presence of antibodies to GQ1b ganglioside [33, 36].

Autoimmune encephalitis, including Bickerstaff's encephalitis, often debuts as mental abnormalities [37]. In epidemic encephalitis, they are explained by psychomotor rhythm disturbance, iteration (tendency to get stuck), sensory disorders, dysfunction of the mesencephalic-diencephalic region with a weakening of the controlling activity of the cerebral hemispheres [38]. In a patient, they are represented by affective disorders characterized by the mother as deviations of a «drunk or drug-addicted person»

Differentiated nystagmus in combination with moderately severe cerebellar symptoms, recorded in the patient at admission, belonged to the cerebellar. In the future, it becomes changeable in its characteristics. The latter makes it possible to associate it with a violation of saccadic movements implemented by the ophthalmic muscles. The significance of the latter in the implementation of saccadic movements was confirmed by the study of extraocular muscles and nerves removed during corrective surgery for infantile nystagmus and demonstrating changes in their structure [39]. In our observation, myasthenic ocular stigmas and the fact that the patient's pathology belongs to nodopathies support the hypothesis of the probability of a defect in the innervation of the extraocular muscles.

It is impossible to explain eye movement disorders only by the considered causes. This is contradicted by the stem gaze paresis found in the patient (restricted gaze to the left with a predominance of pyramidal symptoms on the same side), which, along with severe hypersomnia, gait features (which will be discussed below), and pyramidal symptoms, proves the involvement of the GM trunk. Inter-

nuclear ophthalmoplegia has been described in a patient with SES. Mori M et al. 2001 [40]. The absence of changes in a patient on MRI does not contradict SEB, since they are not found in all patients.

Features of the patient's gait are explained by a violation of the interaction and connections between the spinal, supraspinal locomotor networks and sensory feedback signals connections from the vestibular, visual and proprioceptive systems. These connections and their interaction maintain dynamic balance during locomotion. Involvement of the patient's vestibular pathway in the process is proved by the impossibility of maintaining stability when standing, walking, and by the sensation of ground moving under one's feet; - as for cerebellum - dysmetria, differentiated nystagmus in the first days of admission to the clinic.

**Conclusion.** The patient's pronounced, progressive drowsiness, the presence of pyramidal signs, signs of trunk dysfunction, mental abnormalities gave rise to the diagnosis of SES. The combination of GBS and SES in our observation made it possible to assess the disease as "Guillain-Barre Syndrome+" ("Overlap syndrome"), represented by a combination of GBS and SES.

With the proposed message, we wanted to draw attention to the pathology, which is based on primary axonopathy; to the difficulties of making a diagnosis in "overlap syndromes"; the need and expediency of using antiganglioside antibodies in the diagnosis. We hope that our report will be of interest to a wide range of specialists and will serve as an incentive to develop the problem.

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炎症性肠病的眼睛变化

## EYE CHANGES IN INFLAMMATORY BOWEL DISEASES

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注解。 本文介绍了秋明第一地区临床医院胃肠科炎症性肠病患者的临床统计数据,这些患者于 2023 年接受了两个月的生物治疗。在研究的患者群体中,主要是女性 (60%),年龄为 40 至 60 岁,诊断患有克罗恩病 (67%)。 基因工程生物制剂的结构如下: 英夫利昔单抗 - 47%、维多珠单抗 - 33%、乌司奴单抗 - 13%、泽托利珠单抗 - 7%。 眼科改变的结构为屈光异常 (73%), 初期白内障 (13%), 眼球无活动性炎症过程。 13% 有病史的患者因肠道炎症性疾病 (葡萄膜炎) 而出现眼部变化。

关键词: 炎症性肠病、眼部病变。

**Annotation.** *The article presents the clinical statistics of patients with inflammatory bowel diseases of the gastroenterological department of Regional Clinical Hospital №1, Tyumen, who receive biological therapy for two months 2023. Among the studied array of patients are predominant women (60%) 40 to 60 years old, diagnosed with Crohn's disease (67%). The structure of genetically engineered biological preparations is represented as follows: Infliximab - 47%, Vedolizumab - 33%, Ustekinumab - 13%, Zertolizumab - 7%. The structure of ophthalmological changes is refractive anomalies of 73%, initial cataract of 13%,*

*with no active inflammatory process of the eyeball. Ophthalmological changes due to inflammatory diseases of the intestine (uveitis) registered 13% of patients with a history.*

**Keywords:** *inflammatory bowel diseases, eye lesions.*

**Relevance.** Inflammatory diseases of the intestine (IDI) - Crohn's disease (CD) and ulcerative colitis (UC) are severe chronic diseases of the gastrointestinal tract of unknown etiology. IDI have not only local complications, but also intestinal lesions, because they are systemic diseases. [1.2]. The topic is relevant not only to gastroenterologists, but also to other specialist doctors for early diagnosis and effective treatment of inflammatory bowel diseases. According to domestic and foreign sources, the frequency of ophthalmopathy in ulcerative colitis and Crohn's disease ranges from 1 to 10% [2.3]. The main eye manifestations include: episcleritis (29%), scleritis (18%), uveitis - 17% (front - 60%, panuveitis - 30%), and it is recurrent and 50% accompanied by the development of hypooopion. According to a number of studies, the risk of developing inflammation of the vascular envelope of the eye increases to 33% in the presence of symptoms of joint damage [3.4]. Other eye manifestations include keratopathy, retinal vasculitis, multi-focal chorioiditis, neuritis, retinal vascular occlusion [2]. Orbital manifestations (myositis, dacrioadenite, damage to orbital fiber) are among the rarest and sporadic, so it is very difficult to estimate their frequency of occurrence [5.6]. Ocular manifestations of ulcerative colitis may develop before the symptoms of the underlying disease [2] appear. All the above data determine the relevance of the issue we are considering.

**Research objective.** Analysis of clinical statistics of patients with IDI Gastroenterological Department of Regional Clinical Hospital №1, Tyumen, who receive biological therapy for two months of 2023.

**Materials and Methods.** The analysis of the clinical statistics of 15 patients with IDI of the gastroenterological department of Regional Clinical Hospital №1 of Tyumen, who receive biological therapy, examined by an ophthalmologist during inpatient treatment, was carried out. The results were processed using Microsoft Office Excel 2007.

**Results of the study.** In the gastroenterology department, 15 people with a normal body mass index aged 20 to 60 years were examined. Of these, 6 (40%) are men, 9 (60%) are women. Of the 15 persons surveyed, 2 (13 %) receive biological therapy from Ustekinumab - 2 (7%), Infliximab - 7 (47%) from Zertolizumab - 1 (7 %) and 5 (33%) from Vedolizumab. Patients with Crohn's Disease - 10 (67%) people (5 (33.3%) of them are men and 5 (33.3%) women), patients with ulcerative colitis 5 (33%) people (all of them women). There were 4 (26%) patients with empetry (3 (20%) women, 1 (6%) man). Refractive abnormalities

were detected in 11 (73%) patients. Myopia of low degree in 6 (40%) persons (2 (13%) are women, 4 (27%) men). Myopia is found to be of medium degree in 1 (6%) woman. Hypermetropia is found to be weak in 1 (6%) male, astigmatism in 3 (20%) male (2 (13%) and 1 (7%) female). At the time of the ophthalmic examination in the gastroenterology department, no active inflammatory process was detected in the eyes of any patient. Accommodation spasm was found in 1 (6%) of the patient. Effects of uveitis suffered by 1(6%) of the patient. The effects of chorioretinitis were found in 2 (13%) patients (men), initial changes in the lens were found in 2 (13%) patients (women), the phenomena of scleritis and conjunctivitis in the history of none of the examined patients.

**Findings.** Refractive anomalies of 73% and initial cataracts of 13% were detected in patients treated with Genetically Engineered Biological Preparations in the gastroenterological department. Active inflammatory process of the eyeball was not detected. Ophthalmological changes related to IDI - Vascular lesion 13% of patients have a history.

Ophthalmological manifestations that could indicate activity of the main disease (Crohn's disease, ulcerative colitis) were not detected at the time of examination, which may indicate, inter alia, effectiveness of Genetically Engineered Biological Preparations. Comprehensive clinical examination including ophthalmologist, supervision and treatment of patients with intestinal manifestations of Crohn's disease and ulcerative colitis should be aimed at reducing the frequency of relapse of the main disease and the appearance of intestinal manifestations. The work of a multidisciplinary team consisting of a gastroenterologist, an ophthalmologist, a general practitioner, a rheumatologist and a coloproctologist is now increasingly necessary for timely diagnosis and effective treatment of patients.

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病毒混合感染背景下原发性急性虹膜睫状体炎的表现

**MANIFESTATIONS OF PRIMARY ACUTE IRIDOCYCLITIS WITH  
THE BACKGROUND OF VIRAL MIXES INFECTION**

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注解。 该文章介绍了格雷夫斯病背景下病毒混合感染患者眼部血管损伤的临床病例。 管理策略应包括多学科方法,以避免流程的时间安排。 在这种情况下,初级保健医生不会关注病毒过程的初步诊断,患者也不会去看传染病病理学家,尽管由整体血液检测确定的病毒感染标志物显示了病毒过程中的病毒过程。 身体。

关键词: 虹彩环, 病毒混合感染, 病毒感染标志物。

**Annotation.** *The article presents a clinical case of vascular damage to the eye in a patient with a viral mixed infection against the background of Graves' disease. Management tactics should include a multidisciplinary approach to avoid the timing of the process. In this situation, primary care physicians do not pay attention to the initial diagnosis of the viral process, patients do not go to the infectious disease pathologist, although the marker of viral infections, determined by the overall blood test, shows the viral process in the body.*

**Keywords:** *iridocycle, viral mixed infection, marker of viral infections.*



**The relevance of the study.** Among all uveitis, non-communicable etiology, according to various authors, ranges from 20 to 70% [1,2,3]. Autoimmune uveitis is often the debut of a systemic disease, characterized by a severe and recurrent current. Uveitis, developing in case of systemic lesions, account for about 25-30% [2.4]. The presence of somatic comorbidity creates conditions for the timing of the process [4].

**The purpose of the study.** Consider the features of the clinical pattern of acute iridocyclitis against the background of viral mixed infection and comorbidity.

**Materials and Methods.** The data of medical documentation (clinical history, prescribed epicrysis, outpatient card) of the patient who received treatment for Acute seroplastic iridocyclitis in the adult ophthalmological department of Regional Clinical Hospital №2 were analyzed.

**Results of the study.** Patient E., 32, 24.03.2023. Addressed to JSC «Medical and sanitary part «Nefityanik» the ophthalmologist with complaints of redness and pain in the left eye. During the collection of the anamnesis it was found out that the above complaints are disturbing since 24.03.23, independently not treated. The day before, she had SARS with fever to febrile figures, runny nose, in the treatment she took antiviral therapy, antipyretic drugs. Suffers from Graves' Disease - for 1.5 years. Vaccination from covid-19 in 2020. Allergological history is not burdened.

Examination of ophthalmologist 24.03.23 revealed: Visus OD 0.4 with corr. Sf- 0.75 cyl -3.0 axis 10 = 0.7; OS 0.4 with corr. Sf -0.75 cyl -3.0 axis 10=0.7 n/k. HCD 14-15 mmp.t.s. Biomicroscopy OD - calm, the optical media are transparent, the reflex of the eye bottom is pink. OS is irritated, tearing, expressed photophobia. Biomicroscopy - eyelids intact, ciliary pain, mixed injection of eyeball vessels. Corneal edema, single precipitates, medium-depth front chamber, moisture clear, pupil round, reaction to live light, blue no, lens, glassy body transparent, eye-floor reflex pink. Ocular Bottom OU: optic disc is pale pink, the boundaries are clear, the veins are enlarged, the arteries are narrowed. Diagnosis: H20.0 Acute Iridocycle in the left eye.

Medical prescriptions: solution dexamethasone 0.1% by 1 cap 4 times a day-10 days. Vigamox 1 cap 4 times a day-10 days. Nimesulide 100 mg at 1 tab 2 times per day after eating- 10 days, Zodac 10 mg at 1 tab 1 time per day- 10 days. General recommendations: avoid hypothermia. 30.03.2023 The patient contacts the Ophthalmologist at the Reception Department of the Department of Internal Affairs of the Department of Internal Affairs of the Department of Internal Affairs of the Department. Hypoopia. Patient refuses the proposed hospitalization. 31.03.2023 Due to the progression of visual impairment, she is re-admitted and hospitalized to the Ophthalmological Department of the Regional Clinical Hospital №2, with the diagnosis: Acute serositis - Plastic

Iridocyclitis of the left eye of unclear etiology. When hospitalized. Visus OD= 0.5 s/k- 3.0=0.9 OS c/d = 0.3 s/k -3.0= 0.5 OD- is calm. OS-mixed injection of the eyeball, Tp is normal, moderate ciliary pain. On the corneal endothelium there are numerous small neoformed precipitates. The anterior chamber is of medium depth, at the bottom of the anterior chamber exudate level up to 3mm. The iris is swollen, the pupil is medically dilated, the adhesion is not present. The reflex of the eye floor is pink. The eye bottom is not special. The marker of viral infections (MVI) is determined by the lymphocytes%: monocytes% = 32.3:6%= 5.4 (acute viral etiology). COVID-19 AG express from 31.03.2023 negative. Class G antibodies to herpes simplex virus 1.2 type OP 2.17/0.18 have been identified; class G antibodies to Cytomegalovirus OP >3.00/0.26. Prescribed antiviral and antibacterial therapy systemically and locally. Against the background of the treatment the patient observed a positive dynamics. Local status when extracted (07.04.2023): Visus OD = 0.5 s/k- 3.0 = 0.9 OS c/d = 0.5 c c -2.5 x 164 = 0.7. OS eye is calmer, atrial flutter is normal, ciliary soreness is not. On the corneal endothelium, multiple small neo-formed precipitates have completely dissipated. The anterior medium-depth chamber, at the bottom of the front camera, the exudate levels up to 3mm has completely dissolved, the moisture is transparent. The iris is calm, the pupil is medically dilated, the adhesion is not present. The reflex of the eye floor is pink. The eye bottom is not special. Ultrasound of OS - in the vitreous body single floating clouds, shells fit.

**Conclusion.** The presented case demonstrates clinical manifestations of acute iridocyclitis. Examination of the patient's blood for viral infections (HSV 1, 2 type, cytomegalovirus) by IFA was positive. Acute iridocycle has classic clinical manifestations. It is advisable to direct patients to more sensitive methods of diagnosis - determination of infectious load at the time of occurrence of the disease at MFI rates above 5.4. The tactic of this patient management is that the main disease is a viral mix of infection, which should be treated primarily in the infectionist, with prescription of adequate antiviral therapy depending on the viral load. Consultation and recommendations of an ophthalmologist should consist in the local treatment of ophthalmological manifestations. In the treatment of this patient, the endocrinologist must also take the treatment for Graves' disease.

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HIV感染者的眼部表现

## OPHTHALMOLOGICAL MANIFESTATIONS IN A PATIENT WITH HIV INFECTION

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关联。 HIV 感染并发症的比例相对较高，发生在视觉器官，并且可能发生在眼睛的前部和后部。 本文介绍了医生办公室针对患有合并症的 HIV 感染患者进行紧急眼科护理的策略。 以内皮血管壁现象为特征的无保护高渗性疾病的存在可能另外支持慢性炎症。 需要采用多学科方法（治疗师、眼科医生、感染科医生）来治疗此类患者。

关键词：HIV感染、葡萄膜炎、高血压病。

**Relevance.** *A relatively high percentage of complications of HIV infection occur in the visual organ and may occur in both the front and back of the eye. The article presents the tactics of the doctor's office of emergency eye care in relation to patients with HIV infection, having comorbidity. The presence of an unprotected hypertonic disease characterized by the phenomena of endothelial vascular wall may additionally support chronic inflammation. A multidisciplinary approach (therapist, ophthalmologist, infectionist) is needed to treat this category of patients.*

**Keywords:** *HIV infection, uveitis, hypertension disease.*

**Relevance.** HIV infection is characterized by a long-term course, which is relevant for it by acquired immunodeficiency syndrome, leading to the development of eye diseases, including damage to the membranes of the eyeball, optic nerve and appendage [2,3]. Combined infectious diseases are widespread and widespread, including visual impairment [1.2.3]. Infectious eye lesions in patients with HIV infection have their own characteristics compared to persons without immunodeficiency [1.2]. Visual impairment in HIV/AIDS patients is mainly due to superinfection, involving all areas of the eye [3,4]. Such patients respond less to therapy and, despite the treatment, the inflammatory process continues to develop or inflammation relapses [2,3,4]. Both front and rear eye lesions may be observed. Such eye lesions develop in 40-75% of HIV-infected patients. [2.5]

**The purpose of the study.** To analyze the tactics of the doctor ophthalmologist of the office of emergency ophthalmological care when treating a patient with HIV infection.

**Materials and methods.** Patient 3., 59 years old applied to the emergency room 31.03. 2023 with complaints of redness, reduced vision in the left eye. According to the above complaints appeared about a week ago. He was treated as an outpatient under the conditions of his clinic. E.M. Niginsky (buried dexamethasone droplets 4 p/d, tobrex 6 p d, diklo-f 4 r/d, midrimax 3 p a day, oral amoxiclave pills 1000 mg 2 p a day.) On the background of the treatment the complaints are retained. At the control examination on 31.03.2023g, due to the persistence of complaints about redness, reduced vision on the left eye, sent to the cabinet of urgent ophthalmological conditions «Regional Clinical Hospital №2, Tyumen, Russia».

In the history of B20 since 2012. It is registered in the «Center for the Prevention and Control of AIDS», receives antiretroviral therapy. In 2012, toxoplasmosis infection was detected. In the history of hypertension. Antihypertensive therapy is not taken. Allergological anamnesis is aggravated (Antiviral drug inhibitor - Quinke edema).

**The results of the study.** The following ophthalmological changes were revealed during the examination in the emergency eye care room. Visus OD/OS=1.0/0.7n/k. Local status. OD - calm. Atrial flutter normal. Cornea and front chamber moisture transparent. Front chamber medium depth. Medium-width pupil, reflex to light retained. Eye-floor reflex pink. OS is a moderate mixed ocular injection, atrial flutter is normal. Ciliary soreness is absent. Cornea - small neoformed precipitates at the endothelium. The anterior chamber is medium depth, moisture is opalescent. Middle-width pupil, circular synechia, light response weakened. Fibrin filament luminescence. Eye bottom reflex is pink, weakened. Diagnosis: Sluggish fibrinosis - plastic iridocycle left eye of unclear etiology. In order to restore the hydrodynamics of the eyeball, remove the posterior sinec-

ular, the symptomatic and anti-inflammatory treatment was performed subconjunctivally (solution Mezaton 0.3 + solution dexamethasone 0.5), which was not effective. Due to the ineffectiveness of outpatient treatment and the presence of comorbidity, the patient was hospitalized in the ophthalmological department of «Regional Clinical Hospital №2, Tyumen, Russia» in order to relieve the inflammatory process and mitigate the complications of the posterior synoches in order to restore the hydrodynamics of the eye. In addition, in order to stabilize somatic status, a general practitioner must be consulted to prescribe systemic hypotensive drugs and an infectionist to prescribe adequate basic antiretroviral therapy.

**Withdrawal.** This clinical case shows that patients with B20 with the presence of concomitant comorbid pathology (hypertonic disease), which is characterized by the phenomena of vascular endotheliasis, respond worse to local anti-inflammatory therapy and, despite treatment for HIV infection, the inflammatory sluggish process continues to develop. A multidisciplinary approach is needed to treat this category of patients.

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类风湿性关节炎相关的角膜病变 (临床观察)  
**CORNEAL LESION ASSOCIATED WITH RHEUMATOID  
ARTHRITIS (CLINICAL OBSERVATION)**

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关联。 本文介绍了一名类风湿性关节炎背景下双侧角膜溃疡患者的临床观察病例。 风湿病的病程为5年。 主要疾病的基本治疗是每周获得甲氨蝶呤10毫克。 视力障碍的严重程度是修改基础治疗的证据。 此类患者需要采取多学科方法。

关键词: 类风湿性关节炎, 角膜溃疡, 基础治疗。

**Relevance.** *The article presents a clinical case of observation of a patient with bilateral corneal ulcers against the background of rheumatoid arthritis. The duration of rheumatic disease is 5 years. Basic therapy for the main disease is to obtain methotrexate 10 mg per week. The severity of visual impairment is evidence for the revision of basic therapy. A multidisciplinary approach is needed for this category of patients.*

**Keywords:** *rheumatoid arthritis, corneal ulcers, basic therapy.*

**Relevance.** In the Russian Federation, monitoring of the epidemiological situation of corneal blindness in the regions of Russia, followed by analytical processing of data obtained from chief ophthalmologists from 51 regions of the Russian Federation, showed the following results: corneal blindness is 5,9% of all blind

and partially sighted Russia [1-3]. According to the data of the Department of infectious and allergic eye diseases for the period 2000-2012 out of 1620 patients with the diagnosis of corneal ulcers 10% are the processes of precisely edge localization [3]. Risk factors for corneal ulcers include: exogenous, endogenous, corneal disorders, common diseases. Complications of corneal ulcers include the formation of cloudiness in the outcome of the inflammatory process [1,3]. In the presence of somatic pathology, not only edge but also optic and paraoptical ulcers [1] are formed. The nosology of scarring and corneal opacity is 21%, 9% are corneal ulcers and 6% are primary and secondary corneal dystrophy [2].

**The purpose.** To present a clinical case with an analysis of the course of a marginal corneal ulcer with perforation on the background of rheumatoid arthritis.

**Materials and methods.** The work was performed on the basis of a retrospective analysis of the clinical case of Patient B., who was observed in the ophthalmological department of the Regional Clinical Hospital №2.

**The results.** 05.07.2019 patient B. independently applied to the office of non-local ophthalmological care of the State Medical Institution “Regional Clinical Hospital №2” of Tyumen, complaining of a feeling of a foreign body in both eyes. Antibacterial and anti-inflammatory therapy was prescribed, after which the patient was released home. 09.07.19 deterioration of the condition, pain in the eye intensified, the patient sought help at the polyclinic for m / w, where he was sent to the office of non-emergency ophthalmological care of the “Regional Clinical Hospital №2”. From the emergency department, the patient was hospitalized in the ophthalmology department for urgent indications. From the anamnesis of life: rheumatoid arthritis, seropositive since 2014, observed by a rheumatologist, receives methotrexate 10 mg per week. He denies other chronic non-communicable diseases (NCDs). Local status on arrival: Visus OD = 0,1 c/κ +1,0 = 0,5; OS = 0,6 c/κ +1,0D = 1,0. OD –mixed injection of the eyeball. Corneal sensitivity is reduced. Ciliary soreness is absent. On the cornea in the paraoptic zone of circular infiltration, ulcer defect at 11-13h, 15-17h irregular shape, dimensions 1x3mm, with exposed edges. Local corneal edema. The anterior chamber is medium depth; the moisture is transparent. The pupil is medium width, the pupil’s response to light is retained. The reflex of the eye floor is pink. OS - mixed injection of the eyeball. Corneal sensitivity is reduced. Ciliary soreness is absent. Tp in N. On the cornea in the paraoptic zone of circular infiltration. Locally swelling of the cornea. The anterior chamber is medium depth, moisture transparent. Middle-width pupil, pupil response to light is sluggish. Eye-bottom reflex is pink.

It was diagnosed with a left eye corneal ulcer perforated against rheumatoid arthritis. Corneal ulcer of the right eye against the background of rheumatoid arthritis». Surgical treatment: manual layer keratoplasty left eye using allorasplaten.

Local status when extracted (24.07.19): Visus OD = c d 0.6 -0.7 OS = 0.06 n K. OD - quieter. Corneal sensitivity reduced. Ciliary pain is absent. On the cornea



in the paraoptic zone of circular infiltration, ulcerative defect at 11-13h, at 15-17, 21 h irregular shape, dimensions smaller, edges clearer, epithelials better, clouds formed. Local corneal edema is residual. The anterior chamber is medium depth, the moisture is transparent. The pupil is medium width, the pupil's response to light is retained. Eye base reflex is pink.

OS - quieter. Corneal sensitivity reduced. Ciliary soreness absents. Tp (normal). On the cornea in the paraoptic zone, the ulcerative defect is covered with a conjunctival flap, the flap is fixed by nodule sutures, the seams are wealthy, clean. Local epithelium edema is less, desamet shell folds are less. The middle depth front chamber, moisture transparent. Pupil is of medium width, pupil response to light is sluggish. The ocular bottom is not visible due to the conjunctival flap.

Ultrasound - no special.

**Withdrawal.** The presented clinical case indicates the importance and strong influence of systemic diseases, specifically rheumatoid arthritis, in the structure of the pathology of the vision organ. In their practice, ophthalmologists should take into account the presence of systemic diseases in the pathology of the eyes in the treatment of the patient. Isolated local therapy has no effect. The bilateral process of corneal lesion indicates the ineffectiveness of rheumatoid arthritis therapy. The presence of an active inflammatory process in the cornea indicates the ineffectiveness of the resultant basic therapy and the need to solve the transition to modern genengineering biological preparations. A multidisciplinary approach is needed to manage patients with rheumatic diseases.

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植入物治疗颈椎椎间盘源性病变的效果分析

**ANALYSIS OF THE RESULTS OF THE USE OF IMPLANTS IN THE  
TREATMENT OF DISCOGENIC LESIONS OF THE CERVICAL  
SPINE**

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抽象的。 工作目的: 回顾性分析 2018-2021 年期间进行的各种类型的植入物和植入技术, 确定使用频率, 确定使用特定植入物的手术与使用频率之间的相关性 术后并发症、疾病结局, 与随机临床试验数据进行比较, 比较使用TA技术和ACF手术治疗颈椎间盘退行性疾病的长期结果。

材料和方法: 对 A.L. Polenov RNI 第一神经外科患有颈椎多级病变、接受植入手术干预的患者的数据进行了分析。 分析患者总数为308例, 其中多节段病变患者101例。 为了验证受影响的脊髓运动节段, 对上肢进行了标准脊柱造影、磁共振成像 (MRI)、多螺旋计算机断层扫描 (MSCT)、神经肌电图 (ENMG)。 匹配文献来源的标准: 1) 纳入的研究: 随机临床试验, 检验使用 TA 和 ACF 技术对患有颈椎间盘退行性病变并存在临床和神经系统症状的成年患者的长期结果, 2) 手术类型 干预措施: 比较使用不同植入物的颈椎间盘 TA 和 ACF 技术的研究; 3) 结果: 研究、分析此类手术干预的长期临床和仪器结果; 神经症状的消退、患者的生活质量水平与颈椎NDI运动限制指数相关。

结果: 对获得的数据进行综合分析表明, 颈椎间盘手术后的患者在统计学上显着更有可能经历神经症状的消退。 最积极的结果是使用 Osteomed 和 Bengal 笼 (通常与多层钢板结合使用) 的患者, 在这些病例中, 患者术后恢复最有利, 并且记录了最少的卧床天数, 无并发症, 适应症 术后研究发现重复手术干预或种植体失败。 TA椎间盘术后患者重复手术干预的频率在统计学上显着低于ACF术后患者, 研究文献中也明确表明, TA椎间盘术后患者组中, 检测频率在统计学上显着较低 注意到覆盖的相邻椎体运动节段的退变, 而根据比较的手术技术, 在检测到下面的节段退变的频率方面没有获得统计学上的显著差异。

结论：根据上述数据，可以得出结论，Osteomed 和 Bengal 种植体的使用频率与术后并发症的数量和疾病的结果有直接相关。此外，尽管椎间盘手术技术近10年来在脊柱外科中得到了积极应用，但ACF手术仍然是颈椎间盘退行性疾病患者手术治疗的“金标准”。椎间盘手术在颈椎间盘退变患者的手术治疗中的次要作用很大程度上是由于缺乏令人信服的数据来证实此类手术在术后长期随访中的高临床有效性一向上。

关键词：颈椎间盘、植入物、融合器、退行性疾病、全关节置换术、颈椎前路融合术。

**Abstract.** *The purpose of the work: to retrospectively analyze various types of implants and implantation techniques that were carried out over the time period 2018-2021, to identify the frequency of use, to identify the correlation between the operation using a particular implant and the frequency of postoperative complications, disease outcomes, to compare with the data of randomized clinical trials, which compared the long-term results of the use of TA techniques and ACF in the surgical treatment of degenerative disease of cervical intervertebral discs.*

**Materials and methods:** *the data of patients of the 1st Neurosurgical department of the A.L. Polenov RNI with multilevel lesions of the cervical spine, who were prescribed surgical intervention using implantation, were analyzed. The total number of analyzed patients is 308, including 101 patients with multilevel lesion. To verify the affected spinal-motor segment, standard spondylography, magnetic resonance imaging (MRI), multispiral computed tomography (MSCT), electroneuromyography (ENMG) of the upper extremities were performed. Criteria for matching literature sources: 1) included studies: randomized clinical trials examining the long-term results of the use of TA and ACF techniques in adult patients with degenerative disease of cervical intervertebral discs and existing clinical and neurological symptoms, 2) types of surgical interventions: studies comparing the techniques of TA of cervical intervertebral discs and ACF using various implants; 3) outcomes: studies, analyzing long-term clinical and instrumental results of these types of surgical interventions; regression of neurological symptoms, the level of quality of life of patients associated with the index of movement restriction in the cervical spine NDI.*

**Results:** *a combined analysis of the data obtained showed that patients after cervical intervertebral disc surgery were statistically significantly more likely to experience regression of neurological symptoms. The most positive results were in patients with Osteomed and Bengal cages (often used in combination with multi-level plates) in these cases, postoperative recovery was most favorable in patients, and the minimum number of bed days was recorded, no complications, indications for repeated surgical intervention or implant failure were detected on the postoperative study. The frequency of repeated surgical interventions in patients after TA intervertebral discs was statistically significantly lower than in patients*

after ACF, also in the studied literature it is clearly indicated that in patients of the group after TA cervical intervertebral discs, a statistically significantly lower frequency of detection of degeneration of the overlying adjacent vertebral-motor segment was noted, while no statistically significant differences were obtained in the frequency of detection of degeneration of the underlying segment, depending on the compared surgical techniques.

**Conclusions:** based on the above data, it can be concluded that the frequency of Osteomed and Bengal implants used has a direct correlation between the number of postoperative complications and the outcomes of the disease. Also, despite the fact that the technique of intervertebral disc surgery has been actively used in spinal surgery for the past 10 years, the ACF operation still remains the “gold standard” of surgical treatment of patients with degenerative disease of cervical intervertebral discs. The secondary role of intervertebral disc surgery in the surgical treatment of patients with degeneration of intervertebral discs of the cervical spine is largely explained by the lack of convincing data confirming the high clinical effectiveness of this type of surgery in the long-term period of postoperative follow-up.

**Keywords:** cervical intervertebral discs, implants, cages, degenerative disease, total arthroplasty, anterior cervical fusion.

**List of abbreviations:**

RNI- Russian Neurosurgical Institute

VAS — visual analog scale

CI — confidence interval

RR — relative risk

ACF — anterior cervical fusion

SDAV — standardized difference of average values

TPF- transpedicular fixation

TA — total arthroplasty

NDI (Neck Disability Index) — index of movement restriction in the cervical spine

**Introduction**

In recent years, due to demographic aging of the population, a decrease in human physical activity, industrialization and automation of our life activity, the number of patients with degenerative-dystrophic diseases of the cervical spine has been steadily increasing. This led to the rapid spread, development and improvement of various surgical treatments for this group of patients. The number of operations using various implants has increased significantly, which inevitably leads to an increase in the number of implant-associated complications. Thus, against the background of the ever-growing interest of doctors in the pathology of

the spine and spinal cord, an increase in surgical activity in relation to this group of patients, the issue of developing preventive measures, diagnostics and tactics for the treatment of surgical complications is of particular relevance and social significance. The purpose of surgical treatment is to eliminate compression of the spinal cord and/or spinal roots with subsequent stabilization of the spinal—motor segment. Anterior cervical discectomy with fixation of an autostomy taken from the iliac crest is a proven effective method of treating radiculopathy and myelopathy due to cervical spondylosis. Nevertheless, the authors report the development of complications in the donor site up to 22%. In order to avoid such complications, many alternative materials for corporodesis have been proposed: homotransplants, xenografts, demineralized bone matrix and cage. Currently, for interbody fusion, the following are used: bone autograft, titanium, carbon, PEEK cages, titanium plate, cage together with plate, combined plate cages. There is no consensus on the choice of the method of anterior fixation at the cervical level. The latest systematic review showed that the choice of stabilization (graft, cage, plate) has little effect on the relief of pain symptoms. At the same time, low-level evidence has been established regarding the fact that autografts cause more complications than cages (HR 0.33, 95% CI: 0.12—0.92). This gives a minimal advantage in favor of implants. There is no consensus on the expediency of using plates for additional fixation of the cage-stabilized segment. According to a number of authors, the additional use of a plate for single- and two-level cervical fusion in degenerative diseases of the cervical spine can improve the fusion of vertebrae, reduce the frequency of subsidence and complications, ultimately improving clinical outcomes. At the same time, total arthroplasty (TA) of intervertebral discs, as a modern alternative method of surgical treatment of patients with degenerative disc disease, is gaining increasing popularity in many neurosurgical and orthopedic clinics around the world. However, the technique of intervertebral disc repair is not without drawbacks. Among the main adverse events observed in patients after performing TA discs, heterotopic ossification, migration and “sagging” of the installed implant are distinguished. The long-term results of the use of TA and ACF techniques in the surgical treatment of degenerative diseases of the cervical intervertebral discs are ambiguous and largely contradictory. Thus, a number of researchers confirm the high clinical efficacy of the use of intervertebral disc surgery compared with the operation of ACF. On the other hand, some authors clearly prove the absence of differences in the long-term results of the use of these surgical techniques in patients with degeneration of intervertebral discs of the cervical spine.

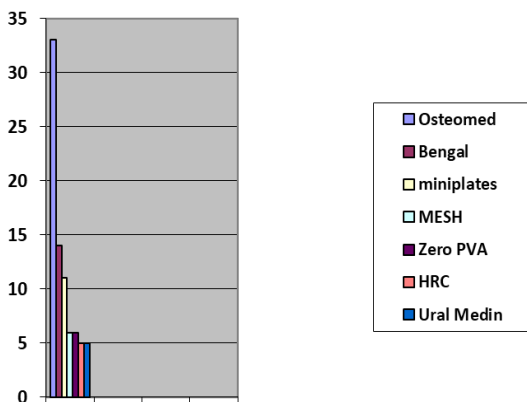
### **Purpose of the work**

Analysis of various types implants and implantation techniques that were carried out over the time period 2018-2021, to identify the frequency of use, to identify the correlation between the operation using a particular implant and the

frequency of postoperative complications, disease outcomes, to compare with the data of randomized clinical trials, which compared the long-term results of the use of TA and ACF techniques in surgical treatment of degenerative disease of cervical intervertebral discs.

### Materials and methods of research

The data of patients of the 1st Neurosurgical department of the A.L. Polenov RNI with multilevel lesions of the cervical spine, who were prescribed surgical intervention using implantation, were analyzed. All patients had appropriate indications for this treatment, preliminary data from instrumental research methods. The total number of analyzed patients is 308, including 101 patients with multilevel lesion. Mostly men-51%, women-49%. In the preoperative period, complaints, anamnesis, and neurological status were evaluated. The patients underwent general clinical and instrumental examination methods, and the index of movement restrictions of the cervical spine (NDI) was determined. The severity of the pain syndrome in the pre- and postoperative periods was assessed by the visual analog pain scale (VAS). In addition, the duration of the operation, the volume of blood loss, the duration of postoperative bed rest, and the length of stay of patients in the hospital were determined. To verify the affected vertebral-motor segment, standard spondylography, magnetic resonance imaging (MRI) was performed; multispinal computed tomography (MSCT); electroneuromyography (ENMG) of the upper extremities. The most commonly used implants in multi-level operations are Osteomed cages (33 patients), Bengal cages (14), miniplates (11), MESH implants with TPF (6), Zero PVA cages (6 patients), HRC and Ural Medin cages (5).



The most frequently performed surgical interventions in the study group of patients were:

microsurgical discectomy, laminoplasty, corpectomy, hemilaminectomy.

Criteria for matching literature sources:

- 1) included studies: randomized clinical trials examining the long-term results of the use of TA and ACF techniques in adult patients with degenerative disease of the cervical intervertebral discs and existing clinical and neurological symptoms (radiculoneuralgia, radiculoneuritis or radiculopathy);
- 2) types of surgical interventions: studies comparing the techniques of TA cervical intervertebral discs and PSHS with the use of various implants;
- 3) outcomes: studies analyzing the long-term clinical and instrumental results of these types of surgical interventions; regression of neurological symptoms, the level of quality of life of patients associated with the index of movement restriction in the cervical spine NDI (Neck Disability Index), the severity of pain in the cervical spine and upper extremities on a visual analog scale (VAS), the frequency of adverse events and degeneration of adjacent vertebral-motor segments, as well as the prevalence of repeated surgical interventions;

### **Results**

Clinical parameters of long-term results of surgical treatment of patients with degenerative disease of cervical intervertebral discs included:

- 1) regression of neurological symptoms;
- 2) the level of quality of life of patients according to NDI;
- 3) the severity of pain syndrome in the cervical spine and
- 4) upper extremities according to VAS

A combined analysis of the data obtained showed that patients after cervical intervertebral disc surgery were statistically significantly more likely to experience regression of neurological symptoms. It should also be pointed out that the number of postoperative complications - 1, in the form of paresis gives us an idea of the statistical effectiveness of surgical interventions with the use of implants. The most positive results were in patients with Osteomed and Bengal cages (often used in combination with multi-level plates) in these cases, postoperative recovery was most favorable in patients, and the minimum number of bed days was recorded, no complications, indications for repeated surgical intervention or implant failure were detected on the postoperative study. At the same time, as a partial meta-analysis of the literature, according to the inclusion criteria, the following result was obtained. There was also a regression of the points that were indicated above. According to the compliance criteria, the partial meta-analysis included 9 randomized controlled clinical trials, the general characteristics of the studies included in this meta-analysis are presented in the table.

Research	Year	Country	Design	Number of operated segments	Number of patients		Middle age		Male		Postoperative follow-up period, months
					TA	ACF	TA	ACF	TA	ACF	
R.Sasso	2011	USA	RCT	1	242	221	44,4	44,7	44,5	51,1	48
D.Coric	2012	USA	RCT	1	41	33	49,5	49,3	39	43,8	72
J.Burkus	2014	USA	RCT	1	276	265	43,3	43,9	46,4	46	84
H.Zhang	2014	China	RCT	1	55	56	44,8	46,7	45,5	46,4	48
R.Davis	2015	USA	RCT	2	225	105	45,3	46,2	50,2	42,9	48
M.Hisey	2015	USA	RCT	1	164	81	43,3	44	47,6	44,4	48
M.Janssen	2015	USA	RCT	1	103	106	42,1	43,5	44,7	46,2	84
J.Luo	2015	China	RCT	1	34	37	47,2	46,3	52,9	47,1	48
F.Phillips	2015	USA	RCT	1	211	184	45,3	43,7	51,8	51,9	60

The frequency of repeated surgical interventions in patients after TA intervertebral discs was statistically significantly lower than in patients after ACF, also in the studied literature it is clearly indicated that in patients of the group after TA cervical intervertebral discs, a statistically significantly lower frequency of detection of degeneration of the overlying adjacent vertebral-motor segment was noted, while no statistically significant differences were obtained in the frequency of detection of degeneration of the underlying segment, depending on the compared surgical techniques.

**Conclusion**

Based on the above data, it can be concluded that the frequency of Osteomed and Bengal implants used has a direct correlation between the number of postoperative complications and the outcomes of the disease. Also, despite the fact that the technique of intervertebral disc surgery has been actively used in spinal surgery for the past 10 years, the ACF operation still remains the “gold standard” of surgical treatment of patients with degenerative disease of cervical intervertebral discs. The secondary role of intervertebral disc surgery in the surgical treatment of patients with degeneration of intervertebral discs of the cervical spine is largely explained by the lack of convincing data confirming the high clinical effectiveness of this type of surgery in the long-term period of postoperative follow-up. The search for literature sources in various databases shows the presence of a large number of meta-analyses comparing the clinical efficacy and safety of the use of TA and ACF techniques in patients with degenerative disease of cervical



intervertebral discs. However, most of these meta-analyses are based on the study of randomized clinical trials with a short period of postoperative follow-up of operated patients.

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定位相关癫痫的认知状态

**COGNITIVE STATUS IN LOCALIZATION-RELATED EPILEPSY**

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The research rationale behind this topic is the high prevalence of epilepsy, which ranks second among neuropsychiatric diseases. ILAE data shows that the number of people suffering from epilepsy exceeds 60 million people (ILAE, 2021-2023). Epilepsy morbidity is 50-70 per 100,000 people annually, and the prevalence rate is similar to the prevalence of type 2 diabetes mellitus. That said, for 20-30% of patients with epilepsy this condition is permanent, and more than one in four patients with epilepsy die between the ages of 25 and 50 ([Andersen K.M.et al., 2019](#)). This fact highlights the need for such patients to receive special clinical attention from neuro-epileptologists, psychiatrists, psychologists, as well as neurosurgeons and neurophysiologists. Epileptic seizures limit the physical activity of patients, however, this is only the “tip of the iceberg”. Epilepsy causes “psychological pain” and suffering for patients and their families, isolates them from society (Lobzin S.V., Vasilenko A.V. et al., 2018). The cognitive, behavioral, emotional and personality areas of human life are all affected by this.

Thus, in many scientific papers, special attention was paid to the study of cognitive status. At the initial stage, most patients do not complain about any significant impairment of memory, attention, mental performance, or temper changes. However, subsequent observation shows that since the disease onset, increased fatigability, emotional excitement, slight mood swings and defective memory have appeared (S.A. Gromov, 2004).

Furthermore, other researchers have shown that during the epileptic disease course there is a decline in cognitive function, which is most pronounced with inappropriate antiepileptic drug therapy (AET) and frequent convulsive epileptic seizures. The most common disorders of higher mental functions in epilepsy are memory, attention, and gnosis (Kissin M.Ya., 2007). At the same time, the goal of modern antiepileptic therapy is not only to reduce the frequency of seizures and prevent their increase, but also to reduce the negative effects of the therapy. First of all, it is a decrease of the antiepileptic medication influence on cognitive functions and, consequently, on quality of life of patients (Karlov V.A., 1997, Gromov S.A., Mikhaylov V.A. et al., 2012)

Assessing behavioral disorders in epilepsy is an extremely complex area. On the one hand, there are no objective tools designed specifically for assessing behavioral disorders in epilepsy. On the other hand, the phenomenology and pathophysiology of behavioral disorders in epilepsy are unique and do not lend themselves to generally accepted descriptions in psychiatric literature (Kissin M.Ya., 2007, Krishnamoorthy E.S., 2006).

Many psychological studies in patients with epilepsy revealed only asthenic manifestations and vegetative lability, however, some authors observed diffuse cognitive decline, defective memory, and a decrease in the level of generalized thinking. Furthermore, emotional and behavioral disorders, maladaptive forms of response in emotionally stressed situations, social introversion, anxiety, mood swings (Biopsychosocial aspects of neurorehabilitation of patients with posttraumatic forms of epilepsy (Vasilenko A.V., Korovina S.A., Yakunina O.N., Gromov S.A., 2015) are quite often detected in patients with epilepsy.

In the initial period of the disease (up to 3 years from the onset of seizures), personality changes, as a separate syndrome, can be found in 13% of patients (Gromov S.A., 2004). Significant contribution to the study of the emotional sphere of patients with epilepsy was made by M.Ya. Kissin, who described psychological types characteristic of various localizations of the pathological process in his works. He distinguished the following types: 1. 'Glutinous' type (inertness, stiffness of nervous processes, personal characteristics are polar from aggressiveness to flattery; patients avoid everything new; egocentrism, hypocrisy); 2. Explosive type (emotional tensity, explosive brutal irritation, violent affective outbursts: quickly agitated, but withdrawing); 3. schizoid (timidity, modesty, elevated vanity, experiencing own alienation and inferiority); 4. Psychasthenic (indecisiveness, frailty, affective-explosive disorders); 5. Hysteroid (high reponsiveness for suggestion and obstinacy, inability to set serious goals and to achieve them consistently, naivety, spontaneity); 6. Paranoid (willful, intransigent, inclined to disputes and conflicts, straightforwardness in judgments, kindness, responsiveness, arrogance).

Many studies using the Minnesota Multidimensional Personality Inventory (MMPI) have shown mixed results with respect to personality traits and psychopathological differences between temporal lobe epilepsy and other forms of the disease. Furthermore, no clear correlation between the right- and left-sided localization of the epileptiform activity focus was found. Although, as the sample increased, slight elevations were found in the form of hypertrophic concern for own health and a tendency to depression (Locke D.E., Fakhoury T.A., Berry D.T., 2010).

S.A.Gromov believes that separation and relative consideration of intellectual and emotional characteristics of the patient's personality is justified only to provide convenience of research and description. In reality, however, all personality characteristics are closely interrelated. In patients with epilepsy, not only changes in intellectual and mnemonic activity are found, but also a decrease in their cognitive capabilities. Thus, the adequate reflection and perception of the external world, and the emotional assessment and attitude of the patient toward it are impaired. Outwardly defensive reactions of self-protective type prevail in patients with epilepsy, with increase in seizure frequency, duration of disease and age of patients, acting as decompensating factors. The qualitative peculiarity of patients is more related to the nature of epileptic seizures, and the intensity of manifestation of individual personality traits depends on the disease duration and the frequency of seizures.

Patients with epilepsy have chronic psycho-emotional disorders with depressed mood, fear, anxiety, which is relevant for them and affects their daily functioning. (Karlov V.A., 1993, 2000).

In polymorphic unstable symptoms of mental disadaptation in patients with epilepsy, affective, asthenic, vegetative-somatic and behavioral manifestations prevail, in the genesis of which the role of social frustration is traceable (N.G. Neznanov, 2016).

Currently, medical specialists often have to deal with a pharmacoresistant form of epilepsy. In most cases, if there are no contraindications, such patients are offered neurosurgical treatment. Some researchers are cautious about these types of interventions. For example, S.A. Gromov emphasized that a human being is not a motor where a damaged part can be replaced from a catalog and it would function as before. The patient has their psyche, their understanding of the disease, their attitude towards the doctor, the treatment, etc. However, adequate treatment strategies can improve the quality of life and reduce the intensity of the painful process. M.Ya. Kissin believes that neurosurgical intervention may improve the electrophysiological characteristics of brain activity, decrease its epilepticism, normalize cognitive functions and improve holothymia. Both opinions can be supported, the main point being that treatment must be approached in a competent manner, with the awareness that the patient's future will depend on it.

**Research Objective.** To study the characteristics of cognitive status and personality area in patients with symptomatic forms of localisation-related epilepsy (LRE).

**Materials and methods.** Complex clinical and neurological (with type determination of seizure, history and neurological status), psychological and psychiatric (including clinical interview and research methods for concentration (Münsterberg test), memory (10-word memory test), thinking ('extra object' method), intellect (J. Raven matrices), personality traits (Minnesota Multiphasic Personality Inventory, MMPI), type of attitude to the disease (TOBOL method of diagnosing attitude to the disease)), and electroencephalographic (prolonged Video EEG monitoring with mandatory sleep recording) research was performed in 102 patients with various symptomatic forms of LRE, depending on the disease etiology and localization of the focus and/or foci of epileptiform activity.

The research findings were collected in an electronic database using an Excel spreadsheet editor. Research findings were statistically processed with the STATISTICAforWindows application software package in accordance with the recommendations for processing the results of biomedical research (Junkerov V.I., Grigoriev S.G., 2002). The conclusion of statistical significance was made at the probability level of false conclusion  $p < 0.05$ .

**Research findings.** The clinical examination of all examined patients with epilepsy present during initial presentation included the seizure type study, medical history, neurological symptoms, and the form of the disease. Seizure types were identified based on the classification adopted by the World League Against Epilepsy in 1981 and included in the current ICD-10. In most of the patients with LRE studied by authors, seizures were partial with secondary generalization (in 55 patients, i.e. in 54.0% of cases), and the clinical picture of the partial component mainly corresponded to the temporal mediobasal localization of the focus of epileptiform activity (temporal pseudo-absence, vegetative-visceral, automatic absence). Apart from that, a significant number of patients had only generalized seizures without a partial component (in 30 patients, i.e., 29.4%) or polymorphic seizures (in 17 patients, i.e., 16.6%). As for the seizure frequency, it was high in more than half of the cases – 3 times a month and more often.

The medical history study, first of all, required analysis of the existing predictors of epilepsy, such as traumatic brain injury of varying severity (in 38 cases, i.e., 37%), perinatal pathology and birth trauma (in 34 subjects, i.e., 33%), neuroinfections (in 9 patients, i.e., 9%), and consequences of acute and chronic vascular pathology (in 13 patients, i.e., 13%). The history of febrile seizures, acute toxic and dysmetabolic encephalopathy with epileptic syndrome was also taken into account.

Clinical and neurological examination of patients with LRE revealed a number of neurological syndromes of varying severity, such as vegetative-dystonic,

asthenic, liquor-dynamic, cerebral-focal, and psychoorganic, which were the etiological manifestation of previously suffered CNS pathological processes. In 33.3% of patients (34 patients), mainly combinations of several syndromes were observed, varying in severity and dynamics of manifestations.

Detailed study of the seizure structure in combination with EEG data and other clinical and instrumental studies allowed to establish the form of disease in each particular case according to the International Classification of Epilepsy. The distribution of patients by epilepsy form is shown in Table 1.

**Table 1.**  
*Distribution of patients by epilepsy form*

Epilepsy Forms	Number of patients	
	Value	%
Frontotemporal (temporal lateral)	45	44.8
Temporal mediobasal	30	25.6
Multifocal	15	16.6
Frontal	12	12.8
Total:	102	100

It was found that in the majority of observations, i.e. 48 out of 102 examined patients (44.8%) had frontotemporal (temporal lateral) localization of the epileptiform activity focus according to Video EEG monitoring. Moreover, the observed epileptic seizures in this group were characterized by the highest frequency and polymorphism, thus showing both frontal and temporal involvement in the pathological process. The signs of the frontotemporal localization were also traced in the mental status and personality area of patients. Thus, based on observations of the authors, the most frequent were a combination of glutinous and explosive disorders, as well as moderate and, less often, severe cognitive decline affecting, mainly, delayed reproduction and concentration. In addition, the ergopathic type of attitude toward the disease (67%) was found to prevail in this group of patients, and the patients themselves sought to continue working by all means, sometimes with even greater zeal than before the onset of the disease. Due to the desire of patients to keep their jobs and social activity, they could neglect diagnostics and therapy and not follow some medical advice. The research showed that the personality and behavioral characteristics of patients with frontotemporal forms of LRE were very similar to those of temporal localization, so a more detailed description will be provided below.

As for patients with temporal forms of LRE (20 patients, i.e. 25.6%), Video EEG monitoring showed the prevalence of mediobasal location of the epileptiform activity focus. And seizures in most cases proceeded as vegetative-viscer-

al and secondary-generalized with a fairly high frequency (more than 4-5 per month). Psychological and psychiatric examination of patients with temporal forms of LRE found moderate and, more often, severe personality changes of the glutineous type and cognitive decline in the form of auditory-speech and visual-verbal memory and attentional selection impairment. Moreover, a sensitive type of attitude toward the disease prevailed in patients of this group (62%). Therefore, it can be assumed that most of these patients are characterized by hypersensitivity associated with the disease when interacting with other people. Excessive vulnerability and concern about the possible unfavorable impression that patients could make on others by disclosing information about their illness prevailed in this group. Patients with neurasthenic (23%) and anxious (15%) types of attitude toward the disease were also found here. ‘Neurasthenics’ are characterized by “irritable weakness” type behavior, when patients become excessively impulsive and irritable without achieving rapid improvement in their health status and while receiving medical procedures and manipulations that cause discomfort. For “anxious” patients, respectively, anxiety associated with the disease and its consequences is characteristic. The Minnesota Multiphasic Personality Inventory, MMPI, identifies elevated anxiety, individualism (schizoidism), and social introversion as the leading trends in personality traits of patients with frontal forms of LRE, which are also found in multifocal forms of the disease. Overcontrol, rigidity and individualism are accentuated features in this cohort of patients, sometimes complicating socio-psychological adaptation. The most pronounced features of pessimism and emotional lability in patients with temporal lobe forms cause emotional and behavioral disorders, maladaptive forms of response in situations of emotional stress. It should be noted that men with temporal forms of LRE have a rather strong sense of their gender identity and are expressed with masculine traits, desire for independence, while women’s gender behavior is manifested through the desire to be cared for, sentimentality, commitment to family interests, and infantilism.

The next most frequent position was occupied by 15 patients (16.6%) with multi-focal LRE without a clearly prevailing lobular symptoms of the disease process. Polymorphic seizures were frequent (with a tendency to seriality), as well as pronounced cognitive impairments and personality changes of a mixed (organic, epileptic) type prevailed in this cohort of patients. The found types of attitude to the disease in this group combine all of the above features of the attitude to the disease, to a greater extent, correlating with the frontotemporal forms. The Minnesota Multiphasic Personality Inventory, MMPI, identifies impulsiveness as the leading trend in the personality of patients with multifocal forms of LRE, depending on how mature and independent of immediate disposition their goal-setting is. Furthermore, patients with multifocal forms of LRE have such accentuations



as rigidity (resentfulness), individualism (schizoidism) and social introversion, which is reflective of a lower level of inclusion in the social environment, and in stressful situations, an escape from the problem into solitude. In addition to the pessimism and emotional lability that predominate in temporal lobe LRE, a multi-focal lesion is characterized by an adaptation impairment due to overcontrol and elevated anxiety. Thus, the emotional sphere of patients with multi-focal forms of LRE is characterized by a contradictory clash of restraint and irritation. As for excessive anxiety, it is no longer a character trait in this group of patients, but a condition with sleep disorders, obsessive fears, a sense of confusion, anxiety, and foreboding.

The group of examined patients examined with the frontal form of LRE (12 patients, i.e. 12.8%), showed prevalence of convulsive seizures associated with sleep. Aggressive inclinations and increased irritation, a moderate decline in memory for both short-term events and past events, high attentional exhaustion and moderately pronounced disorientation were observed in the mental status of these patients. Patients with the frontal form of LRE had the most frequent concomitant personality and behavior disorders, compared to other localizations of the focus and/or foci of epileptiform activity. The Minnesota Multiphasic Personality Inventory, MMPI, identifies elevated anxiety, individualism (schizoidism), and social introversion as the leading trends in personality traits of patients with frontal forms of LRE, which are also found in multifocal forms of the disease. The sharpening of character traits in this cohort of patients occurs mainly due to paranoia and rigidity. The personality structure of patients with frontal LRE is such that inside it burns itself out with contradictory emotions, external circumstances predominate the character, and the fate-fulfilling tendency bears the imprint of passivity. Thus, in frontal forms of LRE, as well as in other localization of a disease process, leading personality traits are pessimism and emotional lability.

**Discussion.** Examining features of the cognitive status and personality area of patients with localization-related forms of epilepsy is of great theoretical and practical importance, since it provides insight into general patterns of adaptive and accommodation mechanisms of patient's interaction with the social environment and allows developing more appropriate therapy tactics. Thus, the neurological status of the examined patients with symptomatic forms of LRE revealed various clinical and neurological syndromes, which are the etiological manifestation of the predictors of epilepsy. To study in more detail the mechanisms of influence of personality and cognitive status in patients with LRE on the therapy process, and, consequently, on the epileptic process itself, a comprehensive psychological and psychiatric examination was performed. The findings of these studies show that epilepsy is a superstrong stimulus that triggers negative processes within the personality and pathological changes in higher mental functions.

**Conclusions.** Thus, certain specific and pronounced features of personality and cognitive spheres occur in different forms of localization-related epilepsy, depending on the focus localization of the pathological process, which lead to a decrease in the quality of life of patients. The identified features of the types of attitudes towards the disease must be taken into account when planning treatment of patients with various forms of localization-related epilepsy, their rehabilitation and socialization. As for the comprehensive psychological and psychiatric findings, they suggest the prevalence of asthenic, vegetative, cognitive, emotional, and behavioral disorders in patients with symptomatic forms of LRE, which can be used in neurosurgical treatment and subsequent rehabilitation interventions.

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入住重症监护病房的急性淋巴细胞白血病患者临床恶化的预测因素  
**PREDICTORS OF CLINICAL DETERIORATION IN PATIENTS  
WITH ACUTE LYMPHOBLASTIC LEUKEMIA ADMITTED TO  
THE INTENSIVE CARE UNIT**

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抽象的。急性淋巴细胞白血病（ALL）是一种造血系统恶性疾病。ALL 发生的确切原因尚不清楚，推测有多种诱发因素，如遗传、病毒、辐射、化学物质对人体的影响。ALL 约占儿童期所有恶性肿瘤的25-30%，在儿科恶性肿瘤结构中居首位。

关键词：临床恶化； 预测因子； 重症监护病房（ICU）； 急性淋巴细胞白血病（ALL）； 孩子们； 关键条件。

**Abstract.** *Acute lymphoblastic leukemia (ALL) is a malignant disease of the hematopoiesis system. The exact causes of the development of ALL are still unknown, various predisposing factors such as genetic, viral, radiation, chemical effects on the human body are assumed. ALL accounts for about 25-30% of all malignant tumors in childhood and ranks first in the structure of malignant tumors in pediatrics.*

**Keywords:** *Clinical deterioration; Predictors; Intensive care unit (ICU); Acute lymphoblastic leukemia (ALL); Children; Critical conditions.*

## **Introduction**

The most prevalent kind of cancer that occurs in children is called acute lymphoblastic leukemia, and it is responsible for around 25 percent of all cancers that affect children. It affects lymphocytes, immature white blood cells. The two primary types of lymphocytes are B- and T-lymphocytes, and T-ALL and B- or pre-B ALL, two matching subsets of ALL, are produced from their immature forms [1].

More than 6,600 new instances of acute lymphoblastic leukemia were diagnosed in people in the United States in 2022, and nearly 1,600 people lost their lives to the disease. This information comes from the American Cancer Society. Children make about sixty percent of all cases, with the highest incidence rate occurring between the ages of two and five years old. A second peak in incidence comes beyond the age of fifty. It is the second biggest cause of mortality for children under the age of 15, ranking behind only accidents [2].

Even while the general survival rate for children who have been diagnosed with ALL has substantially improved over the course of the past few decades, there are still some children who must be taken to the critical care unit owing to a deterioration in their clinical state. This is the case even though the overall survival rate for children has significantly improved. The identification of predictors or early warning indicators of severe circumstances in children with ALL who have been hospitalized to the intensive care unit is vital [3]. The underlying causes of clinical deterioration in these cases can vary widely, such as infectious complications, chemotherapy-related toxicities, or organ involvement by leukemia itself [4].

It is essential to keep in mind that a sizeable majority of patients diagnosed with hematologic cancers will need admission to the critical care unit at some point throughout their treatment. This highlights the significance of using the found predictors to enable efficient discussion with patients about their treatment choices [5].

## **Results and discussion**

Using four studies [6–9], secondary data was extracted. Both types of data (quantitative and qualitative) were gathered. The study results were shown in the form table. Qualitative data was presented in the form of frequencies or percentages. Qualitative data was shown in the form of nominal data. There was no data analysis and just a data comparison in the discussion part.

## ***Prognostic Factors for ALL***

In the Table 1 of prognosis factors for acute lymphoblastic leukemia, several factors have been identified as influential in determining the outcomes for patients.

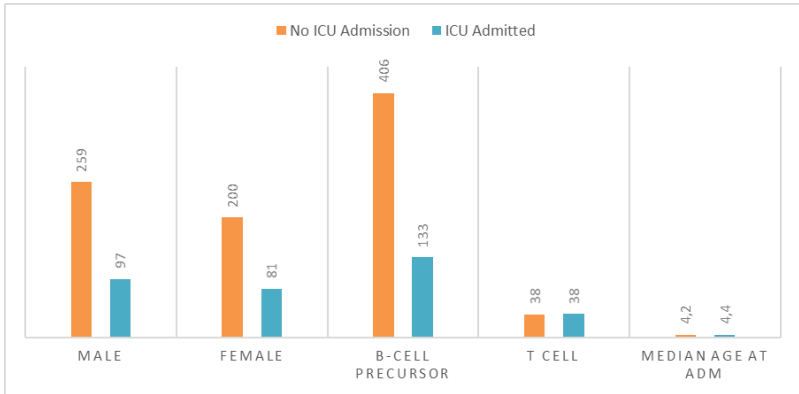
**Table 1**  
*Prognostic Factors*

Prognostic Factors	Outcome
Age at diagnosis	Better cure rates are shown in B-cell ALL in children aged 1 to 9.
WBC count	A diagnosis with a WBC count more than 50,000 cells/mm3 carries a higher risk.
ALL subtype	Early B-cell ALL has a better outlook than mature B-cell (Burkitt) leukemia.
Sex	Girls may have a somewhat better prognosis than boys.
Initial treatment	Early remission (major reduction of cancer cells within 1-2 weeks of chemotherapy) indicates a better outlook.

Source: Authors' development based on (ALL) n.d. [6]

**Predictor Of ICU Admission for Acute Lymphoblastic Leukemia**

The scientific data provided in Figure 1 presents data on ICU admissions categorized by gender and cell types. It includes counts of individuals in each category, distinguishing between those who were admitted to the ICU and those who were not.



**Figure 1.** Predictor of ICU admission

Source: Authors' development based on Ranta S et al [7]

**Primary Reasons for ICU Admission**

The results Table 2 describe the primary reasons for ICU admission in patients with acute lymphoblastic lymphoma.

**Table 2**

*Primary Reason for ICU Admission*

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
Respiratory	67	33.7
Cardiac	14	7.0
Renal	16	8.0
Gastrointestinal	6	3.0
Neurology	5	2.5
Postoperative	40	20.1
Sepsis	42	21.1
Other	3	1.5
Unknown	6	3.0

*Source: Authors' development based on Bird GT et al [8]*

**Three Major Predictor or ICU Admission**

The research data in Table 3 indicate three major predictors of ICU admission for patients with Acute Lymphoblastic Lymphoma.

**Table 3**

*Major Reasons of Admission*

<b>Variable</b>	<b>All Admissions</b>	<b>HR Patients (No. of Admission)</b>	<b>SR Patients (No. of Admission)</b>
Chemotherapy-related	26.5%	1 (Range: 0-23)	0 (Range: 0-21)
Infection-related	49.1%	3 (Range: 0-26)	2 (Range: 0-20)
Unexpected Admissions	24.3%	1 (Range: 0-22)	1 (Range: 0-22)

*Source: Authors' development based on Elsevier n.d. [9]*

Different research discovered that several clinical and laboratory prognostic markers utilized for B-precursor ALL were much less predictive in T-ALL and that other criteria, such as time to relapse and location of recurrence, were significant prognostic factors for survival [10].

Attention should be paid to cardiovascular alterations, especially in children and adolescents. While the data provided highlights reasons specific to ALL, broader studies show that respiratory issues, cardiac problems, renal issues, and sepsis are common reasons for ICU admission in various studies.

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利用量子化学计算研究DADNE及其衍生物气相分解机理

**STUDY OF DADNE AND ITS DERIVATIVES DECOMPOSITION  
MECHANISM IN THE GAS PHASE USING QUANTUM-CHEMICAL  
CALCULATIONS**

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抽象的。采用量子化学方法研究了1,1-二氨基-2,2-二硝基乙烯 (DADNE, FOX-7) 及其羟基和胍基衍生物在气相中的主要热解步骤机理。DADNE 分解通过两个相互竞争的通道发生: H 向 C 的转移和 aci 形式的分解。DADNE 衍生物的分解仅通过 H 至 C 转移通道进行。未取代分子的分解极限阶段的活化能最高 (约 200 kJ/mol), 羟基衍生物的分解极限活化能最低 (80 - 120 kJ/mol)。

关键词: FOX-7, DADNE, AHDNE, HFOX, 量子化学计算、活化焓、初级热解步骤机理。

**Abstract.** *A primary thermolysis step mechanism of 1,1-diamino-2,2-dinitroethylene (DADNE, FOX-7) and its hydroxyl and hydrazino derivatives was studied in the gas phase by quantum chemistry methods. DADNE decomposition occurs via two competing channels: transfer of H to C and decomposition of aci-forms. The decomposition of DADNE derivatives proceeds only via H to C transfer channel. The activation energy of the limiting stage of decomposition is highest for the unsubstituted molecule ( $\approx 200$  kJ/mol) and lowest for the hydroxyl derivatives (80 - 120 kJ/mol).*

**Keywords:** *FOX-7, DADNE, AHDNE, HFOX, quantum-chemical calculation, activation enthalpy, mechanism of primary thermolysis steps.*

### **Introduction**

1,1-diamino-2,2-dinitroethylene (DADNE or FOX-7) is one of the most prospective compounds for creating operationally safe explosives, due to its high energy capacity as well as thermal stability and low sensitivity to shock and friction [1 - 5].



Despite the large number of works devoted to the study of DADNE thermolysis, the detailed mechanism of thermolysis primary stage is still the subject of active discussion.

As the primary thermolysis reaction,  $\text{NO}_2$  group separation [6, 7], nitro-nitrite isomerization [8, 9], nitric acid formation [9] were proposed. However, the activation energies of these transformations are much higher than the experimental value of the activation energy of DADNE decomposition of 191 [10] and 198 [11] kJ/mol. It was shown in [12] that the intramolecular transfer of hydrogen atom from an amino group to carbon atom and the transfer of oxygen atom of nitro group to another carbon atom have the lowest activation energy values among other transformations (205 and 226 kJ/mol, respectively [12]), which are close to the experimental values of decomposition activation energy.

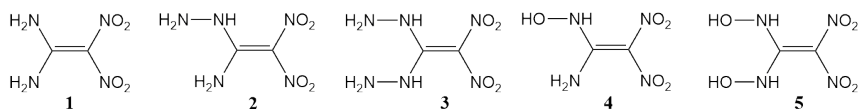
Hydrazino-substituted DADNE, 1-amino-1-hydrazino-2,2-dinitroethylene (HFOX or AHDNE), is also an efficient energy-intensive compound and can be obtained by nucleophilic substitution in FOX-7 with hydrazine monohydrate [14, 15]. However, due to the insertion of an amino group in AHDNE, it becomes much less stable in the anhydrous form compared to DADNE [16 - 18]. In recent years, AHDNE has been used as a precursor for the creation of new promising high-energy compounds [19, 20].

A hydroxylamine-substituted compound similar in structure was synthesized and studied in [21]. It is even less stable than AHDNE, with a decomposition temperature value of 75 °C (according to this study, this value is 238 °C for DADNE and 124 °C for AHDNE [21]).

The purpose of this study is to investigate the mechanism of the primary thermolysis stage of DADNE and its amino and hydroxylamino derivatives using quantum-chemical methods.

### Research objects and calculation methodology

The compounds under study are DADNE (compound **1**) as well as its derivatives with one or both hydrogen atoms of the amino group replaced by the  $-\text{NH}_2$  group [1-amino-1-hydrazino-2,2-dinitroethylene (compound **2**), 1,1-dihydrazino-2,2-dinitroethylene (compound **3**)] or a  $-\text{OH}$  group [1-amino-1-hydroxylamino-2,2-dinitroethylene (compound **4**), 1,1-dihydroxylamino-2,2-dinitroethylene (compound **5**)]:



The calculations were performed on the Computational Center's multiprocessor cluster at the Federal Research Center of Problems of Chemical Physics and

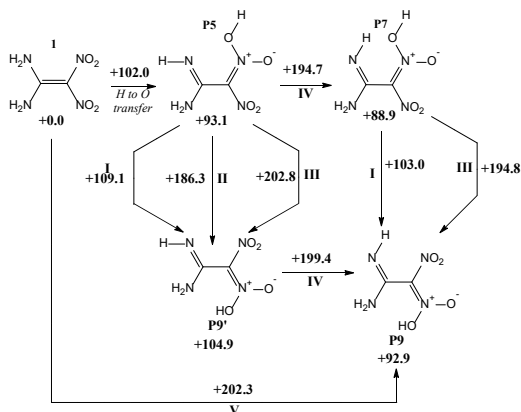
Medicinal Chemistry, (Russian Academy of Sciences) using the GAUSSIAN 09, Revision C.01 [22]. The mechanism of thermolysis was investigated in the gas phase (vacuum simulation). The geometries were optimized using the DFT method PBE0 [23] and the basis set cc-pVDZ. For the stationary points obtained by DFT calculations, the electron energy was calculated at the CCSD/aug-cc-pVDZ level. Thermodynamic energy corrections were applied based on calculations performed by MOLTRAN software package [24] using normal oscillation frequencies.

## Results and discussion

### DADNE Thermolysis

The most advantageous channel of DADNE decomposition described in [12] is transfer of H to C, followed by detachment of NO<sub>2</sub> radical, or transfer of the second H atom to O, which leads to breakdown of C-C bond. The effectiveness of this channel has been confirmed experimentally [13, 25]. In [26, 27] a new promising thermolysis pathway was described: the formation and further decomposition of DADNE aci-forms.

DADNE aci-form is initially formed by direct transfer of H to the O nitro group. However, various other aci-forms can be formed later, either by migration of this H or by intramolecular rotations (Scheme 1):



**Scheme 1.** The mechanism of DADNE aci-forms formation. The transcription of the designations is given in the footnote<sup>1</sup> below.

<sup>1</sup> I - rotations about N-OH and C-C bonds

II - rotation about C=N(O)OH bond and hydrogen exchange between oxygens of one and different nitro groups

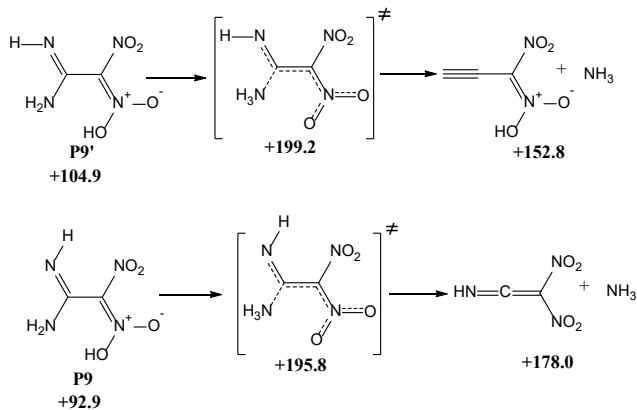
III - hydrogen exchange between oxygens of one and different nitro groups

IV - rotation about C=NH bond

V - consecutive hydrogens transfer from one amino group to another and from NH<sub>2</sub> group to oxygen

It can be seen from the scheme that the activation enthalpies of aci-form transformations into each other do not exceed the experimental value of the decomposition activation energy, and in some cases are even much lower.

The aci-forms labeled **P9** and **P9'** in the scheme are capable of further decomposition *via* transfer of H from OH group to NH<sub>2</sub> group and further detachment of NH<sub>3</sub> molecule (Scheme 2):

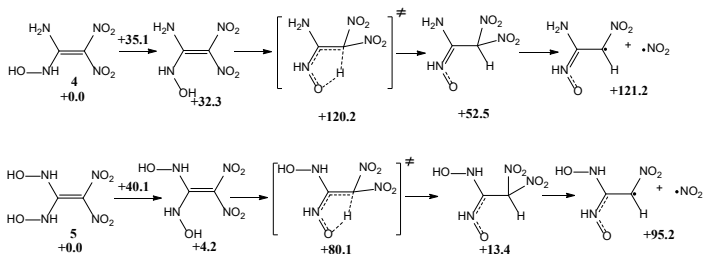


**Scheme 2.** NH<sub>3</sub> detachment from DADNE aci-forms

The activation enthalpy of the presented transformations also does not exceed the experimental value of the activation energy. Thus, the channel with DADNE decomposition through aci-forms has an activation enthalpy of the limiting stage in the range 195.8 - 202.8 kJ/mol, which agrees well with the experimental value. The efficiency of this channel is also confirmed [25] by the presence of ammonia and HNCO in the products of DADNE thermolysis (HNCO is formed by decomposition of fragments from Scheme 2 that remain after NH<sub>3</sub> detachment from the aci-form [25]).

#### **Thermolysis of hydroxylamino derivatives of DADNE**

In hydroxylamino derivatives, in contrast to DADNE, the possibility of transferring H to C from the OH group appears. The activation enthalpy of this transformation is much lower compared to DADNE (Scheme 3):



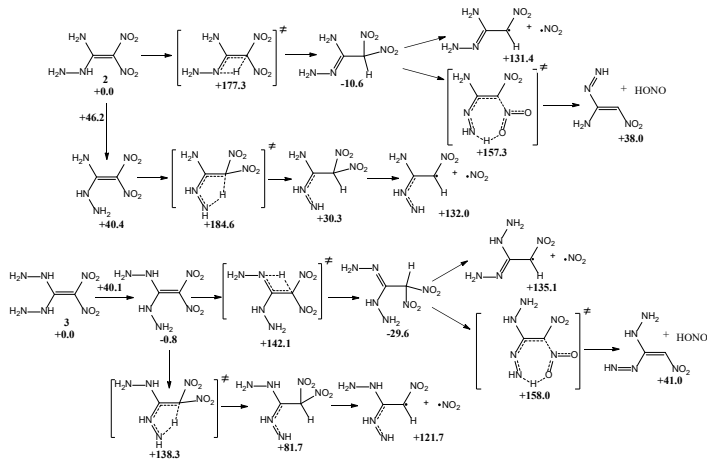
**Scheme 3.** *H transfer to C and subsequent NO<sub>2</sub> detachment in hydroxyl derivatives of DADNE*

Also, unlike DADNE, in compounds **4** and **5** the second stage of this channel is only a detachment of NO<sub>2</sub> radical, since the transfer of the second H atom to O, with a further break of the C-C bond (as it was in DADNE), according to our calculations, occurs with an activation energy of about 300 kJ/mol, which is even higher than in an unsubstituted molecule.

According to our calculations, the activation enthalpies of the formation of aci-forms of compounds **4** and **5**, as well as their decomposition *via* NH<sub>3</sub> or H<sub>2</sub>N-OH extraction, remain close to those of DADNE (about 200 kJ/mol) or higher, from which we can conclude that this route does not work for hydroxyl derivatives of DADNE.

### **Thermolysis of DADNE hydrazino derivatives**

The results of H to C transfer channel study are shown on Scheme 4:



**Scheme 4.** *Transfer of H to C and subsequent transformations in DADNE hydrazino derivatives*

In hydrazino derivatives for H-to-C transfer channel, there is a competition between the 4- and 5-membered transition states for the first stage (direct H transfer). The second stage can still be NO<sub>2</sub> detachment. For compound **2**, the transfer reaction of the second H atom from the N-NH<sub>2</sub> group for the 4-membered TS case at the first stage has an activation enthalpy of +157.3 kJ/mol, which is lower than the first stage of H to C transfer (+177.3 kJ/mol). For compound **3**, this reaction has almost the same activation enthalpy, but for this compound it is already higher than the activation enthalpy of the first stage by 15.9 kJ/mol, which makes this pathway unlikely.

As in the case of hydroxyl derivatives, the channel of formation and decomposition of aci-forms by detachment of NH<sub>3</sub> or H<sub>2</sub>N-NH<sub>2</sub> for compounds **2** and **3** is not efficient due to high values of activation enthalpies of the limiting stages (over 200 kJ/mol).

### Conclusions

- DADNE thermolysis occurs *via* two competing channels:
  1. Transfer of H to C followed by detachment of the NO<sub>2</sub> radical, or transfer of the second H atom to O accompanied by cleavage of the C-C bond
  2. Formation of DADNE aci-forms by H transfer and various intramolecular rotations, followed by H transfer to NH<sub>2</sub> from OH group and detachment of NH<sub>3</sub> molecule

The operability of these channels is confirmed by experimental data [13, 25].

- Thermolysis of hydroxylamino derivatives of DADNE occurs *via* only one channel, the transfer of H to C, followed by the NO<sub>2</sub> radical detachment. The activation enthalpy of the limiting stage is about 2 times lower than in the unsubstituted molecule
- Thermolysis of hydrazino-substituted DADNE also occurs only *via* H to C transfer channel, followed by detachment of NO<sub>2</sub> radical, or transfer of the second H atom to O accompanied by the formation of HONO (only for monosubstituted molecule **2**). At the stage of H to C transfer, there is competition between 4-membered and 5-membered TSs. The activation enthalpy of the limiting stage of the channel is higher than in hydroxylamine derivatives, but lower than for DADNE.
- Based on the results obtained, a thermostability series of the studied DADNE derivatives can be compiled: DADNE (**1**) > monohydrazine derivative (**2**) > dihydrazine derivative (**3**) > monohydroxyl derivative (**4**) > dihydroxyl derivative (**5**). The lower thermal stability of DADNE derivatives is confirmed experimentally [16 - 18, 21].

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N'-烷氧基二氮烯-N-氧化物在气相中的热解机理  
**MECHANISM OF THERMOLYSIS OF N'-ALKOXYDIAZENE-N-  
OXIDES IN THE GAS PHASE**

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抽象的。采用量子化学方法研究了四种2-烷氧基二氮烯-1-氧化物在气相中热解的初步机理。1-烷基中不含 $\beta$ -H原子的化合物的分解是通过氧原子之间的 $\text{CH}_3$ 基团转移而发生的,然后中间体分解;极限阶段的活化焓约为200 kJ/mol。含有 $\beta$ -H原子的化合物的分解是通过五元过渡态 $\beta$ -H转移到O,然后N-alk键断裂;极限阶段的活化焓为150-170kJ/mol。活化焓的计算值以及预测的热解产物与实验数据很好地对应。

关键词: ADO, 2-烷氧基二氮烯-1-氧化物, 量子化学计算, 活化焓, 初级热解步骤机理, 1-甲基-2-甲氧基二氮烯-1-氧化物, 2-甲氧基-1-新戊基二氮烯-1-氧化物, 1-叔丁基-2-甲氧基二氮烯-1-氧化物、1-乙基-2-甲氧基二氮烯-1-氧化物。

**Abstract.** *The primary step mechanism of the thermolysis of four 2-alkoxydiazene-1-oxides in the gas phase was investigated by quantum chemistry methods. The decomposition of compounds not containing  $\beta$ -H atoms in the 1-alkyl group occurs via transfer of the  $\text{CH}_3$  group between oxygen atoms followed by decomposition of the intermediate; the activation enthalpy of the limiting stage is about 200 kJ/mol. The decomposition of compounds containing  $\beta$ -H atoms occurs via the transfer of  $\beta$ -H to O via five-membered transition state, after which the N-alk bond is broken; the activation enthalpy of the limiting stage is 150-170 kJ/mol. The calculated values of the activation enthalpies as well as the predicted thermolysis products correspond well to the experimental data.*

**Keywords:** ADO, 2-alkoxydiazene-1-oxides, quantum-chemical calculation, activation enthalpy, mechanism of primary thermolysis steps, 1-methyl-2-methoxydiazene-1-oxide, 2-methoxy-1-neopentylidiazene-1-oxide, 1-tertbutyl-2-methoxydiazene-1-oxide, 1-ethyl 2-methoxydiazene-1-oxide.

## Introduction

2-Alkoxydiazene-1-oxides (ADO, N'-alkoxydiazene-N-oxides, alkoxy-NNO-azoxy compounds, O<sup>2</sup>-alkylated diazen-1,2-diolates, O<sup>2</sup>-alkylated NONO-ates) are potentially promising components of energetic materials (EMs).

This is primarily due to the higher formation enthalpy of ADOs compared to nitroamines of the same elemental composition [1]. The second most important advantage of ADOs over nitroamines is their higher thermal stability, as shown by the first members of the ADO homologous series [2]. In addition, the simplest ADOs are much more inert to chemical reagents (acids, bases, oxidizing agents, reducing agents) compared to nitroamines [3 - 7].

In [8] the synthesis procedure was described, and in [2] the kinetics of thermal decomposition in the gas phase of three model 1-alkyl-2-methoxydiazene-1-oxides specifically synthesized for this purpose in [8] was studied. Based on the activation parameters and quantitative analysis of the decomposition products, the mechanisms of thermolysis depending on the nature of the 1-alkyl substituent were proposed.

For the decomposition reaction of compounds containing no  $\beta$ -H atoms, the mechanism of homolytic breaking of the N-OCH<sub>3</sub> bond was proposed [2]. In another paper [9] based on quantum-chemical calculations performed using DFT and G4 methods, an alternative mechanism of decomposition of such compounds was proposed that involves rotation of the OCH<sub>3</sub> group around the N-O bond followed by transition of the CH<sub>3</sub> group to another oxygen atom (this is the limiting stage of the thermal decomposition reaction *via* this channel). The activation enthalpy of this transformation is 184 kJ/mol [9], which agrees well with the experiment [2].

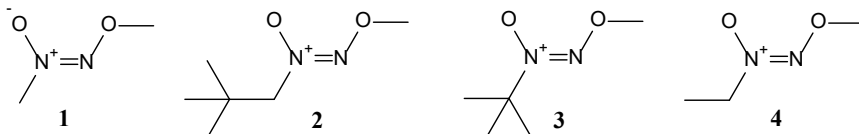
For compounds containing  $\beta$ -H atoms in the 1-alkyl substituent of ADO, according to [2] the mechanism of thermal decomposition changes: transfer of the  $\beta$ -H atom *via* the cyclic transition state (TS) becomes the main channel. This conclusion was based on the significant change in activation parameters and thermolysis products in comparison with compounds containing no  $\beta$ -H atoms. Three variants of the cyclic transition state - a six-membered and two five-membered (transfer to the O atom or N atom) - were considered. The six-membered one was discarded, and the choice between the two five-membered ones was made in favor of transferring  $\beta$ -H to the nitrogen atom.

In [10] *Z-E* isomerization barrier was calculated for 1-methyl-2-methoxydiazene-1-oxide at B3LYP/6-311G(d,p) (247.70 kJ/mol) and G3MP2B3 (262.57 kJ/mol) levels.

The purpose of this study is to investigate the mechanism of the primary thermolysis stage in the gas phase of four ADOs using quantum-chemical methods.

### Research objects and calculation methodology

The subjects are 1-methyl-2-methoxydiazene-1-oxide (**1**), 2-methoxy-1-neopentylidiazene-1-oxide (**2**), 1-tert-butyl 2-methoxydiazene-1-oxide (**3**) and 1-ethyl-2-methoxydiazene-1-oxide (**4**):



Compounds **1** and **2** do not contain  $\beta$ -H, while compounds **3** and **4** do, so the molecules were studied in pairs, according to this criterion.

The calculations were performed on the Computational Center's multiprocessor cluster at the Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry (Russian Academy of Sciences) using the GAUSSIAN 09, Revision C.01 [11] and ORCA, version 5.0.2 [12]. The thermolysis mechanism was studied in the gas phase (vacuum simulation). The geometry optimization was performed by the DFT method PBE0 [13] and the basis set cc-pVDZ. The electron energy for the stationary points obtained by DFT calculations was calculated at CCSD/aug-cc-pVDZ (Gaussian 09 program) and DLPNO-CCSD(T)/aug-cc-pVTZ (ORCA program). Thermodynamic energy corrections were made based on calculations carried out with the MOLTRAN software package [14] using normal oscillation frequencies.

### Results and discussion

#### *Thermolysis of ADOs that do not contain $\beta$ -H atoms in the 1-alkyl substituent*

In this work, the following potential decomposition channels were studied: methoxy radical detachment, methyl group transfer from one oxygen to another, methyl radical detachment (from an oxygen atom), H to O transfer, and H to N transfer. Also, the value of the *Z-E* isomerization barrier is given for clarity.

The results are presented in the table 1:

**Table 1.**

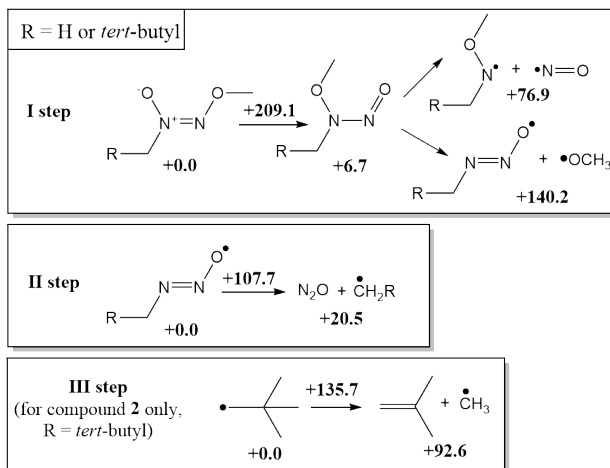
*Activation enthalpies for different decomposition channels of ADOs that do not contain  $\beta$ -H atoms*

Reaction	$\Delta H_a$ , kJ/mol	
	Calculation level: CCSD/aug-cc-pVDZ//PBE0/cc-pVDZ	
	Numbers given in brackets – DLPNO-CCSD(T)/aug-cc-pVTZ	
	Molecule 1	Molecule 2
Z-E isomerization	+253.6	+267.1
OCH <sub>3</sub> abstraction	+208.4 (+229.1)	+205.3 (+232.6)
CH <sub>3</sub> transfer between O atoms	+209.1 (+199.6)	+206.1 (+197.7)
CH <sub>3</sub> abstraction from O	+220.6 (+244.9)	+218.8 (+243.4)
H transfer to O	+248.2	+270.0
H transfer to N	+283.6	+279.1

First, it is worth noting that the value of the Z-E isomerization barrier significantly exceeds the experimental value of the decomposition activation energy of  $204 \pm 5$  and  $206 \pm 6$  kJ/mol for compounds **1** and **2**, respectively [2]. During synthesis, thermodynamically more stable Z-isomers are formed. Thus, the decomposition occurs exclusively *via* the Z-isomer, and precisely for this isomer the activation parameters of the reactions presented in Table 1 were calculated.

The most advantageous channels are detachment of the methoxy radical and transfer of the CH<sub>3</sub> group. However, using a higher calculation level (DLPNO-CCSD(T)/aug-cc-pVTZ) leads to a strong increase in the enthalpy of N-OCH<sub>3</sub> bond breaking, so the contribution of this channel does not seem significant.

Scheme 1 below shows further transformations following the CH<sub>3</sub> group transfer stage:



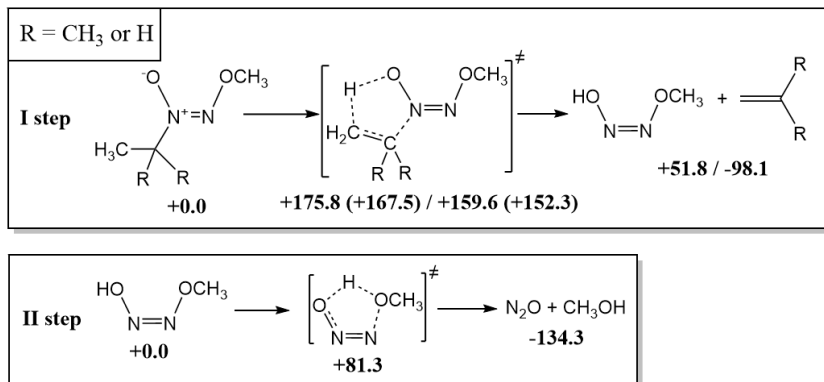
**Scheme 1.** Mechanism of thermolysis of ADOs which contain no  $\beta$ -H atoms via the  $\text{CH}_3$  group transfer channel. For stages I and II, the enthalpy values are given only for compound **1** (since the picture for compound **2** is qualitatively similar). Stage III is possible only for compound **2**. Calculation level - CCSD/aug-cc-pVDZ//PBE0/cc-pVDZ

The  $\text{N}_2\text{O}$  formed in stage II is fixed in large quantities during thermolysis of both compounds [2]. The methoxy and methyl radicals formed in the I and II decomposition stages of compound **1** are capable of detaching H from any H-containing molecules to form methanol and methane, respectively, which were found to be one of the main products of the thermolysis of compound **1** [2]. The formation of methane and methanol precisely by the radical route is also confirmed experimentally, by decreasing the yield of these products when NO is introduced [2]. For compound **2**, the yield of methanol is almost the same as for compound **1**, while the yield of methane is greatly reduced [2]. This confirms the similarity of decomposition stages I and II for compounds **1** and **2**, as well as the formation of the neopentyl radical (rather than the methyl radical as for compound **1**) in stage II for compound **2**. The small amounts of methane found experimentally during the decomposition of compound **2** [2], are associated with stage III, the decomposition of the neopentyl radical into methane and isobutylene.

#### **Thermolysis of ADOs containing $\beta$ -H atoms in the 1-alkyl substituent**

For ADOs containing  $\beta$ -H atoms, the mechanism and enthalpy values presented in Table 1 remain virtually unchanged, but two new channels, the transfer of  $\beta$ -H to O or N via five-membered transition states, become possible. The CCSD/aug-cc-pVDZ/PBE0/cc-pVDZ calculation for the  $\beta$ -H transfer to N reaction gives

an activation enthalpy of +267.5 and +241.8 kJ/mol for compounds **4** and **3** respectively, which is significantly higher than the experimental decomposition activation energy value of  $148 \pm 4$  kJ/mol (compound **3**) [2]. Therefore, Scheme 2 below shows only the decomposition path *via* the primary transfer  $\beta$ -H to O:



**Scheme 2.** The thermolysis mechanism of ADOs containing  $\beta$ -H via the  $\beta$ -H transfer channel to O. The first value of enthalpy in the pair refers to molecule **4**, the second to molecule **3**. Calculation level - CCSD/aug-cc-pVDZ//PBE0/cc-pVDZ; for values indicated in brackets - DLPNO-CCSD(T)/aug-cc-pVTZ//PBE0/cc-pVDZ.

For compound **4**, the authors were unable to find experimental data in the literature.

It can be seen from Scheme 2 that the activation enthalpy of the limiting stage for compound **3** is +159.6 or +152.3 kJ/mol (depending on the calculation level), which agrees well with the experimentally observed decrease in decomposition activation energy when passing from compounds **1** and **2** to compound **3** [2], and also with the experimental decomposition activation energy of compound **3**  $148 \pm 4$  kJ/mol [2].

The decomposition products, according to Scheme 2, are isobutylene, which is formed at stage I, immediately after the transfer of H to O, and methanol and N<sub>2</sub>O, which are formed at stage II as a result of GMD (Z-1-hydroxy-2-methoxydiazene) decomposition. Exactly the same products were recorded experimentally as the main ones during thermolysis of compound **3** [2]. In contrast to compounds **1** and **2**, in the case of compounds **3** and **4**, methanol is not formed in a radical way, but as a result of GMD decomposition.

## Conclusions

- The mechanism of thermolysis of ADOs containing no  $\beta$ -H atoms (compounds **1** and **2**) is a reaction of  $\text{CH}_3$  group transfer from one oxygen atom to another, followed by decomposition of the resulting intermediate by homolytic breaking of N-N and N-OCH<sub>3</sub> bonds.
- The resulting radicals are able to decompose further to form  $\text{N}_2\text{O}$  and  $\text{CH}_3$ /neopentyl radicals. The neopentyl radical is also able to decompose further by detaching the  $\text{CH}_3$  radical.
- The contribution of the reaction of homolytic breaking of the N-OCH<sub>3</sub> bond at the initial molecule seems insignificant, since, using a higher level of calculation, the enthalpy of this reaction is much higher than the experimental decomposition activation energy.
- The mechanism of ADOs thermolysis containing  $\beta$ -H atoms (compounds **3** and **4**) is the transfer reaction of  $\beta$ -H to O *via* a five-membered TS. The products of this transformation are ethylene/isobutylene (depending on the structure of the initial ADO) and Z-1-hydroxy-2-methoxydiazene, which can further decompose relatively easily to  $\text{N}_2\text{O}$  and methanol.
- The calculated decomposition activation enthalpies of compounds **1** and **2** are approximately 200 kJ/mol, while for compounds **3** and **4** 150 - 170 kJ/mol. These values correspond well to the experimental data.
- The predicted thermolysis products also correspond to the experimentally observed ones.
- In the design of new stable energy-intensive compounds based on 1-alkyl-2-methoxydiazene-1-oxides, one should be cautious about the presence of  $\beta$ -H in the 1-alkyl substituent, since it can lead to a decrease in the decomposition activation enthalpy and, consequently, to a decrease in the thermal stability of the compound in general.

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石英石纯石英原料的获取

## OBTAINING PURE QUARTZ RAW MATERIALS OF QUARTZITES

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抽象的。本文介绍了通过电脉冲破碎和气动分离方法从西西伯利亚和东西伯利亚矿床的高纯度石英岩中获得微米级石英精矿的结果。介绍了破碎过程中引入所得精矿中的硬件污染物的成分和性质的研究结果。

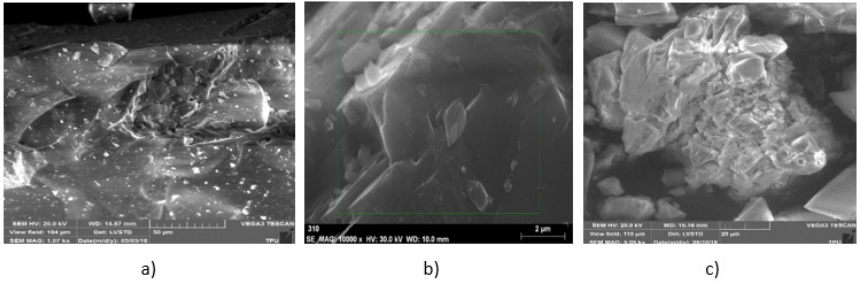
关键词: 石英岩, 高纯石英原料, 电脉冲破碎。

**Abstract.** *This paper presents the results of obtaining a micro-sized quartz concentrate obtained from high-purity quartzites from the deposits of Western and Eastern Siberia by methods of electric pulse crushing and aeromechanical separation. The results of studies of the composition and nature of hardware contaminants introduced into the resulting concentrate during crushing are presented.*

**Keywords:** *quartzites, high-purity quartz raw materials, electric pulse crushing.*

The world market of production and consumption of quartz raw materials is currently characterized by the trends of increasing consumption of most chemically pure varieties of quartz [1]. This is due to the application of new high technologies for producing items intended for semiconductor microelectronics, special materials for optical and acoustic electronics, optical fiber systems, nanomaterials, producing unique ceramic materials and items from silicon carbide (SiC) and silicon nitride (Si<sub>3</sub>N<sub>4</sub>) for ferrous and nonferrous metallurgy, chemical industry. Moreover, this trend is caused by the increasing demand for crystalline silicon conditioned by developing helioenergetics and creation of photoelectric plants that implement the silicon-based elements that transform solar radiation into electric energy.

Taking the depletion of conventional rock crystal deposits into consideration, attention is paid to quartzites, quartz-rich rocks from of Western and Eastern Siberia. Quartzites contain 97 to 99 % of SiO<sub>2</sub> and higher, the high purity of which is provided by unique conditions of their formation [2,3]. Quartzites are monomineralic rocks that are distinguished by higher content of quartz. Quartzites of sedimentary metasomatic origin almost completely consist of high-density  $\alpha$ -quartz micrograins with the dimensions varying from 0.01 to 50 microns (fig.1).



*Fig.1. Photos of quartzite grains obtained using scanning electron microscopes: a) quartzite of the Bural-Sardak deposit (mechanical crushing), b) quartzite of the Antonovsky deposit (mechanical crushing), c) quartzite of the Bural-Sardak deposit (electric pulse crushing).*

In local areas, particularly in the zones of increased fragmenting, the chemically pure quartzites from Antonovsk Area, under the influence of hypergene processes suffer the deterioration of quality characteristics that determine the primary industrial grades of quartzites, but they, as the rocks, do not contain poisonous or toxic elements (Table 1).

**Table 1.**  
*Average content of certain rare, radioactive and rare-earth elements in quartzites of different industrial grades*

Grade / element content [10 <sup>-4</sup> %]	U	Th	Yb	Sm	La	Hf	Au	Ag	Tb	Sc
KR-2	0.2	-	-	0.5	0.3	1.3	0.005	-	-	0.8
KF	0.4	0.6	0.2	0.7	0.6	1.1	-	-	-	1.0
KSh	0.4	0.6	0.2	0.8	0.8	1.2	-	-	-	2.4

The most pure varieties of quartzites exhibit low degree of crystallinity of quartz microgranules [4, 5], absence of isomorphic replacements and impurity ions ((Al, Fe, Ti, Na and other) in the crystal phase of  $\alpha$ -quartz.

Quartzites do not contain elements of boron and phosphorus, which limit the use of quartz raw materials for the production of silicon of "solar" quality, where they serve as doping additives that change the conductivity type of semiconducting silicon, and for producing quartz and special borosilicate and borophosphate glass, where such elements play the role of modifying cations.

Various contents of impurity chemical elements are found in quartzites, which are present in accessory minerals. Along quartz recrystallization cracks, stratification cracks and in intergranular volume there are hydrous ferric oxides, feldspar, hydromica, illite and chlorite. These impurities (except iron hydroxides) are easily removed by crushing and further washing.

The profound purification of raw materials is carried out for grains with the dimensions varying from 5 to 200  $\mu\text{m}$  in an aeromechanical reactor, where the material is further milled with the simultaneous deslurring and thermochemical treatment, which allows obtaining the high quality of quartzite with the content of  $\text{SiO}_2$  amounting to 99.96% and more (Table 2).

**Table 2.**  
*Changes to the content of certain oxides in quartzites due to aeromechanical separation*

Sample name	Content [wt%]				
	$\text{SiO}_2$	$\text{Fe}_2\text{O}_3$	$\text{Al}_2\text{O}_3$	$\text{TiO}_2$	ignition loss
Initial quartzite	98.89	0.45	0.3	0.01	0.35
Fraction of 1 mm (enriched)	99.58	0.1	0.3	0.025	-
Fraction of 0.4 mm (enriched)	99.79	0.008	0.3	0.022	0.04

Fine-grained highly pure Antonovsky quartzites that practically do not include harmful structural impurities can be easily enriched by technological methods unlike monocrystalline raw materials that in certain cases require special purification in alloy.

Although the mechanical grinding is conventionally used for rock disintegration, the electro-pulse crushing technique suggested and experimentally verified by researchers from Tomsk Polytechnic University, has been employed for over 60 years [6]. Electric pulse crushing is used especially effectively for technological enrichment and fragmentation of particularly strong quartz rocks.

However, production of high-purity  $\text{SiO}_2$  without foreign contaminating inclusions, is currently a global technological problem, and very few publications address this issue [7, 8].

As a result of electropulse grinding of quartzites under the selected modes [9], sufficiently homogeneous grains of crystalline quartz with a size of 0.01...0.5 mm with a characteristic shell fracture were observed in the resulting concentrate, including fused, both pure and with particles of pure iron adhering to them. The presence of extraneous magnetic and non-magnetic impurities of complex composition is also noted: Fe-Cr-Ni-Cu-Al, but more often Fe-Ni-Cr, sometimes with an admixture of Mn, in the form of individual grains of various shapes (fig. 2). The magnetic fraction represents separate grains and quartz grains covered with iron hydroxide film. The grain shape of this fraction is dendritic, lamellar, acicular, round, etc.



**Figure 2.** The shape and size of particles of magnetic and non-magnetic iron fractions, and individual quartz grains with metal particles stuck to them after electric pulse crushing

To obtain a high-purity micro-sized quartz concentrate of homogeneous granulometric composition for high-purity quartzites of Siberia, methods of electric pulse crushing and electromechanical separation can be used. Optimal selection of crushing methods and modes, the choice of electrical discharge parameters, materials and the design of the crushing chamber allows minimizing the introduction of “hardware hardware” and allows the removal of the magnetic fraction from the crushed material by additional cleaning.

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智慧建造，共创美好未来

## TO A BRIGHT FUTURE THROUGH SMART CONSTRUCTION

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注解。 文章研究了国外在建筑物、构筑物景观美化利用方面的经验。 考虑了建筑绿化的方法、各种绿化类型的屋顶绿化布置方案、绿化技术方案。 考虑了在俄罗斯的条件下使用各种园艺方法的可能性。 一系列绿化建筑措施最大限度地减少高层建筑对环境的负面影响。 在气候炎热的国家，立面园艺系统对能源消耗指标产生积极影响 - 它通过封闭结构增加隔热性并减少热量损失，提供防晒（像太阳能遮阳板一样工作）以及由于水分蒸发和风速而冷却 减少。 植物遮阳降低了建筑围护结构内外表面的温度梯度。 因此，建筑物的导热性和空气渗透到建筑物内的情况减少，从而减少了建筑物的电力消耗。

关键词： 智能建筑； 广泛的园艺； 集约化园艺； 操作屋顶； 垂直园艺； 露台园艺； 城市的环境问题； 建筑物的景观美化。

***Annotation.** The article studies the experience of foreign countries in the use of landscaping of buildings and structures. The methods of landscaping buildings, schemes for arranging green roofs with various types of landscaping, schemes of landscaping technologies are considered. The possibility of using various methods of gardening in the conditions of Russia is considered. A set of measures for greening buildings minimizes the negative impact of a high-rise building on the environment. In countries with a hot climate, the façade gardening system has a positive effect on energy consumption indicators - it increases thermal insulation and reduces heat loss through enclosing structures, provides sun protection (working like solar shaders) and cooling due to moisture evaporation and wind speed reduction. Plant shading reduces the temperature gradient on the inner and outer surfaces of building envelopes. Consequently, the thermal conductivity of structures and the infiltration of air into the premises are reduced, which reduces the consumption of electricity by the building.*

***Key words:** smart building; extensive gardening; intensive gardening; operated roof; vertical gardening; terrace gardening; environmental problems of cities; landscaping of buildings.*

Every year the environmental situation, especially in large and major cities, is deteriorating. This is a problem in many countries. Population density is rising and urban green spaces are shrinking, with a host of negative consequences. The use of balconies, loggias, terraces, roofs as additional landscaping reduces the amount of noise, creates shady areas, absorbs harmful gas emissions and decorates the appearance of urban development and the city as a whole.

A set of measures to green buildings reduces the negative impact of high-rise construction on the population. In addition, in countries with high air temperatures, the facade gardening system has a positive effect on energy consumption indicators - it increases thermal insulation and reduces heat loss through building envelopes, provides sun protection (working like solar shades) and cooling due to moisture evaporation and wind speed reduction. Plant shading reduces the temperature gradient on the inner and outer surfaces of building envelopes. Consequently, the thermal conductivity of the structures and the infiltration of indoor air are reduced, which ensures a reduction in the energy consumption of the building.

This way of decorating buildings is not innovative - even in the VI-IV centuries. BC. the Babylonian ruler Nebuchadnezzar 2 ordered the creation of a vertical garden for his wife Amitis, a native of a green country, called the Gardens of Babylon (Fig. 1).



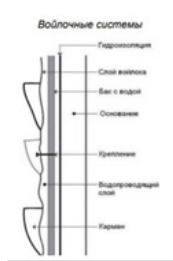
*Rice 1. The Hanging Gardens of Babylon*

There are four systems for vertical gardening of buildings:

1. Felt

This system does not use soil, the plants are immediately planted in felt “pockets”, and all the necessary nutrients are supplied through the irrigation system with water. (Fig.2).





**Figure 2.** Felt landscaping system

### 2. Modular

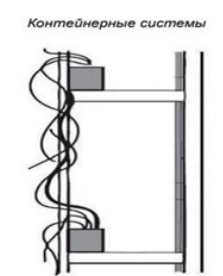
In a modular landscaping system, unlike felt, a substrate is used, plants are planted in modules in advance and only then attached to the facade. (fig.3).



**Figure 3.** Modular landscaping system

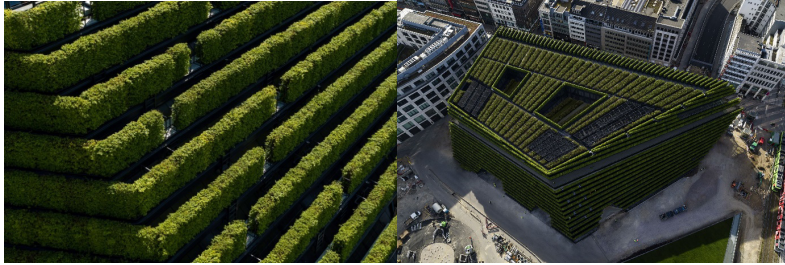
### 3. Container gardening system

The container gardening system also uses a soil layer, but unlike the modular one, it requires a special frame, into which containers with plants are inserted after installation at an angle. (fig.4).



**Figure 4.** Container gardening system.

4. Terraced all plants are planted directly in the recesses in the slabs. On fig. 5 shows the terraced gardening of an office building in Germany, Düsseldorf.

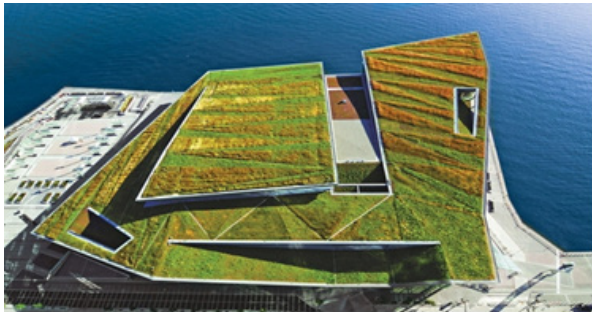


In many Nordic countries, the creation of exploitable roofs was a way to insulate houses, and it also provided an additional supply of food for pets.

According to the type of roof landscaping, there are:

1. With extensive landscaping.

Plants with a weak root system (mosses, lichens, undersized plants) are planted. This type of landscaping does not require additional care, natural precipitation is sufficient for irrigation, the soil layer on the roof should not exceed 8 cm (Fig. 6).



*Rice 6. Extensive landscaping type convention center, Vancouver, Canada*

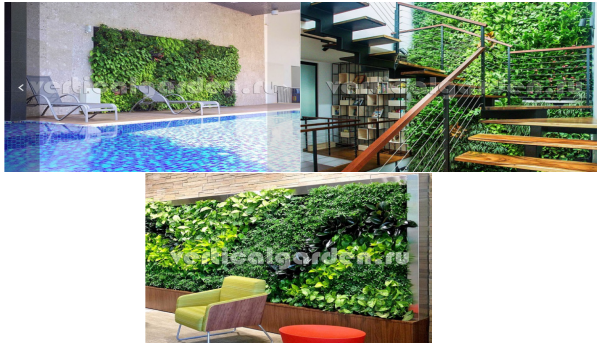
2. Intensive landscaping

This type of landscaping is characterized by the use of large plants with a powerful root system. In this case, the thickness of the soil layer should be from 30 to 100 cm. The roof is designed to be operated, because plants require extra care. (fig.7).



*Figure 7. Intensive type of landscaping of the Forest Spiral residential building, Darmstadt, Germany*

In Russia, outdoor gardening of cities using buildings and structures is only gaining popularity. This solution has become widespread, mainly indoors, facades are less often decorated (Fig. 8). Sufficiently severe winters, long rainy periods in many regions of Russia significantly limit the choice of plants for outdoor gardening.



*Figure 8. The use of vertical gardening in Russia as an interior decoration*

It is generally accepted that a beautiful vertical garden can be created only with the use of exotic tropical plants. In fact, in every country and even city, you can use rich flora adapted to local conditions. In almost all cities of the planet, even where the weather is not always predictable, as additional landscaping, you can build a building with an exploitable roof or terraced landscaping, a fence, thanks to the use of liana-like plants, decorate the unsightly end of the building or enclosing structures (Fig. 9).

It is important to use those plants that grow in those areas where outdoor gardening will be used. Even after the leaves have fallen, “lace” of branches and trunks can decorate buildings.



**Figure 9.** “Native” climbing plants on the streets of Voronezh in the summer and winter seasons

Thus, in the modern world, the theme of a comfortable urban environment based on the landscaping of building facades and fences is becoming increasingly relevant. Comfortable green space in cities is becoming an object of interest for residents, tourists and investments. At the same time, the quality of the urban environment is a reflection of the overall quality of life of the urban population.

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UDC 631

饲料添加剂对牲畜健康和生产性能的影响：研究使用各种饲料添加剂（例如益生菌、益生元、植物源添加剂、抗氧化剂和生长刺激剂）对消化、免疫系统、生殖系统状态和整体状况的影响 动物的表现

**THE IMPACT OF FEED ADDITIVES ON LIVESTOCK HEALTH AND PERFORMANCE: STUDYING THE EFFECTS OF USING VARIOUS FEED ADDITIVES, SUCH AS PROBIOTICS, PREBIOTICS, PHYTOGENIC ADDITIVES, ANTIOXIDANTS AND GROWTH STIMULANTS, ON DIGESTION, THE IMMUNE SYSTEM, THE STATE OF THE REPRODUCTIVE SYSTEM AND THE OVERALL PERFORMANCE OF ANIMALS**

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注解。 研究饲料添加剂对牛的健康和生产力的影响对于优化动物护理和提高其生产力非常重要。 各种补充剂可以对消化、免疫系统、生殖系统状态和动物的整体性能产生积极影响。 最有效的补充剂是益生菌、益生元、抗氧化剂、生长模拟器和植物补充剂。

益生菌是可以改善动物消化的活微生物。 它们可以帮助恢复和维持胃肠道微生物群的正常组成，从而影响饲料中营养物质的快速吸收。 益生菌对免疫系统具有有益作用，可改善其功能和身体的防御机制[2]。

益生元是不被动物消化、但作为肠道内有益微生物的食物的食物物质。 它们可以促进有益细菌的生长和发育，从而改善动物的消化并增强其免疫系统。

抗氧化剂是有助于保护人体细胞免受自由基损害的物质。 它们可以改善动物的健康并增强其免疫系统。

生长兴奋剂是能够促进动物生长发育的补充剂。 它们使动物的消化正常化并提高新陈代谢的效率[3]。

在使用这些添加剂进行的研究中，通常研究动物的体重增加、肉或奶质量、发病率、生殖功能指标和总体生产力等参数。 大多数研究表明，使用各种添加剂可以对牲畜的健康和生产力产生积极影响[9]。

然而，在决定在饲料中使用添加剂之前，有必要考虑动物对各种添加剂的个体反应的差异以及潜在的副作用。

关键词：牛、益生菌、益生元、抗氧化剂、植物添加剂、生产力、生长刺激剂、免疫系统、添加剂。

**Annotation.** *The study of the effects of feed additives on the health and productivity of cattle is important for optimizing the care of animals and increasing their productivity. Various supplements can have a positive effect on digestion, the immune system, the state of the reproductive system and the overall performance of animals. The most effective supplements are probiotics, prebiotics, antioxidants, growth stimulators and phytogetic supplements.*

*Probiotics are living microorganisms that can improve digestion in animals. They can help restore and maintain the normal composition of the microflora of the gastrointestinal tract, which affects the rapid absorption of nutrients from the feed. Probiotics have a beneficial effect on the immune system, improving its function and the body's defense mechanisms [2].*

*Prebiotics are food substances that are not digested by animals, but serve as food for beneficial microorganisms in the intestine. They can promote the growth and development of beneficial bacteria, which in turn can improve the digestion of animals and strengthen their immune system.*

*Antioxidants are substances that help protect the body's cells from damage caused by free radicals. They can improve the health of animals and strengthen their immune system.*

*Growth stimulants are supplements that can promote the growth and development of animals. They normalize digestion and increase the efficiency of metabolism in animals [3].*

*In studies conducted using these additives, parameters such as weight gain, meat or milk quality, morbidity, reproductive function indicators and overall productivity of animals are usually studied. Most studies show that the use of various additives can have a positive effect on the health and productivity of livestock [9].*

*However, it is necessary to take into account the differences in the individual reactions of animals to various additives, as well as potential side effects, before deciding on their use in feed.*

**Keywords:** *cattle, probiotics, prebiotics, antioxidants, phytogetic additives, productivity, growth stimulants, immune system, additives.*

## **Introduction**

The share of animal husbandry in agriculture in the country is 65%. The effective development of this industry depends on providing animals with a high-quality forage base. Feeds with the addition of biologically active additives and special complexes are considered complete feeds. To better understand this topic, it is necessary to consider the significance of products, the specifics and expediency of using products. Feed additives are the main components of the animal supplementary diet, which transform the feed into a balanced diet. Due to such indicators, it is considered effective [7].

At the moment, products of mineral, synthetic and organic nature, as well as vitamins, proteins, enzyme preparations and even antibiotics are used for animals all over the world. The production of feed additives is treated very responsibly. Developers and manufacturers of products have a strong potential and have vast experience in this matter, because only high-quality formulations can lead to the achievement of goals, thereby increasing the efficiency of the agricultural business.

The aim of the work is to study the effectiveness of the use of feed additives on the health and performance of cattle.

**Research objectives:**

- 1) study information for cattle on feed additives included in the diet;
- 2) analyze the types of feed additives used in agriculture;
- 3) to study the effectiveness of the use of feed additives: probiotics, prebiotics, phytogetic additives, antioxidants and growth stimulants;
- 4) to study the effectiveness of the impact of feed additives on the health of cattle;
- 5) systematize the data obtained to improve the performance of feed additives for cattle feed.

**Research methodology**

In the course of the work, the following studies were carried out:

- 1) Theoretical methods (analysis, comparison, observation);
- 2) Practical methods, namely:
  - physiological methods;
  - biochemical methods;
  - zoological methods;
  - physical and chemical methods.

**Research results**

Indicators of the impact of feed additives on the health status of cattle may include the following aspects:

- 1) Growth and development: Some feed additives can promote more efficient growth and development of animals, which can lead to weight gain and an improvement in the general condition of the animal;
- 2) General health: Some supplements contain vitamins, minerals, antioxidants and other nutrients that can support the general health of animals, strengthen their immune system and improve the health of the skin, coat, hooves and other organs;
- 3) Digestion: Some additives can improve the digestion process in animals and increase the absorption of nutrients from the feed. This can improve the effectiveness of the diet and provide sufficient energy and nutrients for the growth and maintenance of the animal;

4) Reproductive health: Some supplements may promote the normal functioning of the reproductive system of animals, improve fertility, reduce problems associated with insemination, reduce the risk of abortion, and increase the survival and health of the calf;

5) Improving the quality of meat and milk: Some additives can improve the taste, aroma, color and texture of meat, as well as the quality of milk, making them more attractive to consumers [5].

However, before using any feed additives, it is important to consult a veterinarian who can help determine the need and the correct dosage, as well as monitor their use and possible side effects.

To obtain environmentally safe products from cattle, it is necessary to introduce biologically active additives into their diet and abandon antibiotics.

Prebiotic bacteria can enter the intestines of cattle and create a nutrient medium for the reproduction of probiotics. Consider the similarities and differences between pro- and prebiotics (Table 1).

**Table 1.**  
*Differences between probiotics and prebiotics*

<b>Properties</b>	<b>Prebiotic</b>	<b>Probiotic</b>
Actions	Stimulation of the growth of intestinal microflora	Intestinal colonization with microflora artificially
Compound	Good bacteria are food	Living cells of beneficial intestinal microflora
Permeability through the digestive organs	Prebiotics are not digested	About 5-10% of probiotics reach the intestines in the same state
Efficiency	Stimulates the growth of beneficial bacteria	Compared to the intestines, where there are about 500 types of beneficial bacteria, probiotics are 1-2 types.

Based on the data in the table, we can conclude that prebiotics normalize the beneficial microflora of the gastrointestinal tract by destroying the pathogenic one. Plus, a good criterion is that prebiotics remove toxins, normalize gastric peristalsis and eliminate constipation.

Probiotics are classified by origin:

- based on lactobacilli: lactobacterin dry;
- based on bifidobacteria: bifinorm, bifadobacterin, bifidum-SHL, intestevit;
- based on bacteria of the genus Bacillus: sporobacterin, bactisubtil, bactisporin, vetom 1.1, vetom-3;
- based on yeast: enterol;
- based on Escherichia coli: colibacterin, bifikol [3].



The most promising probiotic preparations containing the bacterial species *Bacillus subtilis* and *B.licheniformis*. Their application is called «Replacement Therapy», as they eliminate pathogenic microorganisms inside the digestive tract of cattle. Probiotics can be used as drugs: Laktobifadol, Bifinorm, Vetom, Biomos, Kormobakterin, Laktoferon, Soy-Bifidum, Avena, etc.

Due to the lack of trace elements: iodine, selenium and cobalt, probiotics fill these gaps in the nutrition of cattle well.

When a probiotic was introduced into the body of cattle, based on lactobacilli, there was a noticeable increase in the production of antibodies in the blood serum and intestines. Bulls were fed with a complex probiotic preparation with celite - the recommended dose is 30 g per 1 head per day, as a result of which the process of gastrointestinal motility increased [8].

With the introduction of an additive based on probiotics «Biogumitel» into the feed, the output was data on the good implementation of the genetic material of the meat productivity of young cattle. The supplement was added daily in the amount of 0.70 g per 1 kg of feed.

The positive effect of the probiotic with *Bacillus subtilis* and humic acid on the nutrition of young calves showed good blood parameters, namely, the number of erythrocytes increased to 13.9% compared to the initial data - 6.5%, the number of leukocytes increased to 13.8% compared to from 3.1%, and the hemoglobin level reached 16.8% compared to the initial level of 6.5%. Side effects have not been identified [10].

One of the biological additives of plant origin are phytogetic, they are in demand because they replace antibiotics and antimicrobials. They also improve the performance of animal immunity and show a high competitive profitability of production. A high-quality phytogetic additive is Aktifor (Austrian company Delacon), which has been considered the best on the market for 30 years [6]. This supplement has been researched at the research center at the experimental farm of the French National Institute for Agricultural Research INRA in Paris-Grignon (France). As a result, due to the low introduction of crude protein, the level of urea decreased and there was an increase in milk protein, this introduction process did not reduce the production and quality of milk (Table 2).

**Table 2.**  
*Indicators of the decrease in milk urea in dairy cows*

<b>Criteria for low crude protein input</b>	<b>Actifor (15.9% SP)</b>	<b>*HP control (16,9 % SP)</b>	<b>Diference</b>
Milk production (l/head/day)	30.1	30.2	- 0.1
Milk protein (%)	3.40	3.37	+ 0.03
Milk fat (%)	3.82	3.83	- 0.01

Lactose (%)	5.05	5.06	- 0.01
Milk urea (mg/dl)	232	263	- 31
Feed conversion (ECM/PSV)	1.31	1.25	+0.06

\*HP = with High Protein

To improve the regulation of the metabolism of substances in the body of cattle at the initial feed base, it is recommended by scientists to add antioxidants to the feed. To prove the effectiveness of antioxidants, studies were conducted on heifers and bulls at three months of age. With age, the indicators of total protein in the serum of heifers and bulls increase due to the restructuring of the reproductive system of calves, namely the strong production of sex hormones. By the age of one year, the level of protein in the blood serum of the heifers reached 71.22 - 75.15 g/l, and the difference with the baseline ranged from 15.22 to 17.5%. By the age of 12 months, the amount of protein in the blood of bulls increased to 82.4 g / l, the difference with the initial indicators was 18.2 - 23%. In studies of the level of cholesterol in the blood among 3-month-old and 12-month-old heifers and bulls, the difference was from 7.5 to 20.7%. When analyzing indicators of the level of calcium, which is responsible for the growth of bone tissue in the body of calves. The difference in indicators ranged from 7.4 to 12.2%. Based on the results of the work done, it can be concluded that the use of biologically active substances in the diet leads to significant improvements in vital signs in animals [10].

Each cattle breeder wants to end up with high-quality meat and dairy products; for this, biological additives - growth stimulants - can be added to the feed. Due to them, muscle mass increases and resistance is developed in the body to various pathologies of the animal's body, the remedy is safe for people and animals, appetite and digestive function in cows and bulls are normalized. There are synthetic growth stimulants - for example:

1. Catozal (low-toxic drug, stimulates metabolism, increases resistance in the body, due to it the growth of cows increases);

2. Gamavit (a solution that helps to optimize metabolic processes, normalize blood supply, increase the immunity of cattle);

3. Fosprenil (a product of phosphorylation of coniferous polyphenols, is anti-viral in relation to the plague of predators, parvoviruses, adenoviruses; it has an anti-inflammatory and detoxic effect);

4. Butofan (drug, promotes the normalization of metabolism and regeneration) [6].

Let's analyze the natural growth stimulants of cows - these are:

1. Nucleopeptide - a product created from extracts from the spleen of cows, helps to increase metabolism, regulates the level of hormones within the normal range);

2. Eleovit is a drug characteristic for obtaining an important vitamin and mineral composition for calves).

In order to increase the mass of cattle, you can use different schemes for the use of growth stimulants:

- 1) short scheme - 5-6 months and weight gain by 400 kg, 2
- 2) the average scheme - 7-8 months and an increase in body weight by 500 kg,
- 3) a long-term regimen - approximately 18 months, contributes to an increase in weight of about 550 kg.

Conclusion. Based on the work done in studying the effect of additives to feed additives for cattle, studying the effectiveness of using feed additives in agriculture, studying indicators that affect the health status of cattle when introducing additives, it is possible to systematize the data obtained to improve the performance of feed additives, because . it directly depends on the development and improvement of the quality of products in agriculture.

As for the probiotics included in the compound feed, they normalize the gastrointestinal tract of young and large cattle, favorably preparing the environment for the constant growth of probiotics [5].

The first half of the year, the life of calves is characterized by a high intensity of their growth and the period of formation of cicatricial digestion, thanks to probiotics, the efficiency of the favorable process only becomes higher, therefore it is recommended to add probiotics to the compound feed: Laktobifadol, Bifinorm, Vetom, Bio-mos, Kormobakterin, Laktoferon, Soy-Bifidum , Avena and others.

The results of the use of phytogenic additives show their increase in milk production by 4.8% or 1.8 liters, feed efficiency increase by 5.4%, a decrease in the level of urea in milk by 5% and a decrease in methane by 6.3%.

The use of antioxidants in feed has shown beneficial effects in accelerating metabolism, increasing calcium and blood quality, as well as reducing cholesterol and eliminating toxins and cattle organisms.

Growth stimulants on a synthetic or natural basis can be added to compound feeds, which increase the muscle mass of cattle from about 400 to 550 kg. These growth rates do not harm the human body and animals, but rather contribute to their good metabolism and development in general [6].

In the course of the research, it was found that if a livestock breeder wants to get high-quality meat and dairy products from cattle, then he needs to add additives such as prebiotics and probiotics, antioxidants, growth stimulants and phytogenic additives to the feed. They help eliminate pathogenic organisms, increase metabolic processes, improve the digestive, circulatory, reproductive and immune systems of cattle organisms.

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网络发展对上合组织国家数字经济的影响  
**THE IMPACT OF WEB DEVELOPMENT ON THE DIGITAL  
ECONOMY IN THE SCO COUNTRIES**

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抽象的。本文探讨了网络开发在塑造上海合作组织（SCO）国家数字经济中的作用。它分析了这些国家当前的数字经济格局以及网络发展对各个部门的影响。文章进一步提出了促进数字经济的创新网络发展战略，包括采用新兴技术和推广本地数字服务。会议还讨论了这些创新的潜在未来影响和机遇，强调了网络发展在上合组织国家数字经济增长中的关键作用。

关键词：网络开发、上海合作组织、新兴技术、经济增长、本地数字服务、数字无障碍。

**Abstract.** *This article investigates the role of web development in shaping the digital economy of the Shanghai Cooperation Organisation (SCO) countries. It presents an analysis of the current digital economy landscape in these countries and the impact of web development on various sectors. The article further proposes innovative web development strategies for boosting the digital economy, including the adoption of emerging technologies and the promotion of local digital services. The potential future implications and opportunities of these innovations are also discussed, highlighting the critical role of web development in the digital economic growth of the SCO countries.*

**Keywords:** *Web Development, Shanghai Cooperation Organisation, Emerging Technologies, Economic Growth, Local Digital Services, Digital Accessibility.*

### **Introduction**

The advent of the digital age has brought about a paradigm shift in the global economy, giving rise to what is now known as the digital economy. This new economic model is characterized by the extensive use of digital computing technologies in business, government, and social interactions. It encompasses a wide range of sectors, including e-commerce, digital services, online advertising, and data analytics, among others. The digital economy has become an integral part of the global economy, contributing significantly to economic growth, innovation, and job creation.

At the heart of the digital economy lies web development, a critical component that drives digital transformation. Web development involves the creation and maintenance of websites or web applications, which serve as the primary interface for digital interactions. With the proliferation of internet usage, web development has become a key enabler of the digital economy. It facilitates e-commerce transactions, enhances customer engagement, enables data collection and analysis, and much more. In essence, web development serves as the backbone of the digital economy, powering digital platforms and services that drive economic activities.

The Shanghai Cooperation Organisation (SCO) countries, comprising China, India, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan, have recognized the potential of the digital economy and have been making concerted efforts to leverage it for economic growth. These countries have diverse economic structures and development levels, but they all share a common interest in harnessing the power of the digital economy. Over the past few years, the SCO countries have made significant strides in digital transformation, with web development playing a pivotal role in this process. However, the extent of digital economy development varies across these countries, with some being more advanced than others.

This article aims to explore the impact of web development on the digital economy in the SCO countries. It will delve into the current state of the digital economy in these countries, examine the role of web development in driving digital economic activities, and propose new perspectives and innovations for further growth. Through this exploration, the article seeks to contribute to the understanding of the digital economy in the SCO region and the pivotal role of web development in shaping it.

### **Web Development: An Overview**

Web development, in its simplest form, refers to the process of creating, building, and maintaining websites or web applications<sup>1</sup>. It involves tasks such as web design, web content development, client-side/server-side scripting, and network security configuration<sup>1</sup>, among others. However, the scope of web development extends beyond these technical aspects. It plays a crucial role in shaping the user experience, facilitating digital interactions, and enabling online business operations. In the context of the digital economy, web development is not just a technical process; as noted by the World Economic Forum, it is a strategic tool for business growth and innovation in the digital economy<sup>2</sup>. This is echoed in Zhang's empirical study, which found that the development of the digital economy has a significant impact on the upgrading and optimization of industrial structure<sup>3</sup>.

Web development leverages a variety of technologies and programming languages. Among these, PHP, TypeScript, and SQL are particularly noteworthy due to their widespread use and significant impact on web development practices.

PHP, or Hypertext Preprocessor, is a server-side scripting language widely used for web development<sup>4</sup>. It is particularly suited for creating dynamic and interactive websites, making it a popular choice for e-commerce sites, content management systems, and web-based applications.

TypeScript, a statically typed superset of JavaScript, brings the benefits of static typing to web development. It enables developers to write more robust code and maintain large codebases, making it a preferred choice for complex, large-scale web applications.

SQL, or Structured Query Language, is used for managing and manipulating databases. In the context of web development, SQL is used to interact with the databases of websites, enabling operations like data retrieval, insertion, update, and deletion. Given the critical role of data in the digital economy, SQL is an indispensable tool in the web development toolkit.

In terms of current trends, web development is continually evolving, driven by technological advancements and changing user expectations. Some of the key trends shaping web development today include responsive web design, API-first development, artificial intelligence and machine learning, and progressive web applications<sup>5</sup>. These trends reflect the growing emphasis on user experience, the increasing integration of web services, and the rising importance of data-driven decision-making in web development.

In summary, web development is a critical component of the digital economy, enabling the creation and operation of digital platforms and services. It leverages a variety of technologies, including PHP, TypeScript, and SQL, and is continually evolving in response to technological advancements and changing user expectations. As such, understanding web development is key to understanding the workings of the digital economy, and its impact on the development of economic systems, as highlighted by Mottaeva, Khussainova, and Gordeyeva<sup>6</sup>.

### **The Digital Economy in the SCO Countries**

The Shanghai Cooperation Organisation (SCO) countries have been making significant strides in the development of their digital economies. As noted by Solovieva, these countries have been focusing on innovative development and the transfer of technologies, which are key components of the digital economy<sup>8</sup>.

The digital economy in the SCO countries spans various sectors, including e-commerce, digital services, online advertising, and data analytics. These sectors have been contributing significantly to the economic growth and development of these countries. For instance, e-commerce has been growing rapidly in countries like China and India, driven by increasing internet penetration and changing consumer behaviors. Digital services, such as online banking and digital payments, have also been expanding, facilitated by advancements in digital technologies and supportive regulatory policies.

Web development plays a critical role in these sectors. It enables the creation of e-commerce websites and digital platforms that facilitate online transactions. It also supports the development of web applications for digital services, enhancing user experience and operational efficiency. For instance, web development technologies like PHP, TypeScript, and SQL are used to create dynamic and interactive websites for e-commerce, build robust web applications for digital services, and manage databases for data analytics<sup>10</sup>.

In the context of the SCO countries, web development has been contributing to the growth of the digital economy by enabling digital transformation in various sectors. As highlighted by Tolmachev, the economic mechanism of spatial development in the SCO countries is being shaped by post-industrial trends in the world economy, including digital transformation<sup>9</sup>. Web development, as a key enabler of digital transformation, is therefore playing a pivotal role in the development of the digital economy in these countries.

### **Case Studies: Impact of Web Development on the Digital Economy**

Here are some case studies from SCO countries showing how web development has impacted their digital economy:

#### **China: Alibaba's E-commerce Revolution**

China's digital economy has been significantly influenced by web development, with Alibaba being a prime example. Alibaba's e-commerce platforms, developed using advanced web technologies, have revolutionized the retail industry in China. They have not only provided a platform for businesses to reach consumers but also facilitated digital payments, logistics, and cloud computing services. This has significantly contributed to the growth of China's digital economy<sup>3</sup>.

#### **Russia: Yandex's Digital Expansion**

Yandex, often referred to as "Russia's Google," is another example of how web development has impacted the digital economy. Initially a search engine, Yandex has expanded its services to include e-commerce, online advertising, and ride-hailing services, all made possible through web development. This has not only diversified Russia's digital economy but also provided new opportunities for businesses and consumers<sup>7</sup>.

#### **India: Flipkart's Online Retail Success**

In India, Flipkart's success story is a testament to the impact of web development on the digital economy. Flipkart's user-friendly website and mobile application have made online shopping accessible and convenient for millions of Indians. This has not only boosted India's e-commerce sector but also encouraged the growth of digital payment systems and logistics services<sup>6</sup>.

#### **Kazakhstan: Kaspi.kz's Digital Transformation**

In Kazakhstan, the digital transformation of Kaspi.kz, a fintech company, highlights the role of web development in the digital economy. Kaspi.kz's web-



based platform offers various services, including e-commerce, digital payments, and online banking<sup>13</sup>. This has not only made financial services more accessible to the Kazakh population but also stimulated the growth of the country's digital economy<sup>14</sup>.

#### **Pakistan: Daraz's E-commerce Growth**

In Pakistan, the growth of the e-commerce platform Daraz is a clear example of the impact of web development on the digital economy. Daraz's website and mobile application have made it possible for businesses, especially small and medium enterprises, to reach a wider customer base. This has not only boosted Pakistan's e-commerce sector but also contributed to the growth of the digital economy<sup>15</sup>.

Each of these case studies demonstrates how web development solutions have addressed various problems and significantly impacted the digital economy in these SCO countries.

#### **Proposed Innovations and Perspectives**

Web development, as a key driver of the digital economy, has the potential to further boost economic growth in the SCO countries. Here, we propose several innovative strategies and discuss their potential implementation, challenges, and solutions.

##### **1. Adoption of Emerging Web Technologies**

The continuous evolution of web technologies presents an opportunity for SCO countries to stay at the forefront of the digital economy. Technologies such as Progressive Web Apps (PWAs), Artificial Intelligence (AI), and blockchain can provide enhanced user experiences, improved security, and increased efficiency<sup>6</sup>. However, the adoption of these technologies may require significant investment in infrastructure and skills development. Governments and private sector stakeholders could collaborate to provide the necessary funding and training programs.

##### **2. Promotion of Local Content and Services**

Web development can play a crucial role in promoting local content and services, thus stimulating domestic digital economies. This could involve developing platforms that cater to local needs and preferences, such as e-commerce sites for local products or apps for local services<sup>3</sup>. The challenge here lies in understanding and catering to diverse local needs, which requires extensive market research and user engagement.

##### **3. Enhancement of Digital Accessibility**

Web development can also contribute to the digital economy by enhancing digital accessibility, particularly for people with disabilities and those in remote areas. This could involve developing websites and apps that are accessible to all users, as well as improving internet connectivity in remote areas<sup>11</sup>. The main challenge here is ensuring that these initiatives are inclusive and do not exacerbate existing digital divides. This requires a concerted effort from all stakeholders, including governments, businesses, and civil society.

#### 4. Strengthening of Cybersecurity

As the digital economy grows, so does the importance of cybersecurity. Web developers can contribute to cybersecurity by designing secure websites and apps, as well as educating users about safe online practices<sup>7</sup>. The challenge here is keeping up with the constantly evolving cyber threats, which requires ongoing research and collaboration among different stakeholders.

In conclusion, these proposed innovations highlight the potential of web development to further boost the digital economy in the SCO countries. However, their successful implementation requires a collaborative and inclusive approach, taking into account the unique challenges and opportunities in each country.

#### **Future Implications and Opportunities**

The proposed innovations in web development have the potential to significantly reshape the digital economy landscape in the SCO countries. By adopting emerging web technologies, promoting local content and services, enhancing digital accessibility, and strengthening cybersecurity, these countries can create a more inclusive, secure, and vibrant digital economy<sup>12</sup>.

The adoption of emerging web technologies such as PWAs, AI, and blockchain could lead to the creation of more efficient, secure, and user-friendly digital platforms. This could enhance the competitiveness of the SCO countries in the global digital economy and stimulate economic growth<sup>6</sup>. Similarly, the promotion of local content and services could stimulate domestic economic activity and foster the growth of local businesses<sup>3</sup>. Enhancing digital accessibility could broaden the user base of the digital economy, while strengthening cybersecurity could increase user trust and promote greater use of digital services.

These innovations present numerous opportunities for future growth and development. For instance, the adoption of emerging web technologies could spur innovation and create new business opportunities. The promotion of local content and services could foster the growth of local industries and create jobs. Enhancing digital accessibility could promote social inclusion and economic participation among disadvantaged groups. Strengthening cybersecurity could protect businesses and consumers from cyber threats and create a safer digital environment.

#### **Conclusion**

The digital economy, underpinned by web development, has become a significant driver of economic growth in the SCO countries. This study has explored the role of web development in the digital economy, with a focus on the SCO countries. Through an examination of the current state of the digital economy in these countries and detailed case studies, we have highlighted the significant impact of web development on various sectors of the digital economy.

Looking ahead, we proposed several innovative web development strategies that could further boost the digital economy in the SCO countries. These include

the adoption of emerging web technologies, the promotion of local content and services, the enhancement of digital accessibility, and the strengthening of cybersecurity. While these innovations present numerous opportunities for future growth and development, their successful implementation requires a supportive policy environment, investment in digital infrastructure and skills, and collaboration among all stakeholders.

In conclusion, web development plays a pivotal role in the digital economy and presents significant opportunities for economic growth in the SCO countries. As these countries continue to navigate their digital transformation journeys, web development will undoubtedly remain a key enabler of their digital economies. Therefore, continued investment in web development, both in terms of technology and skills, is crucial for the future growth and development of the SCO countries' digital economies.

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科学出版物

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