SCIENTIFIC RESEARCH OF THE SCO COUNTRIES: SYNERGY AND INTEGRATION

上合组织国家的科学研究：协同和一体化

Materials of the International Conference

Date: April 29

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上合组织国家的科学研究：协同和一体化
国际会议

参与者的英文报告

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Part 2: Participants’ reports in English

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

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

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Foreword

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

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

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

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

前言

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

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

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

范福宽，

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制裁和骚乱对俄罗斯经济安全的影响

THE IMPACT OF SANCTIONS AND CONTRSANCTIONS ON ECONOMIC SECURITY OF RUSSIA

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抽象。 这篇文章讨论了外国对一些公司和个人以及介绍俄罗斯政府的人员进行的制裁。 评估它们对该国经济安全的影响。 考虑减轻制裁对俄罗斯经济影响的可能方法。
关键词: 制裁，羁押，进口替代，实施限制，经济安全
Abstract. *The article deals with sanctions imposed by foreign countries to a number of companies and individuals, as well as contrsanctions, who introduced the Government of Russia. Assess their impact on the economic security of the country. Considered possible ways to mitigate the impact of sanctions on the Russian economy.*
Keywords: *sanctions, contrsanctions, import substitution, the imposition of restrictions, economic security*

«The accession of the Crimea to the Russian Federation — not recognized by the international community inclusion in the Russian Federation in early 2014 of the Crimean Peninsula, located within the administrative boundaries of the regions of Ukraine — the Autonomous Republic of Crimea and the city of Sevastopol» [1]. Since joining the Crimea and the outbreak of hostilities in the East of Ukraine, specific Russian legal entities and physical persons were subjected to a variety of economic and financial sanctions by the European Union, the United States, Canada, Australia and other countries.

The initial phase of sanctions was relatively mild: includes travel restrictions; the freezing of assets and a ban on dealings with certain natural and legal persons, including in the Crimea and Sevastopol. Persons or institutions involved in the political and economic actions, were the most prone to falling into the sanctions lists.

Falling aircraft of Malaysian Airlines MH-17A caused the apparent tightening of the sanctions regime.

не признанное международным сообществом включение в состав Российской Федерации в начале 2014 года части Крымского полуострова, расположенной в пределах административных границ регионов Украины — Автономной Республики Крым и города Севастополя

The sanctions have affected many industries. Export and import of arms was banned, as well as the export of dual-use items for military use. Export of certain commodities related to oil exploration and further production was also banned.

Most significant, perhaps, was to reduce long-term financing Russian companies that do not take a direct part in hostilities in the Donetsk and Lugansk regions. Investors in the EU banned to provide long-term financing to Sberbank, VTB, Gazprombank, Rosselhozbank (Russian agricultural Bank) and WEB (Russian State Development Bank). Initially, the ban on funding only applies to loans with maturity over 90 days, or co-financing. But September 12, 2014 year repayment threshold has been reduced to 30 days. Ban on long-term financing was also extended to the oil giant Rosneft, Ukraine's oil pipeline company, Transneft, the company for exploration and refining Gazpromneft, as well as several companies working in the military sector. An economic sanction, travel bans and assets freeze imposed by the EU, regularly reviewed every six months, and their continuation requires the resumption of support from all 28 members of the EU. Now we can appreciate the link between Russia's ban on the importation of certain foods and its long-term policy of trying to support domestic production by "import substitution". Replacing imports domestic production is an end in itself, not just a response to sanctions imposed by the United States and the EU in the year 2014. Indeed, import substitution and promotion of domestic production in key sectors is a good response to foreign sanctions. Replacement of imports to domestic production is an integral part of policies aimed at economic sovereignty and security proposals of major food products. This program has been started since the beginning of the 2000’s. The national priority programs, established at the beginning of the 2005 year, enshrined the idea of increasing self-sufficiency in agriculture. The basis for import substitution was laid long before the events of the year 2014. Food doctrine within the framework of the development of agriculture in Russia was signed in January 2010 onwards. Doctrine sets minimum targets for domestic production of basic foods such as potatoes, dairy, grains, meat and meat products. Minimum objectives have been identified for shares of domestic production in total consumption. The target of 90% was set for milk and dairy products and 85% for meat and meat products. Russia's policy in the area of food security reflects the ideology in which the dependence on imports is considered dangerous. This differs from the majority of countries where food security is usually defined in terms of access to adequate and affordable food reserves for the population without specifying the source of seizures. The General principle of the Russian food security doctrine was articulated in the plan of action within the program of agricultural development for the 2013-2020 years approved in the year 2012. In the development of the program, special attention is paid to increase production, improve the quality of agriculture and food industry, import substitution of domestic production. Import substitution is not restricted to agriculture and the food industry. The Government of the Russian Federation in April 2014 years adopted a broad policy paper "the development of the industry and enhance its competitiveness," with detailed plans for almost all industries [2]. He called for increased domestic production and RESEARCH and DEVELOPMENT through, for example, budgetary investments and localization requirements. Program from time to time even referred to as "import substitution" program of the Russian Government. All these political programs were approved after a relatively extensive discussion by the Government, so it can be argued that they reflect the importance of import substitution in stimulating economic growth. Russia responded to the sanctions imposed by the United States and the EU in July of the year 2014, by limiting the import of certain foodstuffs, including fish, milk, dairy products, fruits and vegetables. The ban on imports was announced within days United States sanctions and EU sector that has led many to think that lists of forbidden foods were prepared in advance to support domestic production. The worsening geopolitical situation doubled Russia's determination to continue this policy aimed at import substitution in all sectors of the economy. Despite discussion of costs and benefits of import substitution in Russian academic circles, had been voiced enough critiques of policies at the political level. While consumers certainly benefit from lower prices and a wider choice of products from the lifting of bans on imports. The overall effect of this prohibition on withdrawal of consumer welfare. However, the restriction of imports is considered extremely positive for the economic development of the agricultural industry of the Russian Federation. Opposition to sanctions, restriction on the importation of goods from Turkey, the devaluation of the rouble and various government support programs have really helped to increase domestic production in agriculture and in the domestic market as a whole. Positive trends long precede most contrsanctions. For example, poultry meat production increased significantly before 2014 years. Pork production growth started to grow at the beginning of this decade. However, the continuous decline in dairy cows was to cause a reduction in the number of fresh milk and dairy products, but the facts say otherwise. Cheese production while reducing the herd has grown substantially, while at times increased the import of palm oil. As a result, checking of epidemiology found that milk and dairy products to 85% do not meet quality, despite the fact that imports of fresh milk and dairy products was strictly limited in 2014 y. Favorable weather conditions partly explain the exceptional harvests of grain in the year 2016 and 2017 year, but yield fruits and vegetables with the 2010 year has grown steadily. It should be noted that in recent years the use of agricultural land has not increased markedly. Area of cultivated land for cereal crops in the year 2016 was still slightly below the peak year of 2009. Отсутствие иностранной конкуренции и субсидированных кредитов привлекло много новых игроков на сельскохозяйственные рынки. Это дает бизнесменам собственный интерес к защите и развитию отечественного сельского хозяйства.

Sometimes these businessmen might already be major players, such as Agriculture, the company, which today controls more than 640 000 hectares of agricultural land, making it one of the largest landowners in the country. It is possible that Russia may lift some restrictions on import, if political tensions abate, but probably not at the expense of domestic producers. The easing of restrictions on imports are likely to occur in those areas in which food is already dominated by domestic companies (for example, the production of cucumbers and canned). Moreover, even if the bans are lifted, Russia can easily impose non-tariff barriers that make it difficult to import (e.g. phytosanitary checks). For example, at the beginning of 2014 years Russia has banned imports of pigs and pork products and semi-finished products, citing several cases of African swine fever in certain parts of Europe. Non-tariff barriers often used in relations with non-EU countries. Despite the Division of the Customs Union with Russia, Belarus regularly threatened import restrictions. For example, Russia declared in spring of 2018 imposing import restrictions on dairy products from Belarus. To assess the full impact of sanctions and Russia can only be contrsanctions by analyzing several factors. First of all, it should be noted that attempting to assess the impact of the sanctions difficult-especially in a situation where oil prices are volatile. Russia's GDP growth to slow sharply at the end started 2012 year. The year 2013 annual GDP growth slowed to 1.8%. Quarterly growth rates in the year 2014 were negative. Russia's GDP as a whole decreased by approximately 3% during the years 2014-2016. Growth resumed in the year 2017, but reached only 1.5%. Despite the difficulties, researchers have tried to separate the effects of sanctions from other factors of economic growth in Russia. The International Monetary Fund reported that Western sanctions and contrsanctions Russia, probably originally reduced Russian real GDP at 1-1, 5%. In the medium term, the IMF suggested that cumulative losses in Russia may reach 9% [3].

This great loss of GDP, however, involves a lower level of investment and lower productivity growth (because of Russia's internal politics leads to a lower level of competition).

Taking the assumptions the IMF at face value, it would be better to say that the IMF estimates imply that Russia's GDP in 2015 year decreased 1.5% would without sanctions instead of 2.5%.

Citibank tried to assess the impact of sanctions on the economies of Russia, using simple macroeconomic indicators. Their analysis found that about 90% of the observed decline in GDP can be attributed to the fall in oil prices. Thus, only 10% decline in 2014-2015 years attributable to sanctions (and everything else going on in and around Russia at that time) [4].

Some experts estimate the impact of financial sanctions on the availability of finance for Russian companies. They believe that financial sanctions have reduced funding. However, this effect was mitigated by the fact that Russian companies could use their overseas assets. Looking ahead, the experts formulated four scenarios for various combinations of sanctions regimes and the oil prices. They say that the combined effect of the sanctions on Russia's GDP in 2014-2017 timeframe. Amounted to 2.4 percentage points, i.e. without the authorization level of GDP would be 2.4% higher at the end of the year 2017. Nevertheless, the negative impact of the sharp decline in oil prices during this period were three times higher than the effect of sanctions, which has strengthened the role of the oil prices, the Russian economy.

With regard to the impact of the Russian food ban on the Russians themselves, the average Russian had to reduce the consumption of food products and the share of revenues, aimed at paying utility bills and food rose to 60% [8].

When considering the impact of sanctions on Russian financial markets, including exchange rate shows that the price of oil is the main driver of developments on the Russian financial market, but sanctions explain some volatility. You can also note that companies under sanctions lose half their market value, and a quarter of their operating income compared with Russian not authorized companies. Experts come to the conclusion that sanctions worked as intended, that is, they did not cause damage to other Russian companies and other parts of the Russian economy. The impact of sanctions and trade contrsanctions it is difficult to estimate for the same reasons as the macroeconomic effects. However, thanks to the wide variety of data available (a number of countries, some products have been banned), more can be said about them.

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来自中国的入境旅游发展："中国友好"作为俄罗斯酒店业的一个指标

THE DEVELOPMENT OF INBOUND TOURISM FROM CHINA: "CHINA FRIENDLY" AS AN INDICATOR OF HOSPITALITY IN RUSSIA

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注解。 本文致力于分析从中国进入俄罗斯联邦的游客流量。 介绍了中国游客在俄罗斯联邦进入的动态，并提出了影响游客流动的因素。 已经确定了实施中国友好计划对俄罗斯联邦入境旅游发展的重要性。 显示了在俄罗斯地区实施中国友好计划的第一批结果。

关键词：入境旅游，旅游流动态，旅游业，中国友好，中国，俄罗斯，阿穆尔州。

Annotation. *The article is devoted to the analysis of the incoming tourist flow to the Russian Federation from the PRC. The dynamics of the entry of Chinese tourists in the Russian Federation is shown, and factors affecting the dynamics of tourist flow are presented. The importance of the implementation of the China Friendly program for the development of inbound tourism in the Russian Federation has been determined. The first results of the implementation of the China Friendly program in Russian regions are shown.*

Keywords: *inbound tourism, dynamics of tourist flows, tourist industry, China Friendly, China, Russia, Amur region.*

Inbound tourism in the Russian Federation in recent years has grown rapidly, with the highest growth rates observed in the tourist flow from the PRC. Given the significant potential of outbound tourism from China, this flow will continue to grow. Currently, many countries are pursuing a policy of attracting tourists from China. In this regard, the desire to create a unique tourist product, as well as provide high-quality services unites many countries when working with Chinese partners.

In 2014, Russia joined the policy of attracting Chinese tourists by launching the China Friendly program. Hence, the purpose of the study was to analyze the entry flow of tourists to the Russian Federation from the PRC, as well as to identify the role of the introduction of the China Friendly program in attracting Chinese tourists to Russia and its regions.

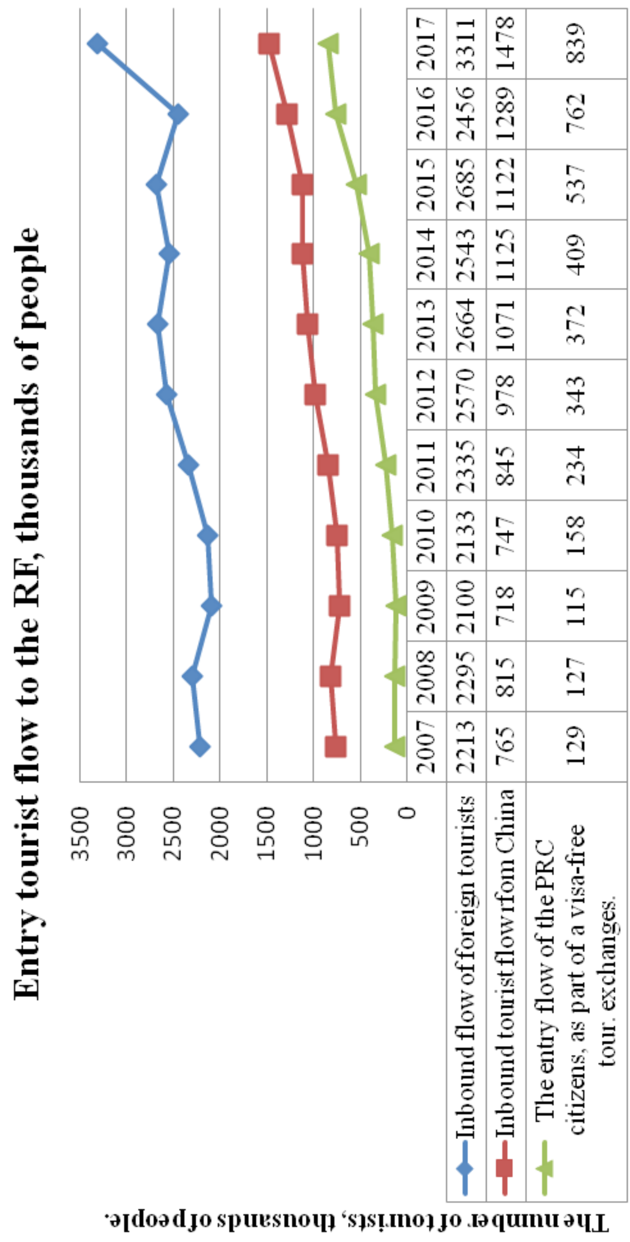
Currently, China occupies the first place in the world among all traveling countries and nations, the first place in the number of tourist expenses abroad, and also the first place in the number of tourist arrivals in Russia. This is confirmed by the statistics of the PRC [7]. According to the Office of Outbound Tourism from China in the last decade, there was an increase of an average of 17% per year. Currently, China occupies the first place in the world among all traveling countries and nations, the first place in the number of tourist expenses abroad, and also the first place in the number of tourist arrivals in Russia. This is confirmed by the statistics of the PRC [7]. According to the Office of Outbound Tourism from China in the last decade, there was an increase of an average of 17% per year.

According to WTO estimates, in 2020 the number of Chinese tourists will reach 200 million people, and their expenses will be about $ 300 billion [8, 9]. Such a prospect is due not only to economic growth, an increase in the monetary income of the population in the country, but also to the facilitation of visa formalities.

Tourist flows of PRC citizens in the RF

According to Rosstat, in 2017 from China to the Russian Federation arrived 1 million 478 thousand tourists (including tourists on the visa and visa-free channels), which accounted for almost 30% of the incoming tourist flow of foreign citizens [2]. An important role in the dynamic development of tourism between the countries was played by the Intergovernmental Agreement “On visa-free group travel” (2000), under which Chinese tourist groups of 5 to 50 people can visit Russia without a visa, subject to the registration of travel companies in the registries of the Russian Federation and the PRC. Such a significant simplification of visa formalities for entry into Russia played an important role in the development of international tourist trips between the two states [6].

The number of PRC tourists increased from 764 thousand people. in 2007, up to 1 million 478 thousand people in 2017, as part of the visa-free channel, the number of Chinese tourists who arrived in the Russian Federation for the same period increased from 129 thousand people up to 839 thousand people, that is, 6.5 times [2] (Fig. 1).



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Inbound flow of foreign tourists	2213	2295	2100	2133	2335	2570	2664	2543	2685	2456	3311
Inbound tourist flow rfom China	765	815	718	747	845	978	1071	1125	1122	1289	1478
The entry flow of the PRC citizens, as part of a visa-free tour. exchanges.	129	127	115	158	234	343	372	409	537	762	839

***Fig.1.** Entry flow of foreign tourists in the Russian Federation in 2007-2017, thousands of people*

The dynamics presented in the figure is due to the considerable attention of the country's leadership to the development of international tourism between countries, as evidenced not only by the conclusion of a number of intergovernmental agreements, but also by holding tourism exhibitions in the Russian Federation and the PRC, holding the Years of Tourism in both countries, introducing new tourist routes, increasing interactions at the level of governments, public organizations and associations of countries [1, p. 42; 3, p. 267-269]. Socio-economic factors had a great influence on the dynamics of inbound tourism in the Russian Federation: the devaluation of the national currency in the Russian Federation, the increase in personal incomes in the PRC, and the facilitation of visa formalities. In addition, a major role in the dynamic development of tourism between the countries was played by the promotion of Russia, as a tourist destination in the Chinese tourist market, as well as an increase in the level of service for tourists from China. Particularly noteworthy is the launch of the China Friendly hospitality system both at the country level and at the regional level [4].

China Friendly program as a tool to attract Chinese tourists to the RF

China Friendly or “Friendly China” is a large-scale All-Russian project created and developed by the World Without Borders Tourism Association in 2014 with the assistance of the Federal Agency for Tourism from the Russian side and the State Administration for Tourism Affairs of the PRC from China [5].

It should be noted that the first object to receive the China Friendly certificate was the Yuzhny Hotel in Volgograd. Following him, the project was joined by the hotel Amici Grand Hotel in Krasnodar.

The “China Friendly” program is designed to cover the tourist services of Russia: hotels, restaurants, museums, entertainment centers, travel agencies and tour agencies and convey information about them to the target audience in China.

At the same time, in order to participate in the program, a tourist service object must be certified for compliance with the criteria necessary for the comfort of Chinese tourists. These criteria are formed by the China Friendly Professional Expert Advisory Council, which includes representatives of the tourism industry, professional sinologists and orientalists who know all the nuances of working with tourists from the PRC, including psychology, culture, mentality and peculiarities of dialogue with Chinese partners.

It is important to note that the goal of the China Friendly project is to create a comfortable environment in the host country for Chinese tourists, promote Russian tourism products on the international market, help attract customers and increase revenue for the travel industry. One of the most important tasks of the China Friendly project is to ensure that the tourist from China is not only massive, but also becomes “returnable” [4].

Creating a comfortable stay environment for Chinese tourists means covering the entire spectrum of the tourism industry and includes: a comfortable border crossing, including visa-free lists; obtaining high-quality tourist services in accommodation facilities, objects of display, shopping centers and restaurants; obtaining a high level of service and communication with the staff, possessing the skills of working with tourists from China and understanding their needs; ensuring the safety of tourism and the settlement of emergency situations in case of an insured event.

As the program reached a new level, the geography of the project expanded. Currently, participants of the Program are already 15 cities of Russia. At the same time, the city of Moscow is the leader in the Russian Federation in the number of Chinese tourists and China Friendly objects. For example, currently already 24 hotels in the city accept tourists according to the standards of China Friendly. In addition, in March 2017, Sheremetyevo International Airport became the first airport in Russia to confirm compliance with the requirements of the China Friendly program. At the airport, you can see signs and announcements in Chinese.

What does participation in this program give? First of all, it gives you the opportunity to receive the China Friendly program quality mark. This is an official independent confirmation that the object of the tourism industry provides high-quality services that meet the needs and preferences of Chinese tourists.

In this regard, for any travel business enterprise, the China Friendly Quality Mark is a competitive advantage, allowing them to distinguish themselves in the market for similar services, demonstrate their customer-centricity and provide additional opportunities for promoting and conducting a marketing campaign. Consequently, participation in the Program contributes to the active promotion of its participants in the tourism market in China.

Implementation of China Friendly Program in Russian regions

It is important to emphasize that the regions bordering on China in 2018 marked the 30th anniversary of the development of Russian-Chinese tourism. Over these 30 years, 4.5 million tourists from both countries have just passed through the border crossings of the Amur Region.

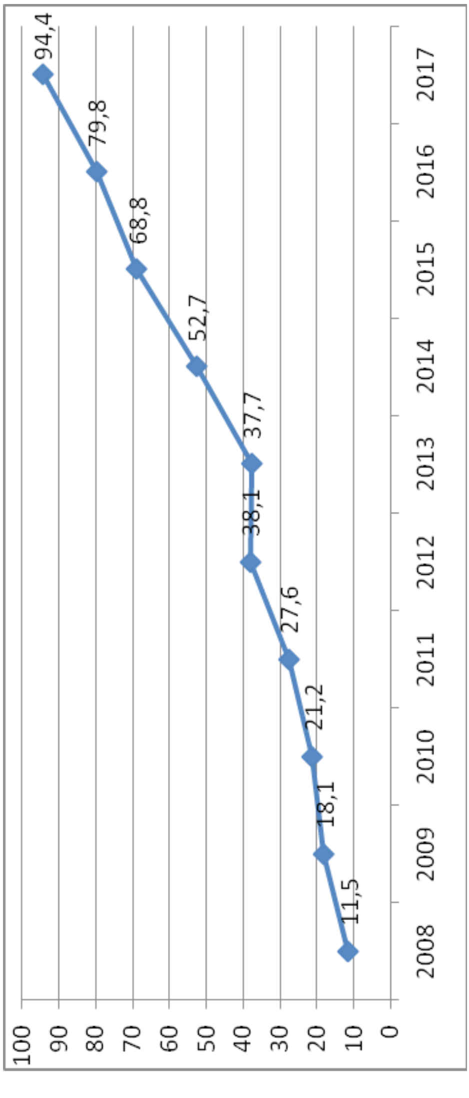


Fig. 2 *- Dynamics of the entry of Chinese tourists into the Amur region from 2008 to 2017, thousand people*

Currently, the Amur region ranks fourth in the number of tourists from the PRC after Moscow, St. Petersburg and Primorsky Krai [4]. The border position of the Amur region contributes to the growth of tourist arrivals from China. Over the past ten years, the number of people entering through Amurskaya oblast, from China, through tourist companies, has grown from 11,500 people. in 2008 to 94.4 thousand people. in 2017, which accounted for 91% of the total flow of foreign tourists to the Amur Region. Below is the dynamics of the entry of foreign citizens in the Amur region (Fig. 3).

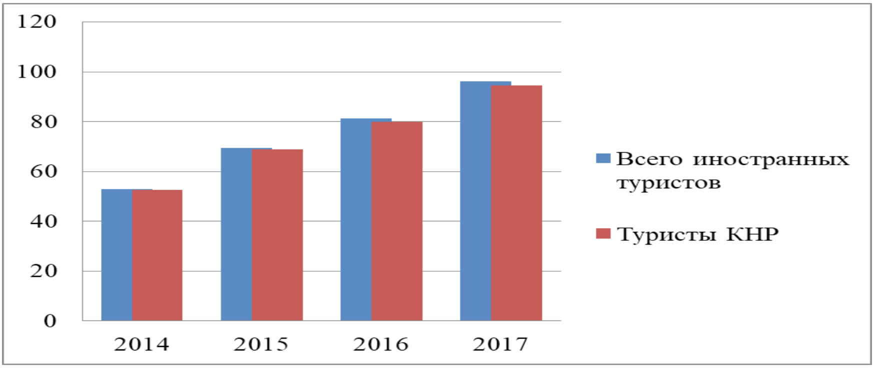


Fig. 3 - *Dynamics of foreign tourists entering the Amur Region from 2012 to 2017, thousand people*

Currently, the China Friendly program is being actively implemented in the Far East. For example, the hotels of Vladivostok “Azimut Hotel Vladivostok” and “Equator” within the framework of this program provide Chinese tourists with a special service: information about hotel services and sights of the city in Chinese, the ability to pay for services with the national payment system of China PR China-PayPay. The Tigre de Cristal & Hotel Resort hotel and entertainment complex, built in the Primorye gambling zone, officially received the China Friendly Quality Mark of the program and provides comfortable conditions for tourists from frontier China

At the same time, on the territory of the Amur Region, located on the border with the PRC and having a huge potential and all the necessary conditions for the growth of attracting tourists from the PRC, there are no tourist facilities that have received the China Friendly Quality Mark. At the same time, it should be noted that this direction has become actively promoted in the city of Blagoveshchensk. The first step was the publication of representatives of the Tourist Association "World Without Borders" in the Amur Region and the trade organizations of the city with a guide map in Chinese indicating the main attractions. Also, together with the Amur Guild of Culinary and Restaurateurs, a gastronomic map of the city in Chinese was published. Other options for improving the level of hospitality in border regions are also being considered.

In conclusion, it should be noted that the flow of Chinese tourists in the Russian Federation is growing rapidly. The analysis showed that the promotion of the Russian Federation in the Chinese tourist market is of great importance, since China is one of the leading countries supplier of tourists. In this regard, the creation of an attractive tourist product for the Chinese consumer is one of the most difficult tasks of the tourism industry lately. This means that for each tourist destination, the opportunities for attracting Chinese tourists will increase, but competition will also increase. That is why it is necessary not only to promote the Russian tourist product on the world market, but also to strengthen the image of the border region as a comfortable area for tourism and recreation.

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大众传媒在阿塞拜疆共和国宪政发展进程中的作用
THE ROLE OF MASS MEDIA IN THE DEVELOPMENT PROCESS OF CONSTITUTIONALISM IN AZERBAIJAN REPUBLIC

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注解。 主动媒体对公民法律思维和行为形成影响的巨大可能性表明了"第四产业"在现代社会中的关键作用。 本文揭示了媒体在阿塞拜疆共和国宪政主义发展中的作用和重要性，这种宪政主义在宪法价值观的基础上出现，特别是确保公民的权利和自由，宪法作为主要法律在 现行立法制度。

关键词：宪政，公民社会，大众传媒，政治制度，民主国家。

Annotation. *The enormous possibilities of active media influence on the formation of legal thinking and behavior of citizens indicate the crucial role of the "fourth estate" in modern society. This article reveals the role and importance of media in the development of constitutionalism in the Republic of Azerbaijan, emerging on the basis of constitutional values, in particular, ensuring the rights and freedoms of citizens, the defining role of the Constitution as the main law in the system of current legislation.*

Keywords*: constitutionalism, civil society, mass media, political system, democratic state.*

«Freedom of conscience, education, speech, assembly form the basis of democracy, and all of them would be annulled if freedom of the press were successfully destroyed.». [5]
F. Roosevelt

An important condition for the development of any civil society is its awareness. It is necessary not only for citizens, but also for public associations, government bodies. In the absence of the required amount of information, difficulties arise in meeting the interests of citizens and implementing the functions of state bodies and public associations.

At the present stage of development of Azerbaijani statehood, constitutionalism acquires certain scientific and practical values. One of the features of constitutionalism is that it is prone to continuous change. This means that constitutionalism, respectively, contributes to the development of the legal system and contributes to the formation of the legal thinking of the population. Thanks to the development of constitutionalism, various institutions of state power are becoming really accessible to citizens. As an instrument for managing people's behavior and controlling actions of government, the institute of the media in the 20th century. They became not only an important social institution, but also are part of the modern mechanism of the functioning of power in society, occupying a significant place in its political system.

The media play an important role in political campaigns, structured on the basis of three systemic elements: voters, politicians and various mechanisms that ensure the interaction of voters and politicians. It is not by chance that many participants in the pre-election marathons rely on the media as a miracle cure to ensure victory and use every conceivable means to make the media an obedient tool of politicians [7, 85].

It should also be noted that national legislation now generally takes into account international standards against the abuse of freedom of speech and information. Part 2 of Article 19 of the International Covenant on Civil and Political Rights stipulates that the use of these freedoms imposes special duties and responsibilities on the media and therefore there may be restrictions that are established in the laws and are necessary:

a) for the respect and reputation of others;

b) for the protection of national security and public order, public health or morals. [8, 128].

The development of such new information technologies as satellite broadcasting, the Internet, has opened up the possibility of creating a worldwide unified information space.

In democracies, various newspapers, radio stations, and television broadcasting corporations have different owners, among them the state, and private companies, and social and political organizations. The state not only establishes its own media, creates its own press centers, but also establishes laws that guarantee the freedom of information and protect it from abuse. Today, government officials are aware of the role and importance of free press activities in strengthening the democratic process and in its irreversibility.

Media activities in the Republic of Azerbaijan are mainly regulated by the following regulatory acts: Constitution of the Republic of Azerbaijan 1995, Law of the Republic of Azerbaijan “On mass media” dated December 7, 1999, Law of the Republic of Azerbaijan “On information, informatization and protection of information" from April 3, 1998, the Law of the Republic of Azerbaijan "On the order of consideration of citizens' appeals" of June 10, 1997, the Law of the Republic of Azerbaijan "On entrepreneurial activities" of December 15, 1992, con of the Azerbaijan Republic "On communication", the Law of Azerbaijan Republic "On Copyright and Related Rights" on June 5, 1996, the Law of Azerbaijan Republic "On State Secrets" on September 7, 2004, and other regulatory legal acts of Azerbaijan Republic.

In the Law of the Republic of Azerbaijan "On information, informatization and protection of information" of April 3, 1998, information concisely means information about persons, objects, facts, events and processes, regardless of the form in which they are presented. [2]

A variety of information is mass information, the definition of which is disclosed in the Law of the Republic of Azerbaijan "On mass media" dated December 7, 1999. In the Law, "mass information" is understood as news and other information of a print, audio-, audiovisual nature, not limited by the legislation of the Republic of Azerbaijan, designed to search, receive, produce, transmit and distribute, and the Law refers to mass media periodicals, TV and radio programs, newsreel programs and other forms of distribution. [3]

For the first time at the international level, the right to information was stated in Article 19 of the Universal Declaration of Human Rights of 1948: "Everyone has the right to freedom of opinion and expression; this right includes the freedom to freely adhere to one's convictions and the freedom to seek, receive and impart information and ideas by any means and regardless of state borders" [4]. This provision is also reproduced in Article 50 of the Constitution of the Republic of Azerbaijan: "Everyone has the freedom to legally seek, receive, transmit, produce and disseminate any information." [1]

In addition, there are many special areas for which the participation of civil society institutions is required. These are charity, education, new technologies, mass media, cultures, the whole spectrum of "humanitarian operations". [6, 484-485]

As a result, the entire legal system, which is formed on the basis of constitutional values, serves to build a civil society, ensure the rights and freedoms of the citizen, and also ensures the protection of the constitutional system and the independence of the state.

In general terms, it is possible to characterize the relationship between the state and the media in the following areas:

1. the essence of the state determines in general the position of the media in society;

2. the state in a democratic society creates a legal framework for the activities of the media, determines the legal status of each of their varieties;

3. the state can have its own, state-owned media, which in a society based on the principle of political pluralism, function along with other non-state media;

4. the state does not interfere in the specific activities of independent media;

5. The state may create special bodies to protect the information rights of citizens, the interests of the state and the resolution of conflicts between different media.

In democracies, where there is a society with a market economy, freedom of speech and a pluralistic democracy, the media must be dispersed among various political forces as a powerful tool of power, the same checks and balances must be established as in the mechanism of state power, So that, ultimately, to ensure the control of society and the media, and over the political forces in whose hands they are.

It should also be noted that in relation to society, the media should perform two main functions:

a) provide the society with necessary and sufficient information;

b) adequately reflect public opinion.

Thus, new priorities of a free society are formed, in which the current constitution stipulates the creation of all conditions for a decent life of members of society. And constitutionalism, in turn, can be considered as a system of important mechanisms that ensure the application of legally regulating principles in the state. It should be noted that the essence of constitutionalism lies precisely in the restriction of state power. And the state, in turn, ensures the development of society and acts as a defender of the rights and freedoms of individuals. To do this, each state needs certain legal mechanisms, one of which is the media. The eminent English philosopher John Locke wrote about this: "the freedom of the individual in the state consists of permanent rules, which are the same for all".

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通过引入互动式教学方法和持续评估，提升教育绩效标准

UPGRADING OF EDUCATIONAL PERFORMANCE STANDARD BY THE INTRODUCTION OF INTERACTIVE TEACHING METHODS AND CONTINUOUS ASSESSMENT

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注解。 在与学生合作的过程中，存在一些关于提高教育效率和质量，引入互动学习形式以及提高独立学习动机的尖锐问题。 本文讨论了交互式教育形式，它不仅可以呈现传统的教育和控制材料，而且可以使学生更容易获得视觉和口头形式。 以"莫斯科动力工程学院"为研究对象，以"电气工程理论基础"课程为例，探讨了教学生互动控制的问题。

关键词：互动学习形式，提高学习效率和质量，相互检验，学生自主工作，监督教育活动。

Annotation. *While working with students, there are acute questions about improving the efficiency and quality of their education, about introducing interactive forms of learning, and enhancing the motivation of independent learning. The article discusses interactive forms of education, which allow to present educational and control material not only in the traditional, but also in a more accessible to the students visual and verbal form. The issues of interactive control of teaching students on the example of studying the course "Theoretical Foundations of Electrical Engineering" in the National Research University "Moscow Power Engineering Institute" are considered.*

Keywords: *interactive forms of learning, improving the efficiency and quality of learning, mutual testing, independent work of students, monitoring of educational activities.*

Modern technologies are rapidly developing, and, consequently, the requirements imposed by employers on modern specialists are increasing every day. They must be highly qualified, competent, competitive and mobile professionals.

Therefore, the quality of higher education should not lag behind and meet the rising demands of modern society.

And very often, students entering the university have problems in mastering the fundamental theoretical disciplines related to the future specialty. Consider these problems and students' motivation for more in-depth independent work on the development of knowledge on the example of studying the discipline "Theoretical Foundations of Electrical Engineering" (TFEE). This discipline is basic and at the same time multidimensional, voluminous and difficult in the preparation of undergraduate students in the direction of "Power and Electrical Engineering." It lays the foundation for the professional knowledge necessary for solving educational and research tasks in the further training and work in the chosen specialty.

One of the directions for improving the preparation of students in a modern educational institution is the use of interactive forms of education for the formation of the necessary professional competencies.

Currently, interactive forms of education are increasingly being introduced into pedagogical practice, as they are a more sophisticated teaching methodology that provides for improving the quality of academic work, activates the cognitive activity of students, and develops the skills of independent mental labor. Interactive forms of education educate students about the need to learn independently and acquire knowledge from various sources of information.

An interactive form of education is a form of interaction between students and a teacher during a lesson, independent work and current control using computer technology:

- interaction with colleagues and students of other institutes,
- search for educational materials on the Internet,
- to monitor and control the learning and knowledge of students, remote control,
- joint lesson planning.

Interactive forms of education provide a manifestation of greater activity and motivation for independent study of educational material than traditional methods. It was established experimentally that up to 10% of what he hears is absorbed in a person’s memory, up to 50% of what he sees, and up to 90% of what he does.

Interactive learning is aimed at:

- strengthening the motivation to independently study the discipline TFEE;
- the formation and development of professional skills of students in the learning process;
- the formation of effective communication skills in a professional environment;
- development of skills of mastering modern technical means and technologies of perception and information processing;
- the formation and development of the ability of independent work with information and the determination of its reliability;
- improving efficiency and achieving higher results of the educational process;
- reduction of classroom hours and an increase in student independent work hours.

Interactive forms of education allow us to present educational and control material not only in the traditional, but also in a more accessible for the students perception of the visual-verbal form. The greatest effect in the preparation of students interactive methods bring together with the traditional methods of the development of academic discipline TFEE in the classroom in the classroom time.

The purpose of such classes is:
- achieve highly effective learning of the educational material through its emotional perception,
- create conditions for active independent activity of students,
- to activate extracurricular independent work,
- to increase students' interest in studying the TFEE discipline.

In order for the student's learning process to be successful and effective, even with an interactive form of training, the teacher should organize:
- physical accessibility, all students should see and hear everything well;
- accounting when working with the studied material leading channels of perception of students: auditory and visual;
- psychological accessibility, i.e. use of language and sign systems available to students;
- the novelty of the information provided, i.e. 10% of new information is enough for it to be perceived as new.

The low level of independence of modern students in mastering and applying knowledge, the fragility of acquired skills and abilities are problems in the preparation of future university graduates.

Independent activity of students in the classroom and in extracurricular time is carried out strictly on the instructions of the teacher and under his leadership, but without his direct participation.

The presence of the task determines the entire process of independent work. The formulation and planning of independent student work, monitoring the implementation of the task is performed by the teacher. Independent work of students is monitored in the classroom time, and they are engaged in extracurricular time, when students reinforce the knowledge gained in lectures and practical classes, and deepen them using special literature or computer training devices [1].

In the future, the independence of students, necessary in the learning process, is manifested through:

- self-planning of their academic work,
- selection of educational, scientific and methodical literature for independent study,
- preparation and use of visual demonstration equipment,
- independent performance of separate tasks and whole work in the specialty using literature, computer equipment and electrical equipment without the help and detailed instructions of the teacher,
- repair, adjustment and operability testing of electrical equipment used in the process,
- independent application of special professional skills during studies and work experience.

A student can master knowledge only as a result of active independent activity, and interest in learning will give knowledge solidity, strength and consciousness. It is proved that a high level of independent activity of students is possible under the condition that they themselves use a creative approach to the process of perception and find new information, apply it in practical actions and independently investigate, generalize and analyze it.

As mentioned above, the problem of improving the quality of student learning is very relevant at present. Previously, two components were considered - these are interactive forms of presenting the material under study, the motivation of students' independent work in the learning process and the control of students in the learning process and their mastering the stated learning material [2].

We define three functions of monitoring the process of teaching students:

- diagnostic - reveals and assesses the properties and qualities of students of interest to us, as well as their levels of perception of the material;
- training - optimizes independent work, activates their cognitive activity in preparation for the current classes, tests, tests and exams;
- educational - forms the responsibility and creative attitude to academic disciplines, and later to the chosen profession.

Objective assessment at the intermediate stages of training in the semester (tests, exams, protection of standard calculations, the results of control weeks) is one of the main incentives for enhancing students' independent work [3].

During the performance of the laboratory work on TFEE, mutual verification was tested on a pre-determined topic for independent study. As a result, the students themselves evaluated the level of training of classmates. This type of control was a stimulus for motivating students to work independently on predetermined topics.

To regulate the process of independent work requires systematic monitoring throughout the training course.

Define the requirements for the organization of control of student activities:

- individual control, involving the issuance of personal tasks to students;
- systematic control, encouraging students to ongoing learning activities;
- comprehensive control, covering both individual sections and the entire curriculum;
- a variety of methods and forms of control;
- objectivity of control, excluding biased and erroneous assessments of the teacher;
- a differentiated approach based on the characteristics of the personal qualities of each student;
- tact and unity of the requirements of all teachers.

The most commonly used form of intermediate and midterm control is computer testing. It provides an objective assessment of students' knowledge of the studied discipline, the unity of requirements and increases the productivity of students and teachers. Computer testing complements, rather than replaces, the traditional control of students' knowledge [4].

On the basis of computer technologies, using tasks in a test form, modern training systems are created, which are an integral part of interactive training, an example of the Prometheus testing system created at NRU "MPEI". This system has a number of positive properties of interactive testing: service, versatility, modularity, security, objectivity, mass character and flexibility. [3]

In the interactive control of students' knowledge, two forms of its use are used:

1. Interactive testing is testing using a web interface.
2. Local testing is a testing system developed for the internal needs of individual departments of the university. These are private computer testing systems that are developed by each teacher for personal use using Microsoft Office applications in the Visual Basic editor, an example of the most common Microsoft Excel and Microsoft Power Point applications. These tests do not go through the standard stages of the formation of computer test systems: preparing the necessary educational material, describing the structure of the test, statistical analysis of the quality of the test tasks, approbation, and differential assessment of the results. The base of questions is determined by the knowledge and experience of the teacher.

Consider some of the settings used when conducting testing using the automated system "Prometheus":

- the system provides for varieties of formulations and questions, and answers to them: the choice of one of many; selecting a few of many or setting the correct sequence;
- the system provides for a different number of questions for control: the teacher indicates the number of control questions;

- the system provides for a cumulative assessment of the correctness of the answers, assuming that each correct or incorrect answer contributes to the resultant score of the question, and for a given block of questions the minimum passing score is set, which makes it possible to evaluate whether the test was passed or not;

- the system provides an opportunity for the tutor to ask the right time to answer each question or the entire test as a whole;

- the system provides, customized to your liking, the program interface for testing;

- the system provides the ability to work with her person without special training or training.

One of the main requirements for computer tests is the multivariate, which excludes cheating and memorization of answers. The development of a high-quality test task is a long and laborious process.

In order for computer testing systems to become a convenient teaching tool with the above-mentioned properties, tasks for interactive testing using the Prometheus computer system at the TFEE department were developed at NRU “MPEI”. Students are studying at NRU "MPEI" since 2014, so there are a large number of tested examples of tasks for computer testing of the first semester of study in the discipline TFEE (third semester of study at NRU "MPEI"). Intermediate testing was carried out remotely. The task for the mid-term testing at the end of the semester, held in the display class of the department, was completed from the questions of the testing tasks on current topics. Time for intermediate testing, in the task of 6 questions, 60 minutes were given. The time for mid-term testing, in the task of 6 questions, one for each topic, was also given 60 minutes.

According to the results of the work of the first semester students in the TFEE discipline (third semester at NRU “MPEI”), it can be concluded that the students' mutual testing and interactive testing conducted in the Prometheus system gave positive results in enhancing the process of learning and increasing self-education from students.

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批判性思维 – 学校物理教学中实用知识的基础
CRITICAL THINKING – THE BASIS OF FUNCTIONAL LITERACY IN TEACHING PHYSICS AT SCHOOL

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抽象。本文论述了在动态变化的世界中物理教学中自然科学功能素养的形成的重要性。特别注意分析"批判性思维"的概念，作为小学毕业生个人特征的形成和形成的一个组成部分，能够运用他们的生活知识和技能。重点是信息技术的空前飞跃，从根本上改变了寻找信息，理解，解释和应用的方法，从而从根本上影响了读者识字技能的转变。作者考虑了黑社会：读者的识字批判性思维 – 实用识字，并分析了这种结构的每个组成部分对于世界自然科学图景的形成，理解科学的重要性以及在实践中应用这种知识的能力的重要性。 。指出了与实用识字相关的批判性思维发展的目标。

关键词：信息化，批判性思维技能，多模式识字，功能性读写，技术，读者素养。

Abstract. *The article deals with the importance of the formation of natural science functional literacy in teaching physics in a dynamically changing world. Particular attention is paid to the analysis of the concept of «critical thinking» as an integral part of the formation and formation of personal characteristics of the graduate of the primary school, able to apply their knowledge and skills in life. The emphasis is on an unprecedented leap in information technology, which radically changes the approach to finding information, its understanding, interpretation and application, which, in turn, fundamentally affects the transformation of the skill of reader literacy. The author considers the triad: reader's literacy-critical thinking-functional literacy and analyzes the importance of each component of this structure for the formation of the natural science picture of the world, understanding the importance of science and the ability to apply this knowledge in practice. The goals of critical thinking development correlated with functional literacy are indicated.*

Keywords: *Informatization, critical thinking skill, multimodal literacy, functional literacy, technology, reader literacy.*

The modern world is unthinkable without the use of information technology. Informatization and digitalization - these are two directions that develop in close connection with each other. Until recently, we turned to print publications, for example, the encyclopedia, to search for information, and today various search engines that work with big data are often used.

The recent information deficit has been replaced by an excess of information of very different quality and content [1]. This information may be unreliable and even, in some cases, malicious. The topic of changing approaches in education, and above all in school, acquires new meanings, including approaches to reading literacy. Especially important is the formation of a holistic picture of the world on the basis of an interdisciplinary approach, since the boundaries between science and technology are erased, the importance of natural science education, necessary for social development, increases. The contextual content of education and training activities (the application of knowledge in situations close to real, the formation of behavioral strategies in various contexts of real life, etc.) at the present stage of its development is an urgent need [2].

The subjects of the natural science cycle, and, above all, physics have a lot of areas bordering on other disciplines for finding effective ways to solve vital problems, such as, for example, energy production, environmental protection, healthcare, etc. The foundation of this process can be considered functional literacy.

It is known that the term “functional literacy” was introduced in 1957 by UNESCO, along with the concepts of “literacy” and “minimal literacy”. Each of these concepts has its own definition and hierarchical place. Minimum literacy (reading) is the lowest level that determines the ability to read and write simple messages. Literacy means reading, writing, counting, and working with documents, a higher level. And finally, functional literacy is the top level of the hierarchy. Possessing this kind of literacy, a person is able to use the skills of reading and writing in the context of his interaction with society.

But perhaps the most relevant in the conditions of universal informatization and digitalization is the so-called multimodal literacy - the ability to use reading and writing skills to produce, understand, interpret and critically evaluate information. It is the basis for the “digital” participation of the citizen in the life of the society and making informed decisions regarding finance, health, etc. [four].

Under these conditions, the role of the formation of critical thinking in the process of teaching schoolchildren increases. Let us turn to the definition of critical thinking (CT), on which we will be guided.

In his delphi report [3] Dr. Peter E. Fasión, dean of the College of Arts and Sciences, Santa Clara University defines critical thinking as a focused, self-regulating reasoning, which results in interpretation, analysis, evaluation and reasoning, as well as an explanation of factual, conceptual, methodological, criterial or contextual considerations, which this reasoning was based on.

That is, CT is a tool for research. A person who is able to think critically, as a rule, is distinguished by curiosity, is well informed, trusts in correct (once) thinking, has open views, is objective in assessments, is able to honestly admit his prejudices, is prudent when making decisions and making judgments, is ready to reconsider his point view, clearly (sets out) the essence of the case, clearly organizes its activities in complex cases, stubbornly strives to find reliable information, looking for rational ways in the selection of criteria, research and suit the desired results - its main purpose. Preparing a person who is able to think critically, thus, means working to achieve this ideal. [one]

According to the report, CT includes the following cognitive skills: interpretation, analysis, evaluation, inference, explanation and self-regulation. These can be included in the model of the structure of critical thinking (Table 1). The basic levels are multiple simple cognitive operations, they are estimated and summarizing actions, and the top, that is, actually, critical thinking, is the presentation of different points of view and the metacognitive process of reflection of their mental operations and events that can affect them.

Table 1

Structural levels of critical thinking.

Cognitive skills	Definition	Constituent elements	Example
Interpretation	The ability to deeply understand and express the meaning or significance of different judgments	*The division* of information into groups, categories; *Description* of situations and events in such a way that they acquire clear and understandable meanings; *Retelling*, a summary of the information presented in graphical or textual forms; *Explanations* using descriptions and analogies contextual meanings of terms and concepts.	Information ordering, data classification

Cognitive skills	Definition	Constituent elements	Example
Analysis	Recognition of conceived and factual logical connections between statements, questions, ideas, descriptions, or other forms of presentation designed to express thoughts and information	Check ideas; Identifying arguments and analyzing them	Regarding a certain point of view of the author, on a controversial problem, find the main statement of the author and the arguments put forward by him in favor of this statement, supporting information used to support these arguments, the creation of a scheme (mental map) justifying the point of view, which conveniently displays the logic of reasoning.
Evaluation	The process of evaluating the credibility of statements that are the results of personal perception and opinion; the significance of coherent relations between statements.	Analytical assessment of statements and arguments (objectivity, reliability of information, reliability of information source)	Check text for identifiable formal and logical errors; assess the significance of specific statements; evaluate the quality and applicability of the arguments; decide on the applicability of certain arguments
Inference	Search for the elements necessary for correct and reasonable conclusions; conjectures and hypotheses; application of the necessary information and identification of consequences arising from these statements	Clarification of evidence; Assumption of alternatives; Alignment of the findings;	perform an experiment and, using appropriate statistical methods for processing information, confirm or refute the hypothesis; consider different opposing opinions, and think about the reasons for their appearance. Collect relevant information and formulate your own thoughtful opinion about the problem.

Cognitive skills	**Definition**	**Constituent elements**	**Example**
Presentation	Presentation of the results of reasoning; explanation in clear language with the use of correct argumentation; presenting your reasoning with convincing arguments.	Results presentation; Justification and explanation; Statement of arguments	Write down evidence of why you should stick to this particular view of the problem..
Reflective thinking	Control of their mental operations in the analysis and evaluation and validation of their own logical judgments.	Self Test: *reflection of their* own logical reasoning; *Objective and thoughtful self-assessment* of their views and arguments in their favor; *assessment of the influence* of stereotypes, prejudices, emotions and lack of knowledge on their thinking, as well as the impact of other factors that limit objectivity or their own rationality; *Planning* actions to correct errors of biased evaluation of information and the formation of unreasonable conclusions.	Verify your views on a controversial issue, paying attention to the possible influences of your personal prejudice or personal interest; Critically analyze their methodology in order to detect misuse or unintentional errors; re-read sources to ensure that important information is not missed.

Purpose for the development of critical thinking:

- Understand the importance of science and the possibility of its practical application.
- To perceive science as an area of human activity where there are benefits and limitations.
- To form and develop an analytical, flexible way of thinking, thanks to which a person is able to raise questions, solve problems, give explanations and evaluate / consider arguments / argumentation.
- Understand the need for collaboration and communication.
- Apply language skills and knowledge in different life contexts.

Develop sensitivity towards objects of animate and inanimate nature.

- Be able to adequately evaluate the experience gained in the learning process and make the right choice.

Using contextual learning, it is possible to develop critical thinking by examining each subject topic within one context with the formulation of controversial (problem) issues and further work with them. Today's world is a world of universal globalization. Therefore, it is advisable to rely on global contexts according to the International Baccalaureate Organization (IBO) version: We and our relationships with others; Our self-expression as individuals and as carriers of culture; Our place in space and time; Scientific and technical progress (discoveries and inventions); Globalization and sustainable development (global interconnection); Justice and development.

As a rule, work in a context involves several stages:

- priming - a situation that generates questions and the need to answer them, in an important context.

- drafting issues: factual, conceptual and controversial;

- activities aimed at finding answers to questions: semantic reading (cluster analysis, insert), working with primary sources, searching for information, comparing articles, it is possible to conduct a simple experiment;

- comprehension of the found information, exchange of points of view, and facts;

- check that the main idea is learned.

Let us give an example from a work program in physics, Grade 7 (context based on the IBO version).

Relations, conditions, effects, movement, transformation	**Factual:** What new materials have been created thanks to the development of ideas about the structure of the substance. **Conceptual:** How is knowledge about the structure of matter related to the development of technology? **Controversial:** Is it necessary to spend forces and resources on the development of science for the further study of the microworld? **Main idea:** the emergence of new materials is impossible without studying the bonds in the substance	Work with sources
Globalization and sustainable development Global interactions, models, interactions, patterns	**Factual:** How people feel different interactions on themselves? **Conceptual:** Why is there a relationship between local and global processes? **Controversial:** Do we need the knowledge of classical mechanics, the modern development of the world and of science? **Main idea:** All phenomena and processes in nature are interrelated. Changes are possible only due to interaction.	Sense reading

In the conditions of the information society, it is necessary to ensure not only the possibility of obtaining information, but also ways of working with it. Critical thinking is a tool for the formation of functional literacy, which in turn helps to form multimodal and natural science literacy necessary for a 21st century person.

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基于艺术在教育空间的整合，实现儿童的个性自我实现
SELF-REALIZATION OF THE CHILD'S PERSONALITY BASED ON THE INTEGRATION OF ARTS IN THE EDUCATIONAL SPACE

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注解。 本文介绍了从学生在额外教育系统中的创造性活动的结果中收集的经验。 学习的基础是基于系统活动方法的文化适应过程。 本文介绍了有助于揭示学生作者的自我意识和掌握现代世界所需的自我调节技能的活动变体。

关键词：个人能力，价值语义规范，青少年创造性自我实现，表现艺术联合治疗，多元综合方法，艺术形象。

Annotation. *This article presents the experience gathered from the results of the creative activity of students in the system of additional education. The basis of learning is the process of enculturation based on a system-activity approach. The paper presents the variants of activities that contribute to the disclosure of the students' author's self-consciousness and the mastering of self-regulation skills necessary in the modern world.*

Keywords*: personal competence, value-semantic regulation, creative self-realization of a teenager, intermodal therapy by expressive arts, polyart integrated approach, artistic image.*

The structure of the educational process today is multi-layered and includes various forms and directions, which makes it possible to more effectively use different principles, methods and technologies in working with adolescents to develop value-semantic regulation, allowing students to set themselves new cognitive goals and independently control the process of its achievement.

This article discusses the possibilities of integrating the arts in the educational process within the framework of extracurricular, additional education based on the activity approach, which was developed in the works of L.S.Vygotsky, asserting that a person’s psychic abilities «is the result of the transformation of external objective activity into internal mental activity through successive transformations» [4].

The various facets of this concept are reflected in the works of many world scientists and researchers, such as V.I. Vernadsky, Teyar de Chardin, V.P. Zinchenko, Alex Osborne, Danushi Kshitsova, B.P. Yusov: «... mental, humanitarian and artistic creativity is the result of "out-of-flesh" mental processes, more subtle and elusive creations of consciousness. These are primary, direct processes of imagination, creating a special new reality, as they now say, "the virtual world"» [8, 38].

The process of self-actualization of the child's personality is based on the awareness of the value of their actions based on the activity approach and is associated with issues of communication, understanding of cultural codes and characteristics of traditional culture, as well as the development of empathy - the ability to share the emotions and feelings of another person.

From the point of view of B.P. Yusov, the image as a concept is the central core of culture, and not professional notions, terminology, or information logic. The basis of art, science, invention as a form-forming factor lies precisely in the image, which is the most concentrated and universal expression of culture in all its diversity, representing the universal world language, simultaneously being both a subject and a result of creative activity based on productive imagination.

There are many mechanisms for disclosing the potential abilities of a child's personality, but the "poly-art integrated approach" clearly contributes both to the knowledge and self-knowledge of his inner world. One of the modern trends in the psychology of creativity is intermodal art therapy. Its methods are based on a multimodal approach, and, from the point of view of influencing the inner world of a person, she has much in common with a polyartic integrated approach. In addition, both methods also carry the art-therapeutic effect of personality harmonization [5].

In modern psychological literature there are many descriptions of various areas of art therapy, each of which has its own specifics in content, methods and forms of work: art therapy, music therapy, dance movement therapy, intermodal therapy expressive arts, dramatherapy, sand therapy (Jungian) , photo and video therapy, work with clay, animation therapy, mask therapy, fairy-tale therapy, play therapy, mandalotherapy, etc. At the same time, all these areas are united by an artistic image, which is the methodological basis of the presented therapeutic practices, expressing inner feelings and experiences. The latter is carried out through the creation of a creative product in any artistic form, such as: movement, sound, literary work, drama, play, painting, graphic image, sculpture, installation, etc. what is the basis of intermodal therapy expressive arts. This approach allows you to open up in the work of a person of any age, any social status and even cultural experience. The multimodal approach underlying both the integrated polyartistic approach of pedagogical technologies and the basis of intermodal therapy with expressive arts allows to bypass self-censorship of consciousness and explore the processes of the unconscious using its language: colors, sounds, smells, forms, symbols, metaphors - everything for any person has their own personal meanings. The pedagogue, as well as the therapist, is especially important, since it is possible to more fully understand the inner world of a person who is able to express himself through a creative image. In this case, the product of the creative process itself is a statement of a person's moods, feelings and thoughts. The teacher (as well as the therapist) can see the dynamics of personal development, state the changes that allow the adolescent to more clearly and broadly discover the potential of their inner world, more accurately express their inner feelings and thoughts, otherwise consider the situation, find their own path of development. [6.5].

Intermodal and polyartistic approaches are aimed at vigorous creative activity, which is based on freedom of choice, the ability to self-organize, which contributes to an increase in the creative activity of a person, his spiritual and moral formation. It is through art and the acquisition of creative experience that adolescents acquire the skills of reading, understanding, and creating artistic images as a way of creative expression. In the process of learning, a teenager, having individual peculiarities of perception, as any other person, determines for himself the most comfortable way of receiving information and the form of working with it as with a concrete image, possessing certain properties.

Our approach is based on the «psychosemiotic tetrahedron» model of consciousness developed by Vasilyuk F.Y. and presented in the article «Image Structure» [1], in which the meaning, object, personal meaning, sign (word) correspond to the magnetic poles of the image of consciousness and correspond with the world of culture, the external world, the inner world of the personality and the world of language in the mental image. Dominance to one of the poles creates a special type of individual image of consciousness, and the structure between the poles is a sensual fabric that Vasilyuk F.. considered as a kind of substance of a dynamic plasma .. [1, 18]

For example, let us consider the process of image formation in the works of participants in the program «Traditional Painting of China» after-hour activities when they perform pictorial sketches in the style of Gohua. The group was made up of children of different ages 6 - 9 classes, regardless of their abilities for drawing and painting. Only the desire of children to get acquainted with a new culture was taken into account. As a result of classes, children were asked to compose a composition from an image of a plant (bamboo), a stone and hieroglyphs.

The participants performed the work in completely different ways, which is explained by the peculiarity of the “poly-artistic” personality. In the example, it is clearly expressed that the images created by the participants are not so much a reflection of a literal reality, but rather a reflection of the actual reality of a person in combination with literal and imaginary realities [3].

Analyzing the completed etudes it is possible to consider them in aspects of image analysis, complicating the task.:

1) substantial features of the image, due to various factors, such as geographical and climatic, socio-political, social, philosophical and religious;

2) structure of the image of consciousness. Culture stimulates the use of a dominant pole in the organization of the image, which for the subject of the creative process is a formative action at the time of the creative search. This choice of a teenager can be traced using the model of psycho-semiotic tetrahedron of consciousness;

3) image dynamic characteristics:

- image formation based on cultural codes;

- associating it with another form, which corresponds to the cultural characteristics of the author;

- living image in the chain of a stimulus word (thought, symbol) - artistic image - plot, which depends on the work culture of consciousness and the communicative skills of a teenager in a particular cultural and historical environment.

This analysis, taking into account modern realities, clearly states the applicability of the theoretical model of F.E. Vasilyuk "Psychosemiotic Tetrahedron" in the modern educational environment. [1,8].

So, for example, V.V. Sidorov in his work «Techniques of working with graphic materials and art history» compares the outside world, represented by the subject content, the inner world as a personal meaning and the world of culture, which is represented by a meaning, through a word. This comparison makes it possible to see that each of the poles is a borderline entity. On the one hand, the pole of the structure of the image of consciousness borders on an objectively existing reality, i.e. literal, and on the other hand, directly with the inner subjective world of man, i.e. with its actual reality. However, it is precisely the interconnection of all poles, or rather the nodes of the psychosemiotic tetrahedron that creates the volume in which not only is formed, but also lives in its rhythm, «the living image pulses and overflows» [7, 50].

The combination of a visual image with textual information from the participants of the program «Traditional Painting of China» shows how the process of image formation takes place in creative works. The teacher clearly shows what exactly was the basis of the created image, to which "node of the image" the sensory fabric of perception and transmission turned. After all, the created creative image simultaneously manifests through itself the objectively existing reality of the external world, the author's internal world, the language of incarnation and the culture of thinking, at the same time it translates through itself the direct subjectivity of the author's perception at a particular point in time. This diversity gives us the opportunity to argue that sensory tissue is not a passive substance of one of the dimensions of the structure of consciousness, but an active matter that generates images that can take on any chosen form [1.7]. Hence, the picture is only one of the sides of the manifestation of the sensory fabric, which incorporates many specific characteristics of each pole-node of the image of the structure of consciousness. Consequently, the sensory fabric of the image shows the function of synesthesia of information from different perceptual modalities, simultaneously with the interference of sensations coming from different nodes of the image as an interaction between the new perceived information and the already existing memories. «According to its mode of existence, sensory tissue in consciousness is an experience, a direct inner sensory feeling» [1.18]. It is important that we are talking about the whole process of «ripening» of the image - the process within each person through the dynamics of the sensitive tissue of the image. «The sensual element of inner-body experiences (is) ... is a dynamic organ that performs the most complex integrating function» [1,19].

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专业教学社区学生的专业社会化
PROFESSIONAL SOCIALIZATION OF STUDENTS IN THE PROFESSIONAL TEACHING COMMUNITY

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注解。 本文通过开发软技能指标之一 – 批判性思维，将专业社会化的阶段描述为学生成功融入其专业环境的一部分。 该研究的作者通过互动的教育形式研究了其在教育过程中的形成方式。

关键词：专业社会化，教育社区，教育环境，软技能，批判性思维。

Annotation. *The article describes the stages of professional socialization as part of the successful integration of students into their professional environment, through the development of one of the indicators of soft skills - critical thinking. The authors of the study examined the ways of its formation in the educational process, through interactive forms of education.*

Keywords: *professional socialization, pedagogical community, pedagogical environment, soft skills, critical thinking.*

The constant transformations taking place today in various spheres of society put forward requirements for the quality of professional training of future specialists from various fields of activity. The society needs people with new professional thinking, which is capable of solving both simple and non-standard tasks; high mobility, reflected in the ability to quickly adapt to change; competence not only in their own field, but also basic knowledge in other areas; tolerance towards other people, their opinions and attitudes, traditions and customs; and etc.

In connection with this trend, the university education system should review the guidelines for future specialists, and send them to the formation of personal qualities, the realization of the potential opportunities and abilities of a university graduate. The result of this education will be the creation of an image of a student as a subject of socialization, possessing deep and stable knowledge in the professional field and formed personality traits (enterprise, mobility, communication skills, critical analysis of reality, conscious responsibility, tolerance, creativity, adaptability, etc.), determining optimal integration of a university graduate in a constantly changing conditions of society [6, p. 129].

"Professional socialization is, on the one hand, the process of entering an individual in the professional environment, mastering the standards and values of the professional community, and on the other, the process of actively implementing the accumulated professional experience" [10, p. 36]. The goal of professional socialization is to master the principles that allow it to function in a particular professional environment, accepting the values of a professional team at the personal level, which allows an individual to become a true professional.

Professional socialization of students of pedagogical universities is divided into stages: adaptation and identification. Let us consider in more detail each stage [7, p. 92-101].

Stage of professional adaptation. This stage involves the process of gradual inclusion in the profession, familiarization with the content and characteristics of the activity, adaptation to the conditions and requirements of the teacher's work, to the teaching staff, in the interaction with which the professional activity proceeds. The mechanism promotes inclusion in the professional environment. This period includes: the adoption of new social roles, functions of a professional orientation and the entry into the structure of interpersonal relations when solving the set professional tasks.

Professional adaptation is divided into three stages: introductory and familiarization stage (assimilation of the norms and values of the university, features of the organization of its functioning); an effective orientation stage (recognition and acceptance of the main elements of the university's value system, participation in the main functional educational cycle with support for the actions performed); functional assimilation stage (complete coincidence of the individual, group and environment value systems, free and active participation in the functioning of the environment).

Stage professional identification. This process of establishing the identity of the personal "Professional Self" with the image of an ideal teacher, successfully performing his professional activities, learning the norms, rules and values of a professional association. It allows you to increase the list of opportunities and create the necessary conditions for the growth of the volume and improvement of the socio-cultural capital of the future teacher, is an essential prerequisite for cohesion and solidarity of the pedagogical community, a starting point for advancing to the heights of professional skill, where «soft skills» are formed

«Soft skills» are a complex of non-specialized, career-critical superprofessional skills that are responsible for successful participation in the workflow, high performance and are cross-cutting, that is, not related to a specific subject area." In the Oxford dictionary it is noted that “soft” skills are “personal qualities that allow you to effectively and harmoniously interact with other people,” for example, to carry out productive communication [1, p.199].

Professional identification is divided into three stages: the stage of accepting oneself as a subject of professional activity (adoption of goals, values, attitudes, ideals, the formation of the foundations of professional thinking and behavior); the stage of comparing oneself with a professional ideal (comparing personal characteristics with the characteristics of an ideal model, building a program of professional self-improvement); stage of professional personification (positioning oneself as a professional, conscious belonging to the professional community).

One of the indicators of soft skills is the skills of effective thinking, or intellectual thinking, which are responsible for managing the processes in the head, helping to make your own life and work more systemic, that is, this thinking is critical. Critical thinking is interwoven, integrated into each of the other types of thinking, influences their logic, quality, integrity, serves as a link between all types and types of thinking, behavior; is one of the elements of the mentality of the individual, society, society.

In the study of M. Veksler, the concept of “critical thinking” is considered as “the process of solving a problem, including a different discussion of the process and results of labor, their evaluation. This assessment can be expressed in detecting an error, either in establishing a positive, valuable in objects and phenomena, or in establishing the truth of the fact discussed, the idea ”[8, p. 12].

D.M. Shakirova suggests the following formulation of critical thinking. “Critical thinking is the abilities and needs of a person: a) to see the inconsistency of the statement (thought) or behavior of another person with generally accepted opinion or norms of behavior or their own ideas about them; b) be aware of the truth or falsity of the theory, the proposition, the incoherence of the statement and react to them; c) to be able to separate the false, the wrong from the right, the right; critically analyze, prove or disprove, evaluate the object, the task, make adjustments, show a pattern of thoughts, statements, behaviors; it is an expression of its own value relation, value orientation; d) it is the ability to prove and disprove, properly evaluate the object, task, behavior, process, result, etc. ”[2, p. 13].

The most important characteristics of critical thinking, according to D. Kluster, J. Dewey, P. Freire, R. Ennis, and others, include the following: independence of thinking; the desire to acquire new knowledge; the ability to find and formulate problems and search for their solutions; saying and arguing their point of view; acceptance and responsibility for decisions made.

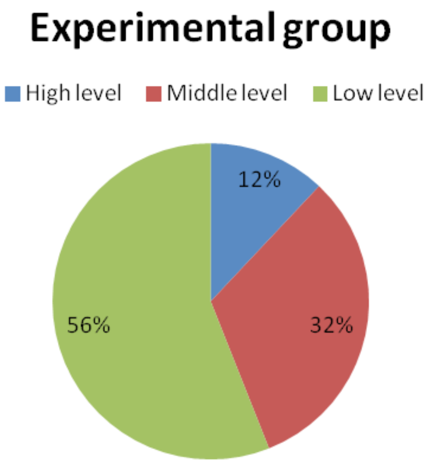
Researchers E. Martin, R. Paul, K. Adamson and E. Binker [11, p. 62], identified the main indicators of critical thinking, combining them into three groups: affective, macro-cognitive and microcognitive. Affective indicators include: independence, integrity and courage of thinking; awareness of internal and external motives; objectivity and abstention from rash and not meaningful judgments; the ability to see the relationship of emotions and beliefs; perseverance in solving problems.

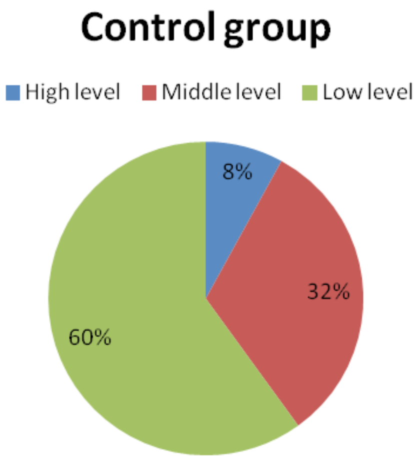
To macrocognitive: information compilation without simplification; clarity in the presentation of his point of view and argumentation; analysis of the questions from different angles, taking into account arguments and hypotheses; comparison of the situation with similar ones; an objective and critical assessment of incoming information, judgments, actions and behavior of others; the ability to lead a "Socratic conversation" with a partner, using critical listening; depth of thinking, expressed in identifying the most significant issues and situations.

Microcognitive indicators of critical thinking: analysis and evaluation of conclusions and statements; the ability to highlight the necessary information associated with the consideration of a particular issue and to see inconsistency and inconsistency in the arguments; comparison or opposition of abstract concepts of reality; statements are accurate and critical, with evidence; analysis of direct and indirect effects.

Critical thinking has its own ways of its formation among students in a professional environment. The study was conducted in three stages: ascertaining, shaping and controlling. The sample of the study consisted of 50 people (experimental group - 25, and the control group - 25).

At the ascertaining stage of the study, a low level of formation of critical thinking in the experimental group was found in 56% of students, an average level in 32% and a high level - 12% of students; in the control group, the level of formation of critical thinking is low in 60% of students, the average level is 32% and high in 8%.





We are interested in whether the experimental and control groups differ in the level of formation of critical thinking. To identify the statistical significance of the results obtained, we used mathematical processing methods, namely, the φ * criterion — the Fisher angular transform.

According to the results of calculations, according to the Fisher criterion, the following stage is taken as H0: The share of persons with high and medium levels of critical thinking is not higher in the first group (experimental) than in the second (control) group.

The obtained results signal the need to organize work on the development of critical thinking among students. Therefore, we have developed a series of classes that were conducted in an experimental group, based on the development of tolerance in business and interpersonal communication. As effective forms of organizing classes, we consider interactive learning that promotes interaction, mutual understanding and mutual enrichment, as well as provide better learning of theoretical material, and are aimed at shaping opinions, attitudes, decision-making skills.

Interactive forms of training, has a wide variety, we have chosen such as: discussion, business game, the Socratic dialogue, case-method and training. Let us consider in more detail each of them.

A business game is a form of reflection of the subject and social content of professional activity, the formation of systems of relations, the creation of various kinds of conditions of professional activity.

The main idea of business games is a simulation (a fragment of reality) and a game model of joint activities (description of the work of participants with a simulation model). In this case, each participant in the game, in accordance with its role and function, solves its separate task [12, p. 4 - 49]. .

According to V. A. Pleshakov, “training” as a psychological-pedagogical technology of group work “is an orderly and task-structured set of active methods of group work (business, organizational, activity, role-playing and psychological games, tasks and exercises, psychotechnician and reflepraktik, group discussions, etc.), logically and thematically selected according to the set goal and providing pre-planned and correctly diagnosable results for a person, group and organization in the process of group The speaker "[3, p. 64].

According to N. I. Makhnovskaya, discussion is “one of the forms of organizing a public dispute, is a speech work that reflects the main (categorical) features of the text” [4, p. 31].

Discussion contributes to the desire to find truth in information, to critically perceive it, and to highlight the main idea, to find the means and arguments for its confirmation and justification, the ability to defend and promote their own views, to argue their own point of view and finally the courage to admit the fallacy of previous statements. The atmosphere, which is created during the discussion, contributes to the formation of a tolerant attitude to other views, as well as active and creative communication with colleagues.

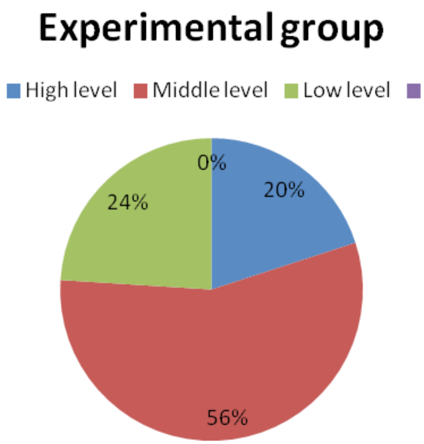
"The case method is a teaching technique that uses a description of real economic and social situations." A case is a written description of a problem that has a real existence. The task of students is to analyze, find the source of the problem and put forward ideas to solve it, and choose the best one of them [9, p. 59].

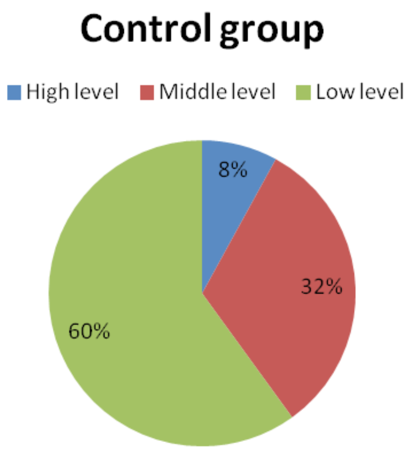
“Socratic dialogue is a cultural classic pattern of philosophical and ideological dialogue, involving the use of the question-answer system and leading the interlocutor to an independent conclusion” [5, p. 80].

During all the classes, qualitative changes in critical thinking were noted in the reasoning and behavior of students, on the basis of which the most effective form of work was identified - discussion.

These forms in one degree or another contributed to the deepening of self-discovery processes, the development of self-reflection skills, the ability for self-realization and further self-education, and, consequently, led to the development of critical thinking among students through interactive forms of activity.

At the control stage of the study, repeated diagnostics of the formation of critical thinking in both groups was carried out. The level of development of critical thinking among students in both groups is as follows: in the control group, the results did not change; in the experimental group, the high level of critical thinking increased by 8%, the average level by 24%, and the low level decreased by 32%.





So, there are obvious significant changes in the direction of increasing the level of development of critical thinking among students of the experimental group. To reveal the reliability of the results, we use the criterion φ * - Fisher's angular transform.

According to the results of calculations $\varphi^*_{эмп}$=2,648 > φ* *кр* ($\rho \leq$0,01), is in a zone of significance. Therefore, it is accepted H_1: The share of persons with high and medium levels of development of critical thinking in the first group (experimental) is greater than in the second (control).

The obtained data allow us to conclude that the development of critical thinking among students through interactive forms of education are a good means of their professional socialization.

Conducted classes contributed to the development of indicators of critical thinking among students. They learned to analyze information, highlight the true and false, put forward their ideas and views on solving a particular problem posed, and also became more tolerant and critical of other people.

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UDC 371.263

用于评估学生能力的通用设计解决方案
UNIVERSAL DESIGN SOLUTIONS FOR ASSESSING STUDENTS' COMPETENCIES

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注解。　基于"以证据为中心的设计（ECD）"模式设计的基于证据的论证教学仪表设计方法的基本原理是为了确保可靠地评估学生的能力。　这种评估工具的概念框架包含其中的一些模型：学生（知识和能力），任务，证书，统计和演示。评估的发展阶段与任务执行中主体活动的强制性规划之间的关系有助于创建一种新的评估工具，并在能力方面进一步发展对教育成就的真实评估 基于学习。

关键词：能力，设计模式，循证设计，工作模型，学生模型，证据模型，学习成果。

Annotation. *The rationale for the design method of pedagogical meters of evidence-based argumentation based on the "Evidence Centered Design (ECD)" pattern design is provided to ensure reliable assessment of students' competencies. The conceptual framework of such an assessment tool contains a number of models included in it: a student (knowledge and competences), tasks, certificates, statistics and presentations. The relationship between the stages of the development of the assessment with the mandatory planning of the activities of the subjects in the performance of tasks facilitates the creation of a new type of assessment tools and the further development of authentic assessment of educational achievements in terms of competence-based learning.*

Keywords: *competencies, design patterns, evidence-based design, job model, student model, evidence model, learning outcomes.*

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Over the past two decades, the development of information and communication technologies has greatly changed the living conditions and activities of people. The world around us is constantly changing, and the pace of change has been growing rapidly lately; such changes require corresponding accents in the educational system. Today, more and more routine operations are beginning to be performed by robots using digital technologies, the former specialties are disappearing and new ones are emerging that require different training of specialists. Accents are shifted towards critical thinking, interoperability and communication, and creative work. We are talking about the formation of the skills of the 21st century, which are necessary for the employees of the innovation economy and the information society, who can use the information space to find almost any information. The world is changing, the person is changing, the tasks of education are changing. A modern person should possess such skills that help him organize his own life, make it effective, interesting, comfortable. And this means that people need to be taught not to what they have been taught before, not to memorize large amounts of educational information, but to think, independently find information, critically evaluate and use what they need in their work. To this end, new approaches to learning and using educational technologies corresponding to the new reality should develop at a faster pace.

Despite the fact that technology has made profound changes in the industrial sphere, most educational systems function in the same way as in the twentieth century. As Patrick Griffin, a professor at the University of Melbourne, notes, we still have teachers of geography, history, physics, chemistry, but no teachers of critical thinking, interaction teachers, or teachers of curiosity [1]. «Today, the essence of education is to help individuals develop a reliable inner core and goal setting skills in order to find their own way in an increasingly uncertain, impermanent and complicated world» [5, P. 19].

The public is concerned about the future of education: what skills and knowledge does the economy and society need in the 21st century to achieve success and respond to global challenges; how to change existing educational programs to form the necessary competencies; what educational models are needed for this; Do you need the skill of memorizing a large amount of information today in an era when an answer to any question can be found on the Internet? What assessment systems can guarantee the reliability of the quality assessments of students' educational achievements?

The basic skills and literacy needed to meet the needs and objectives of the XXI century today include: concentration and attention management; oral and written communication, presentation ability; empathy and emotional intelligence; cooperation and cooperation; critical, problem-oriented and systemic thinking; Creative skills; work in interdisciplinary environments; ICT and media skills, including programming, informational hygiene. Financial literacy is important; flexibility and adaptability, initiative, curiosity, responsibility, leadership; the ability to learn and relearn and relearn throughout life; work responsibility; understanding of global problems, management skills; ability to take care of the environment and their health.

Many domestic and foreign authors propose various taxonomies of the so-called skills of the 21st century, which are believed to underlie experience and activity [3, 4]. These so-called «soft skills» or general competencies are interdisciplinary in nature, are deeply latent characteristics that are difficult to form, identify and evaluate. It is clear that knowledge is absolutely necessary, without them competences and skills are not formed. Therefore, it is necessary to rethink what is significant in each subject area, to rework the educational program so that it reflects the tasks of paramount importance in the disciplines studied. The modern education system should focus on the development of students' personal competencies, teach them to consider the consequences of their own actions, act consciously in the world, reflect on and adapt to external changes.

Competence rhetoric is already widely used in education and appraisal activities in domestic educational practice today, but practically everywhere a cognitive approach is used without computers, information technologies, social networks and individual and group projects on this basis. The current knowledge-based educational system does not prepare graduates properly for today's employment and for the world today, and even less for tomorrow, and that they need practice in the application of knowledge and the use of skills. At the same time, the whole teaching methodology should be aimed at the manifestation of creative ingenuity by the students and their ability to find non-standard solutions to problems and tasks. Therefore, ensuring the development of the content of a particular subject within the framework of traditional teaching technologies, it is important to create conditions for students' activities, development of 21st century skills and personal qualities, changing the forms of teaching academic disciplines and methods for evaluating educational achievements.

For effective organization of the educational process, feedback plays a significant role, which is ensured by the reliability of assessments, which in turn requires the development and application of reliable assessment tools. Changing the national system for assessing student achievement at all levels is important for identifying the effect of results on learning motivation. Assessment reform is a key factor in ensuring the quality of education: all of the world's best educational practices rely on independent, highly professional assessment systems. The results of the assessment are an important function if they motivate to enhance learning activities, help learners to develop the necessary skills and contribute in general to improving the efficiency of the educational system [2]. But in this way, the result of the assessment works only if it gives a valid picture of the state of the objects being evaluated. Traditional control methods, as a rule, do not provide an authentic assessment of students' knowledge, and even more so their skills, relationships in collective activities, the ability to independently find and transform the necessary information to solve non-standard problems, and this is becoming increasingly important for the global economy and a rapidly changing world. Reform of the appraisal system in itself is a very serious problem, requiring the efforts, resources and experience of not only teachers, but also workers in industry, academia, non-governmental organizations and administrative employees of educational institutions, territorial and federal ministries and departments. The problem is due to the fact that the construction of such evaluation tools causes difficulties for teachers. And at the same time, today it is necessary to evaluate not only the knowledge of students, but also competence, which is even more difficult because of its deeply latent and interdisciplinary nature.

In the world educational practice, new approaches to the assessment of universal competencies, which are the basis for the formation of the skills of the XXI century, have already emerged. They are becoming increasingly large-scale, innovative and high-tech. In this study, the goal is to provide information about the methods of evidence-based assessment of students' achievements, widely used in foreign education systems, but which have not yet been applied in domestic educational practice. The approach of reliable evaluation of educational achievements and competences developed by R. Mislevi (Mislevy R., 2003) is based on the Evidence-Centered Design (ECD) method of designing an evidence-based pattern schemes [8-10].

According to S. Messick (Messick, 1994), it is the nature of the construct that determines the creation of a relevant task, as well as the development of a scoring system and evaluation headings based on it [6, 7]. The algorithm for designing tools for assessing preparedness is provided on the basis of pairing the student's model (construct, which reflects the goals of knowledge and competence assessment) and the model of a meaningful task with a set of evidence, refutations and argumentation of the observed results in the subject's activities during the assignment (Figure 1).

The construct determines an assembly model or a conceptual assessment framework (CAF) and a formal pattern design (reusable pattern) consisting of a student model (knowledge and competencies); job models that provide an intelligent transition from individual results to conclusions determines an assembly model or a conceptual assessment framework (CAF) and a formal pattern design (reusable pattern) consisting of a student model (knowledge and competencies)

The conceptual assessment framework in ECD is being developed to assist the developers of student assessment tools (Fig. 2).

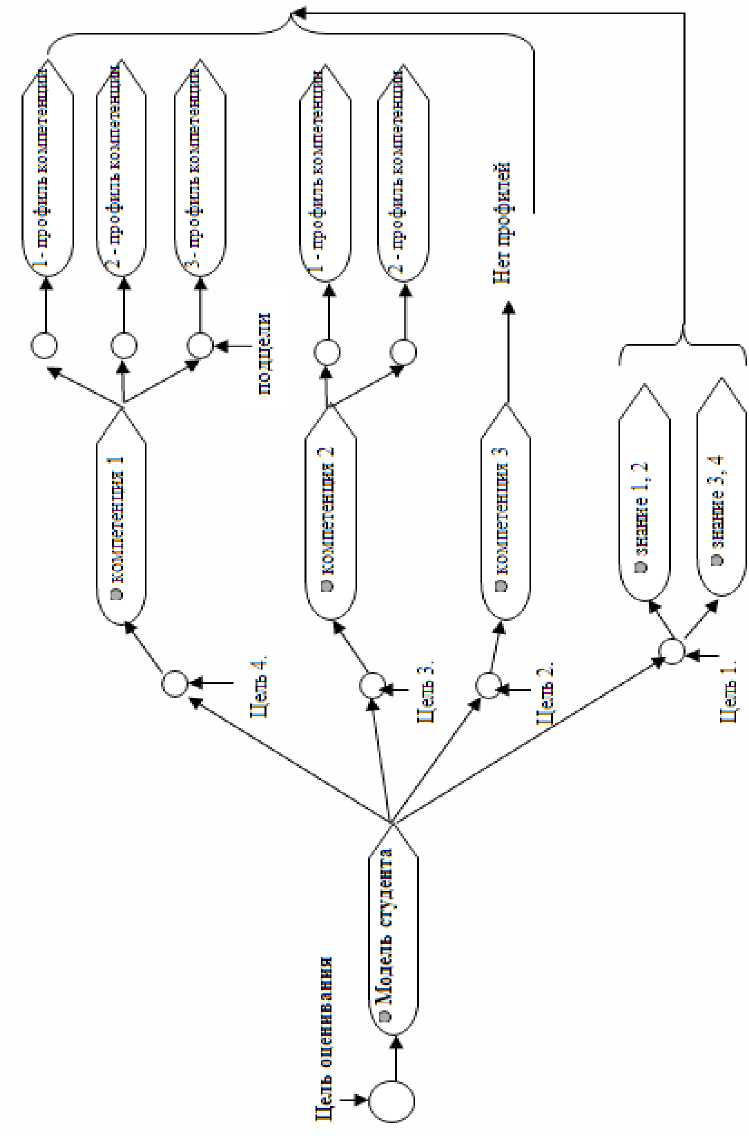

Fig. 1. *An example of a multidimensional construct [11]*

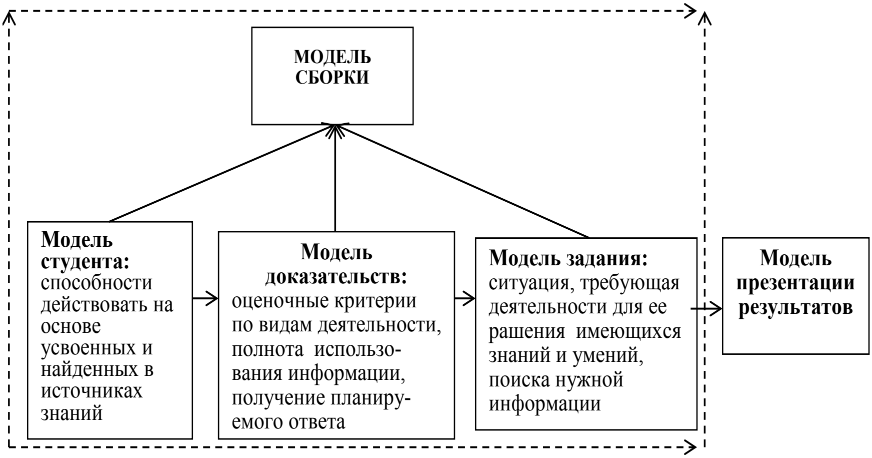

Fig. 2. *Assessment tool assembly model or CAF [10]*

This is a design assessment framework that describes how the various components and models of ECD relate to each other in order to give a reliable idea of the level of competency. The peculiarity of using ECD is that elements of student assessment are extracted from the implementation of a complex task, then these extracts are evaluated and accumulated to make final assessment judgments about competencies. All stages of the development of an assessment tool from the operationalization of the construct and the construction of a conceptual framework for assessment to the preparation of the task and the conditions for its implementation should provide evidence of what is being measured is really what was planned, and the score reflects what the student can do.

Definition of assessment based on the principles of evidence-based argumentation (ECD) became necessary in the educational context, when it became necessary to integrate a large amount of data and determine complex educational outcomes, such as 21st century skills (competencies), during the assessment. ECD is a language for describing the process of developing an evaluative tool, which includes: documenting information about the structure and strength of evidence-based relationships; coordination of the work of developers and psychometrics when calibrating tasks of a measuring model; documenting information that provides the basis of the assessment and its reliability.

The use of evidence-based design ECD in the development of evaluation tools creates a reliable basis for establishing the link between assessment and adjustment of educational activities. Such an approach can be successfully applied both in assessing students 'knowledge and in assessing competencies, ensuring improved reliability of results, communication between the processes of developing an assessment system and ensuring activity conditions, so that students can show what they can do, using their knowledge and finding necessary to solve the problem.

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中学生协调训练评估的综合测试

COMPREHENSIVE TESTS IN THE ASSESSMENT OF COORDINATION TRAINING OF PUPILS OF SECONDARY SCHOOL AGE

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注解。本文论述了学校体育教育过程中协调能力发展水平的监测与评价问题。作者考虑了协调能力诊断中两个方向的可能性。第一个是使用大量测试项目的综合测试，其中使用实验室和信息技术。第二个方向是复杂的协调测试，一种障碍过程。对两个测试结果的分析表明，在这两个变量之间存在高度关系，这些关系彼此密切相关。显示的高相关系数允许说出两个诊断方向的高信息值。但由于复杂测试中的诊断过程花费的时间少得多，因此它更受欢迎，可用于学校体育教育过程。

关键词：协调能力，综合测试，障碍条带，相关系数。

Annotation. *The article deals with the problem of monitoring and evaluation of the level of development of coordination abilities in the educational process of physical education in school. The author considers the possibilities of two directions in the diagnosis of coordination abilities. The first is a comprehensive testing using a large number of test items, where laboratory and information technologies are used. The second direction is represented by a complex coordination test, a kind of obstacle course. The analysis of the results of the two tests showed that between these two variables there are high relationships that are closely correlated with each other. The revealed high correlation coefficient allows to speak about high informative value of both directions of diagnostics. But since the process of diagnosis in the complex test takes much less time, it is more popular and available for use in the educational process of physical education in school.*

Keywords: *Coordination ability, comprehensive test, strip of obstacles, the correlation coefficient.*

INTRODUCTION

Despite the large number of publications and studies, the problem of diagnosing coordination abilities in the process of training in school remains relevant. The most problematic in this direction is the selection and justification of optimal means and methods for monitoring and assessing the level of development of coordination preparedness of school-age students. It must be said that the emergence of computer and information technologies significantly expands the possibilities for monitoring and diagnosing coordination abilities.

The need to control coordination abilities at school age is due to their significant influence on the processes of mastering practical material in physical education classes at school. In our previous studies, V.L. Botyaev [1], revealed the importance of coordination abilities, as one of the important factors governing the success of mastering the program material on gymnastics at school. Revealed the relationship of coordination abilities with the processes of formation of skills and abilities to perform gymnastic exercises.

In the works of Y.F. Kuramshina, V.S. Kuznetsova [3,4] it is also argued that a high level of coordination preparedness allows not only to quickly acquire new motor actions, but also makes it possible to differentiate various parameters and characteristics of movements. Students with a high level of development of coordination abilities can quickly, accurately, expediently and economically solve motor tasks.

Thus, the problem of diagnosing coordination abilities in physical education classes at school is urgent and requires immediate solutions. Most experts believe that the most objective assessment of the development of coordination abilities can only be obtained on the basis of comprehensive diagnostics, which should be presented by several areas of research: laboratory technologies (computer diagnostic programs) and motor tests. Но практика спорта и тем более, практика физического воспитания в школе испытывают дефицит в более мобильных формах и методах контроля координационной подготовленности.

According to Professor V.I. Lyakha [5], the most accessible in this plan are «complex criteria for assessing coordination abilities». This is most pronounced when performing tasks in which the manifestations of several coordination abilities are consistently evaluated. The content of such tests depends on the desire to see the level of development of certain coordination abilities.

The author claims that this direction in the diagnosis of coordination abilities is not yet sufficiently developed, there are unlimited possibilities in their development and testing in the educational process of physical education in school.

How does the complex test look in practice, what are the features of its implementation in the educational process of physical education in school? The simplest version of the complex test is to overcome the obstacle that exists in all sports campuses of school territories. The main disadvantage of such complexes is their standardness, i.e. no possibility of transformation for students of different school ages. At the same time the works of V.I. Lyakha [5], M.S. Gorbachev [2] provides examples of complex tasks developed by them for students of different school ages. These complex tests allow to evaluate the manifestations of certain basic coordination abilities of schoolchildren in physical education classes. Modernization and expansion of the content of these complex tests allows to evaluate the manifestations of all basic coordination abilities: responsiveness; orientation ability; vestibular stability; tempo-rhythmic ability; ability to reconcile and rebuild motor actions; ability to balance.

METHODS AND ORGANIZATION OF RESEARCH

The study was carried out on the basis of the Municipal Budgetary Educational Institution of Secondary School No. 32, in the city of Surgut. The pedagogical experiment was attended by students of secondary school age, grades 5-6, in the amount of 42 people.

It must be said that the previously conducted ascertaining experiment, and it presented two directions for diagnosing coordination abilities: the computer program "HSS Sports Psychophysiologist" and the motor tests unit, allowed not only to reveal the level of development of individual coordination abilities, but also to determine the overall, integral coordination preparedness of each student.

In developing the program and the content of the comprehensive test, we proceeded from the requirements formulated by V.I. Lyakh [5] in relation to coordination tests: - should be natural and accessible to children of all age and sex groups; - to give differentiated results on the level of development of specific coordination abilities; - not to be a complex motor skills that require long special training; - do not require complex equipment and fixtures; - as little as possible depend on age and weight-growth changes.

In our study, the obstacle course developed by M.S. Gorbachev [2], in which students consistently perform five tasks:

1. Walking deep lunges on a gymnastic bench;
2. Jumping over «bumps» (marks on the floor);
3. Climbing by pulling from a prone position on an inclined gymnastic bench with the subsequent transition to climbing on a gymnastic wall;
4. Three forward rolls;
5. Movement in support lying prone on the bars.

Statistical processing of the results of this complex showed that not all the tasks in this test are informative. For example, in tasks (3, 5) the significance of the power component is great, it prevails over coordination abilities and does not provide objective information. A low correlation coefficient was shown and the test - 3 tumbling ahead, where students correctly performing the exercise, spend more time on the task. Also speaking about the difficulties of overcoming the obstacle course, it should be noted that 15% of children coped with tasks only with 2 attempts.

The highest correlation coefficients, with the level of development of coordination abilities, have only the first two tasks: walking deep on the gymnastic bench and jumping over «bumps» (marks on the floor). These tests, with minor modifications, were included by us in the experimental block of the complex test.

RESULTS OF RESEARCH AND THEIR DISCUSSION

The experimental block of test tasks includes 8 exercises. Most of which have already been tested in a significant number of studies, where they showed their high reliability and informativeness.

1. Running on the little hoops (5-7);
2. Movement on the gymnastic wall in the wall standing on the rail (1 m.);
3. Move the back-ups (10-15 m);
4. Step over the gymnastic stick - 5 times;
5. Jumping on tags (6-8);
6. Rotation by 360º, standing in the hoop;
7. Walking on a gymnastic bench, after rotation;
8. Running by numbers (1-5).

The results of the complex test allowed us to rank all participants in the experiment according to the level of coordination abilities. A comparative analysis of two variables carried out at the next stage: the overall coordination readiness, revealed by the results of the whole block of coordination tests and the result in the complex test, showed that Spearman's rank correlation coefficient has a fairly high level of interconnection (r-0.784-0.734). This suggests that the proposed comprehensive assessment test for the development of coordination abilities gives the same information as a large block of test tasks performed. The results of statistical analysis are presented in the table.

The relationship between the results of general coordination preparedness and the results of a comprehensive test for students of secondary school age

Students							
№ p/p	**Name**	**Boys**		**№ p/p**	**Name**	**Girls**	
		OCR	**Comprehensive Test**			**OCR**	**Comprehensive Test**
1	A.C.	1	1	1	R.E.	1	1
2	P.E.	2	4	2	S.S.	2	3
3	G.K.	3	3	3	S.B.	3	2
4	T.D.	4	2	4	E.E.	4	4
5	G.N.	5	5	5	L.K.	5	7
6	A.R.	6	7	6	P.P.	6	8
7	Z.B.	7	9	7	B.O.	7	6
8	G.V.	8	8	8	A.M.	8	5
9	B.E.	9	10	9	G.A.	9	9
10	N.N.	10	6	10	A.B.	10	10
Correlation coefficient r-0,784				Correlation coefficient r-0,734			

Note: OCR – overall coordination readiness;

Conclusion

The results of the study fully confirm our hypothesis that in the educational process, in general education schools, it is advisable to use a comprehensive test to assess coordination abilities. The whole process of assessing students' coordination preparedness, from installing the equipment to the end of testing, takes no more than 30 minutes in one class, which is significantly less than the previously conducted ascertaining experiment, which involved 3 physical education classes at school. Another positive aspect of the complex test is the ability to change tasks to assess the level of development of various coordination abilities.

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文学研究方法解释了二十世纪初俄语歌词中的边界现象
（Z. Gippius，S。Gorodetsky，S。Klychkov）

LITERARY STUDY APPROACHES TO THE INTERPRETATION OF BOUNDARY PHENOMENA IN THE RUSSIAN LYRICS OF THE EARLY XX CENTURY (Z. GIPPIUS, S. GORODETSKY, S. KLYCHKOV)

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注解。 本文讨论了20世纪初俄语歌词中边界现象的文学阐释。 致力于研究白银时代诗人（Z. Gippius，S。Gorodetsky，S。Klychkov）创作遗产的研究论文材料揭示了二元性，及物性，二元性，主体间性与现象学相关的原因。 边疆。 作者分析了关键科学和文学批评作品的主要规定，它们界定了边界现象，并在理论和历史诗学的背景下进行了评估。 为了理解过渡时代的歌词，提出使用“意识形态 - 主观边缘现象”这一术语。

关键词：边界，思想与主题边疆，抒情英雄，及物性，白银时代，现象，Z。Gippius，S。Gorodetsky，S。Klychkov

Annotation. *The article discusses the literary interpretation of border phenomena in the Russian lyrics of the beginning of the 20th century. The material of research papers devoted to the study of the creative heritage of the poets of the Silver Age (Z. Gippius, S. Gorodetsky, S. Klychkov) reveals the causes of duality, transitivity, dualism, intersubjectivity in connection with the phenomenology of the frontier. The author analyzes the main provisions of the key scientific and literary-critical works, which define boundary phenomena, gives their assessment in the context of theoretical and historical poetics. The use of the term "the phenomenon of ideological-subjective marginality" is proposed for understanding the lyrics of transitional eras.*

Key words*: border, ideological and subject frontier, lyrical hero, transitivity, Silver Age, phenomenon, Z. Gippius, S. Gorodetsky, S. Klychkov*

Recent decades the field of humanitarian knowledge has demonstrated an increased interest in the theoretical understanding of the phenomenon of transitivity, marginality, boundaries (V. Lekhcier, T. Kulikova, A. Lisichny, D. Grakhanov, N. Rymar and others). Despite the fact that transitivity as a factor of instability is realized, there is no theoretical justification for it (the absence of clear criteria for determining the boundary, the object and subject of study, the implicitness of the principles of the functioning of a boundary nature phenomena).

The relevance of the study of border structures in literary criticism is determined by the significance of the problem of *transitivity*, the desire in the process of analyzing a literary text to go "beyond" its content-formal organization. The randomness of the *frontier periods* is manifested in the crisis of traditional aesthetic values, the revision of spiritual and moral categories, the change of their imaginative representation in the picture of being and otherness. The phenomenology of the *frontier* reveals the author's consciousness as an unconscious process, as evidence of the participation of the creative person in the cultural transformations of the *transitional era*.

Thanks to the productive scientific rethinking of Russian poetry at the beginning of the 20th century in the cultural, philosophical-aesthetic and communicative aspects, a range of questions related to the search and the study of general and particular subject-shaped parameters of the text was indicated. The establishment of boundary phenomena in the works of Russian poets, as shown by scientific practice, is an actual research task. The common place of these works is an indication of the similarity of the principles of the construction of poetic texts with significant differences in *lyric systems* (B. O. Corman), which are due to the influence of the ideological and esthetic context, the author's reflection of being, value orientations poets.

Different aspects of the life and work of Z. Gippius, S. Gorodetsky and S. Klychkov are multidimensionally represented in a number of scientific works, going back to the problems of the subject organization and the figurative sphere of the lyric poetry of the beginning of the 20th century, and theoretical works that actualize unresolved questions in this field of poetics. The discussion of the problem of the creative method of poets, their ideological ideas and the essence of aesthetic searches became common to all studies.

Existent-non-existent spirituality of the poetry of Z. Gippius. Interest in the personality of Z. Gippius is represented in the works that reveal: the biographical aspect of creativity (G. Evgrafov, P. Epifanov, V. Orlov, etc.); features of prose (E. Barabanov, L. Eremenko, N. Osmakova, etc.); the gender aspect of the poet's life-setting installations (N. Bogomolov, M. Mikhailova, D. Thomson, K. Econin, and others); the themes, the motive and figurative structure of the lyric poetry (A. Payman, T. Pakhmuss, Y. Terapiano, N. Nartyev, O. Zhigulina and others).

The leading motive in research is the inconsistency of the personality and creativity of the poet. So, G. Adamovich, analyzing the individuality of Z. Gippius, noted that between her and her work "there was a sharp internal discrepancy" [1, p. 9] thanks to a strong desire to appear different from what it really was. The attraction to *reincarnation*, to *theatricality* came to Z. Gippius, according to critic, as an echo of time and style of the epoch. N. Nartiyev notes that the lyrics of Z. Gippius are read only through the prism of her religious beliefs, analyzes the connection of the religiosity of Z. Gippius with the spiritual searches of the Russian intelligentsia in the conditions of the crisis of the turn of the century [2, p. 39], stressing that the poet is looking for a genre reconciliation of lyric poem and prayer.

The *contradictory* outlook of the poet drew the attention of many scholars and literary critics. The idea of *the trinity*, which lies at the basis of the philosophical and aesthetic views of Z. Gippius, was explored by T. Pakhmuss, linking its formation with the poet's sustained interest in the nature of *androgyne* [3, p. 44-45]. Reflecting on the *demonic* beginning in the poetry of the author, I. Annensky singled out a parody beginning in it, entrusted "to the altar of the teasing god" [4]. V. Orlov also focuses on the conscious demonstration of *demonism*, on the poet's perception of life as an experiment [5]. S. P. Bavin notes the orientation of the lyrics of Z. Gippius to *god equality* [6, p. 118], which gives rise to multiple antinomies in her work. A literary expert considers poetry to be a theoretical declaration of *Neo-Christianity* [6, p. 119]. I. V. Grechanik wrote about the games with the "good" death in the poetry of Z. Gippius, noting the poet's passionate desire to "feel and convey a sense of death" [7, p. 20], death as the best lot. Such author's intentions, in the opinion of the scientist, lead the hero of Z. Gippius to *theomachy*.

Studying the semantics of spirituality in the lyrics of Z. Gippius, K. V. Mochulsky noted that in the poet's works "the spawn of darkness, eerie and grotesque, are depicted with distinct hallucination" [8], as a result of the validity in verses Z. Gippius turns into ghosts, and ghosts transform into reality. The reason for this is that K. V. Mochulsky considers the death of sincerity and the emergence of spirituality in the mind of the lyrical hero, however, does not analyze the image of the spirit in Z. Gippius' poetry, which often replaces the lyric hero.

In the framework of the dissertation research, the lyrics of Z. Gippius are studied comparatively recently, since close attention to her work became apparent only in the 90s of the last century, when artistic prose, critical articles, epistolary and memoir texts were predominantly analyzed. The artistic forms of expressing dialogue in prose by Z. Gippius (O. Vanyushkina) were studied, the Petersburg diaries (A. Novozhilova) and literary criticism of the poet (M. Orlova, M. Paolini), the specifics of the dramaturgy (Y. Nosova) and short stories (O. Hitsalsky), public and political activities (A. Voevodina, T. Milcharek) and religious and philosophical aspects of Z. Gippius creativity (E. Krivolapova).

New approaches to understanding the author's poetry are proposed in recent theses (O. A. Markevich, O. Y. Arkhipova, E. Y. Panova and Y. V. Leikina).

O. Markevich defined the place of the lyrical hero of Z. Gippius between "*religious mood and theomachy*" [9, p. 9] (italic type is ours. - *E. L.*). O. Y. Arkhipova believes that the *duality of the lyrical hero* of Z. Gippius leads to a prayerful reflection on the sufferings of the "union of souls" of the devil and the lyric subject "[10, p. 22] and to the negation of both poles of this unity. E. Y. Panova connects the *spiritual duplicity of the lyrical hero* with the presence of two male underpants of him - "a rebel-single" and "a humanist-philosopher" [11, p. 17]. Y. V. Leikina is convinced that the lyrical subject of the lyrics of Z. Gippius is the leading one, and all other subjects are "subordinate to him" [12, p. 12]. It is impossible to agree with this statement, as well as with the fact that "the thematic lyric of Gippius is different from the traditional lack of a speech mask of the subject" [12, p. 12].

The imaginative sphere of the poet's creativity and its philosophical and aesthetic foundations are analyzed by T. E. Yatsuga, Y. Y. Danilova and E. M. Krivolapova.

T. E. Yatsuga is studying key concepts in the lyrics of Z. Gippius. Significant for understanding the ideological leveling of the poet was the selection in it of mythological, literary and historical images. Their interaction with the individual myth-making of Z. Gippius, according to the opinion of T. E. Yatsuga, reflects the trends in the development of poetry of the landmark era [13, p. 10].

Through the prism of the author's conception of world-being, Y. Y. Danilova attempted to recreate the space-time model of the linguo-mental existence of the hero of Z. Gippius. According to the researcher, he "has an inner space - making his own anthropological definitions into the objective world" [14, p. 5]. This explains the specifics of many real things and the dynamics of the inline being.

E. M. Krivolapova thinks that the religious formation of Z. Gippius should be viewed in the context of the *playing beginning* of her personality, which will allow to explain the "" hanging between "heaven and earth, God and the devil, good and evil, being and non-being, faith and disbelief "[15, p. 6]. Literary scholar emphasizes that in the lyrics of the beginning of the XX century. "The devil's sublimation ... did not cause internal shudder", but was perceived as an immeasurable level of creative possibilities [15, p. 6].

Thus, the researchers noted the *duality* of the poet's worldview, drew attention to the religious *contradictions* in the mind of the lyrical hero, and revealed some parameters of the *marginality* of the figurative sphere of the lyrics of Z. Gippius. According to our concept, the state of "hang-ups" discovered by literary critics, spiritual and soul duality is the result of the manifestation of the *phenomenon of ideological and subject marginality* - the stay of the lyrical hero on the "border" of various philosophical and religious ideas, manifested in intersubjectivity.

True and Lie in the poetic word of S. Gorodetsky. At the present stage, S. Gorodetsky's personality and creative work are on the periphery of research interest: in works of an overview nature, introductory articles to poetry collections and prefaces, the poet's uniqueness of life is noted (Y. Gryakalova, I. Smirnov); the textual issues of his poems (S. Mashinsky, V. Yenisherlov, literary relations with Armenia (Yu. Daronyan), poetics (A. Lavrov, D. Moldavsky) are touched upon.

The worldview of S. Gorodetsky, according to S. I. Mashinsky, was formed on the basis of the synthesis of “very doubtful philosophical theories” [16, p. 5]: F. Nietzsche, V. Oswald, A. Bergson, and others. The result of a revision of concepts and ideas was the poet’s interest in the *myth*, capable of realizing the “*truth-lie*”, the highest, according to S. Gorodetsky, essence artistic creation. S.I. Mashinsky points to the specifics of the book “Wild Will”, in which the life of a hero appears “closed in the micro world of his“split”soul” [16, p. 22].

As a self-established literary phenomenon, the poetry of S. Gorodetsky became the subject of a dissertation research twice.

I. A. Ostrovskaya considers the evolution of S. Gorodetsky's lyricism in the light of various author's literary and aesthetic concepts. The researcher determined that in the “Wild Will” collection, the poet’s search for new ideals is reflected in the subject organization of the poems: the author “refuses reflections, explanations” aimed at the reader, and introduces a “stylized image of a young peasant guy” [17, p. . 7–8]. The origins of the peculiarity of verbal painting in the poet's lyric poet I. A. Ostrovskaya sees the folklore tradition and believes that the colors in S. Gorodetsky's poetry "emphasize the contrast of esthetically diverse phenomena ... become the expression of the author's consciousness "[17, p. 11].

Characteristic of the creative evolution of S. Gorodetsky is devoted to the thesis work of T. V. Shcherbakova [18], in which the poet's lyrics are comprehended in *development from symbolism to acmeism*. The researcher points out the presence of “*spiritual reincarnation*” in the S. Gorodetsky’s lyric hero[18, p. 13], which is carried out in proportion to the comprehension of the thirst for the will. The literary literature discovers in the concept sphere of the poet's lyric myths of time and fate, beyond which his hero wishes to go [18, p. 14]. Defining some central images in the book “Wild Will” and the character of the color symbolism, T. V. Shcherbakova does not carry out their system analysis. The study of the subject organization of the poet's poetry in the work is not foreseen.

In the light of the comparative analysis, some aspects of the poet's lyrics are revealed in two works (A. Mikhailov, L. Pavlova). In the doctoral dissertation of A. I. Mikhailov, the works of S. Gorodetsky are interpreted in the context of the development paths of the new-peasant poetry. A separate problem of the work was the *philosophical-aesthetic* and *socio-historical* assessment of the concept of nature, which for poets, in the opinion of A.I. Mikhailov, “the poetic equivalent of a deity” with the “seal of liturgy” [19, p. 13]. Analyzing this phenomenon, the author notes the significant influence of the philosophy of F. Assisi and V. Rozanov on the worldview of poets [19, p. 14].

Lyrics S. Gorodetsky is a phenomenon that is not properly disclosed in literary criticism, but the subject-shaped structure of the author's work needs to be examined in detail in connection with the functioning of the phenomenon of ideological-subject-marginality.

The pantheistic Christianity of S. Klychkov lyrics. The lyric of S. Klychkov is also little studied in literary criticism. Nevertheless, it is possible to distinguish works aimed at the scientific coverage of the poet's life course (L. Slanevsky, N. Solntseva); originality of prose (R. Vroon, N. Kudryavkina, R. Musienko, etc.) and poetry (Y. Izumrudov); peculiarities of the lyrical hero (E. Demidenko); originality of the language of poetry (M. Miroshnichenko); the specifics of the author's artistic thinking (E. Demidenko); features of poetics (E. Lykova, Z. Selitskaya, S. Shcherbakov). Most of the published works are dissertation studies of the beginning of the XXI century, which indicates the development of an interest in the personality and works of the poet.

To A. Klychkov, who was looking for creative rapprochement A. Blok wrote: "... it seems to me (from your verses) that we are very dissimilar people" [20, p. 26]. However, N. M. Solntseva notes the aesthetic intersections in the poetry of A. Blok and S. Klychkov (Gogol, national, folklore and symbolic literary traditions [20, p. 12]). Pointing to the originality of S. Klychkov creative method, the researcher cites the reasons why the poet's lyrics "did not fit into the culture of symbolism": "The pagan perception of nature and the world, folk symbolism, primitivity of the image and language, song organization the verses were different from sophisticated psychology, refined words, far from the folk culture of the objectivity of the poetry of symbolism" [20, p. 22]. In the late 1920s S. Klychkov was declared "*malicious and insidious heretic* of native literature" [20, p. 176] (italic type is ours. - *E. L.)*.

Important conclusions were made in the article by B. N. Romanov, who pointed out one of the stable appraisal practices among literary criticism — the possibility of any poet being accused of heresy because of *the synthesis of pagan and Christian cultural traditions*, despite the fact that "the poet is not a theologian, his image of the world and the" thought "of God can take the most bizarre forms" [21, p. 32]. Noting the synthetic nature of the poet's creative method, A.O. Filimonov writes that S. Klychkov combined the tendencies of all trends in his poems, "from symbolism to acmeism and imagism" [21, p. 227]. E. A. Demidenko analyzes the "demonic in the lyric poetry of Lermontov and the devilish in the lyric poetry of Klychkov" [21, p. 208] and notices the key agreement in the religious world view of the authors - the coming to the "pantheistic view" [21, p. 204].

In a number of studies devoted to the development of the specificity of S. Klychkov prose, it is possible to single out a certain commonality of scientists' views on the nature of the author's ideological self-determination. R.A. Musienko affirms that the totality of the *Orthodox* motifs with *pagan* images in the artistic world of S. Klychkov testifies to the identity of "the search for truth and faith" and "the search for world peace and harmony" [22, p. 4]. At the heart of the writer's worldview, according to R. A. Musienko, is the *symbiosis of paganism and orthodoxy*, the communalism of A. S. Khomyakov and the idea of unity V. Solovyov [22, p. 8].

Some observations on the formation of the philosophical views of the poet were proposed in the dissertation of Z. Y. Selitskaya. A literary critic comes to the conclusion that "The Shadowed Garden" correlates with the idea of immortality [23, p. 6], and affirms that the *mythological characters* of this book embody the "philosophical and esthetical idea", which has "circulated in the artistic world closed in time and space" [23, p. 10].

Y. A. Izumrudov, noting the versatility of the lyric poetry [24, p. 1], saw in it the opportunity to become one of the "spiritual points of support" [24, p. 2] in the field of modern culture.

Understanding the evolution of the lyrical hero of S. Klychkov is proposed in the dissertation of E. A. Demidenko, who expresses the idea of the monologue character of the poet's lyricism, asserts its subjectivity [25, p. 3]. The researcher points out the similarity of the motive "unattainability of happiness" in S. Klychkov lyrics with the Block's "sadness-joy" motif [25, p. 7]. Consonant with the conclusions of most literary scholars, the assessment of E. A. Demidenko by the poet's philosophical and aesthetic views, the basis of which he sees is the *interweaving of paganism, Christianity and pantheism* [25, p. 8].

Argumentative, from our point of view, is the concept of S. A. Shcherbakov, according to which the *Hidden Garden* in the lyrics of S. Klychkov is the image of the "hidden celestial garden of his own inspiration," which is transformed into "the image of the earthly garden ... bearing peace and serving as a symbol of ... home" [26, p. 25].

The revealed marginality of S. Klychkov worldview, the complexity of interpreting the semantics of the images of his poetry, the dual nature of his lyrical hero require consideration of the poet's poems in the context of the phenomenon of ideological-subject marginality.

The study of Russian poetry beginning of XX century has established traditions and results. At the same time, the analysis of scientific works reveals problematic issues: the duality of interpretation of the subject organization and the figurative sphere of the lyric, the intersubjective nature of the lyrical hero, the controversial nature of the poetic philosophical and aesthetic views, and others poetic text. The need to search for new approaches to the study of the lyrics of borderline, boundary periods is obvious.

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国家主动"一带一路"条件下"人力资本"的发展趋势和规律

TENDENCIES AND LAWS OF DEVELOPMENT OF "HUMAN CAPITAL" UNDER THE CONDITIONS OF STATE INITIATIVE "ONE BELT – ONE ROAD"

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注解。 人力资本是国家经济的社会文化和经济发展的一个主要因素。 我们认为，区域和国家人力资本发展的主要内部激活条件之一是人的潜力（个人能力和社会质量）。
关键词：要素，资本，潜力，资源，人员，投资，资产，有形，无形，物质，精神。
Annotation. *Human capital is a major factor in the socio-cultural and economic development of national economies of countries. In our opinion, one of the main internal activating conditions for the development of human capital in regions and countries is human potential (personal competencies and the quality of society).*
Keywords: *factor, capital, potential, resources, personnel, investments, assets, tangible, intangible, physical, spiritual.*

The concept of human capital takes one of the main places in modern society. Scientific and technical progress has increasingly taken root in the life of society, so today there are increasing demands on the education and qualifications of a person and his competencies. In the modern economy, human capital makes up the bulk of the national wealth of countries, regions and organizations.

Understanding and choosing human capital as the main factor of a country's development dictates a comprehensive and systematic approach in developing strategies, programs and initiatives. Human capital is a multicomponent factor of development, which includes the living conditions, work and quality of the individual, the society that determines the creativity, innovation and creative energy of the country. The concept of human capital has now expanded.

The aim of the work is to study the patterns of development, human capital, in the modern conditions of implementation by China of the state initiative «One Belt - One Way».

The economic category «human capital » was formed gradually.

Term *capital* in the economy refers to the value used to obtain the surplus value through production and economic activities based on voluntary exchange [6].

In the broadest sense, the term capital denotes the sum of all the funds that you have.

By *human capital* is understood the totality of knowledge and skills used to satisfy the diverse needs of a person and society.

American economist Jacob Minser in 1958 published the article «Investing in human capital and personal distribution of expenses.» This article was essentially the first attempt to create a theory of human capital [3].

Later, the notion of «human capital» was introduced into scientific literature by the American economist, Nobel Prize laureate Theodore Schulz. In essence, his work, published in 1961, became the basis for the Theory of Human Capital. He also promoted the idea of educational capital - an offshoot of human capital - in the area of investment in education. According to Schulz, education makes people more productive, and good health care saves investments in education and allows people to produce. Thus, his theory of human capital in the 1980s initiated active work on motivating investments in vocational and technical education from large international financial institutions [8].

Further research in this area was important works of the American scientist Stanley Becker. In 1962, his article «Investing in human capital: a theoretical analysis» appeared. Later in 1964, his book «Human Capital: Theoretical and Empirical Analysis» was published. In Becker's work, the economic approach provides a holistic framework for understanding human behavior. According to his calculations, investments in human capital bring higher returns than investments in securities. Stanley Becker was the first to calculate the economic efficiency of education [4].

«Human capital should be considered at the national, regional, sectoral levels, as well as at the level of the enterprise and the individual. At the macroeconomic level, human capital includes the contribution of the region, the country to the level of education, training and competence, health and so on. This level consists of the aggregate human capital of the entire population of a region or country. At the enterprise level, human capital represents the aggregate qualifications and productive abilities of all its employees. At the level of an individual, human capital is the knowledge, skills, accumulated experience and other production characteristics acquired by a person in the process of study, training, practical experience with which he can earn income» [7].

Thus, in our understanding, the concept of «*human capital» is physical, spiritual and mental efforts, tangible, intangible, resources and assets of a person, society, region or country that have human potential.*

The concept of «human potential» is defined in the scientific literature as the quality of people fundamentally influencing the results of the activity in which they are involved or as a combination of natural abilities and human efforts and energy with acquired general educational and professional knowledge [7].

In the general meaning «human potential» is the ability of an individual or a set of individuals to demonstrate theoretical capabilities in practice.

Currently, the scientific literature is interpreted differently and there is no unequivocal understanding of what human potential is. There are various definitions about its essence, constituent elements and interrelations with the concepts of «human capital», «labor potential», «human potential».

In our understanding, «*Human potential» is defined by quantitative, qualitative characteristics, competencies of an individual and society, or as an individual's quality, since the human capital is human*. By competences we understand the general cultural and professional abilities of a person or society.

Comprehensive strategic interaction and cooperation of China with the countries of the Silk Road is the most important factor in the development of border regions and the enhancement of human capital and investment in cooperating countries.

The international activity of cross-border regions consists of a set of coordinated actions of state authorities at all levels, scientific organizations, higher educational institutions whose activities are aimed at economic development and socio-cultural progress of border regions of states located in adjacent territories.

Thus, cross-border cooperation involves a wide range of activities, including the economic, social, cultural and educational components of a country. The activation of human capital is of great importance in the development of the country.

In the context of globalization of the world economy, in conditions of free movement of any capital, including human capital from country to country, from region to region, from province to province, from city to city in conditions of accelerated development of high technologies and international competition, the advantage in creating and developing knowledge economy, the information society is the accumulated quality human capital.

Therefore, in modern conditions of the implementation of the state initiative «One Belt - One Way», higher educational institutions and educational departments of China pay great attention to cooperation in education and cultural exchange in cross-border regions.

Thus, joint educational programs of universities, graduate schools, postgraduate studies, and post-doctoral studies allow us to train high-level specialists, which means that new-generation personnel will contribute to the development of the country's human capital [2].

As we know, the country's human capital is formed through investment in educational activities.

Consider what is meant by the term "investment". Investment - is the allocation of capital for profit. Investment is also understood as cash, securities, other property, including property rights, other rights that have a monetary value, invested in objects of entrepreneurial activity or other economic activity for the purpose of obtaining profit or other beneficial effect [5].

In our understanding of "investment" is a special kind of contribution in human capital. Investing in *human capital is a toolkit for enhancing human potential by investing physical, spiritual and mental efforts, material and intangible, human assets and resources, society in education, health, science, economics, culture, quality of life (in economic and sociocultural activities and* etc.).

Thus, the phenomenological and hermeneutic approaches and comprehensive analysis in our study allowed us to consider the concept of «human capital» and identify trends in its development. *Human capital is wealth, tangible, intangible, the resources and assets of a person, society, region or country with human potential.* In this sense, a person becomes the main core of human capital. [1].

Human capital is in constant dynamics, that is, it may be in a progressive or regressive state, but it can actively and rapidly develop under certain conditions.

In our opinion, one of the main *internal activating conditions* for the development of human capital is *human potential (personal competencies and qualities of society*).

Another internal activating condition for the development of human capital is *investment* in it.

External activating condition for the development of human capital is activity (political, economic, intergovernmental decisions, projects, initiatives, laws, etc.) of a country or neighboring countries, regions, etc.

External and internal conditions can be favorable and not favorable.

These conditions are sufficient for progressive development and naturally, if any of these conditions is absent, then human capital has regressive development, but for rapid active development, the vectors of internal and external conditions must coincide.

Thus, *the trend of active development of human capital is the coincidence (doubling, strengthening) of the vectors of internal and external conditions, that is, there is a pattern of rapid development of human capital, provided that human potential (qualities of a person and society) are actively invested in favorable government conditions*. There is a socio-cultural and economic effect of the development of the country.

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化脓性腹膜炎实验中的臭氧化全氟烷在腹腔实验中的效果及预防连合并发症的效果

THE EFFICIENCY OF THE OZONIZED PERFLUORANE IN THE EXPERIMENTAL SANATION OF THE ABDOMINAL CAVITY AND PREVENTION OF THE COMMISSURAL COMPLICATIONS IN CASE OF SUPPURATIVE PERITONITIS

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注解。 在实验室白大鼠的4系列实验中，腹腔内给予臭氧化全氟烷，臭氧化生理盐水，无臭氧和盐水的perftoran对腹腔化脓过程，肠麻痹的发展的比较效果 并且研究了粘连。 对腹膜液的细胞学图像和微生物景观以及腹膜炎发展动态的研究表明，使用臭氧化的perftoran比先前提出的臭氧化盐水或没有臭氧的perftoran更有效地消毒腹腔，防止肠麻痹和粘连。

关键词：腹膜炎，perftoran，臭氧，麻痹，粘连。

Annotation. *In a 4-series of experiments on laboratory white rats, the comparative effect of intra-abdominal administration of ozonized perfluorane, ozonized physiological saline, perftoran without ozone and saline on the course of the purulent process in the abdominal cavity, the development of intestinal paresis and adhesions was studied. Studies of the cytological picture and the microbial landscape of peritoneal fluid and the dynamics of peritonitis development have shown that using ozonized perftoran is more effective for sanitizing the abdominal cavity, preventing intestinal paresis and adhesions, than ozonized saline or perftoran without ozone previously proposed.*

Keywords: *peritonitis, perftoran, ozone, paresis, adhesions.*

Relevance. The inclusion of ozone therapy in the complex of therapeutic measures for purulent peritonitis, according to B.K. Kudryavtseva et al. [3], contributes to a more rapid elimination of infectious factors and causes leading to the syndrome of enteral insufficiency, which is due, according to some authors [1,2,4,7], bactericidal, anti-inflammatory, immunomodulatory and detoxification properties of ozone. But the instability of ozone in physiological solution and the associated decrease in the sanitizing ability of the ozonated solution, limit the possibility of its use in common forms of peritoneal inflammation.

As pointed out by Razumovsky S.D. and Podmaster'yev [6], ozone is well soluble and stable in perfluororganic compounds, in particular, in perftoran, but comparative efficacy in cases of peritonitis of it's bactericidal and other properties is poorly understood [1,4].

The aim of the study is to substantiate the effectiveness of the use of ozonized perftoran for the rehabilitation of the abdominal cavity in case of purulent peritonitis, as well as the prevention of intestinal paresis and adhesions.

Material and research methods. The experiments were carried out on adult white rats (males) weighing 140-160 g. We reproduced the fecal model in 4 series of experiments. After which the animals were injected into the abdominal cavity: in the 1st series - ozonized perftoran, in the 2nd series - ozonized saline solution, in the 3rd series - perftoran, in the 4th series - saline solution. These drugs were administered once at the rate of 2 ml per 100 g of animal mass. No other treatment methods were used during the experiment.

Ozonation of the solutions used in the work was carried out according to the method developed by us [5]: by sparging with an ozone-oxygen mixture for 15–20 minutes at a rate of 0.5 l / min and a predetermined concentration of 5000 µg / l on an Ozonizer «Medozons - BM AOT - H-01- 91 »of the company «Arzamas instrument-making plant». "The concentration of ozone in solutions was determined on the «Spectrophotometer - NF 254/1».

The experiments complied with the international requirements for working with laboratory animals («Principles of laboratory animal care», 1985) and obtained the consent of the Ethics Committee of the Dagestan State Medical University.

The distribution of animals by series and their survival are presented in the table.

Rat lethality rates in the experiment

Each group 75 rats	**Fallen since the beginning of the experiment / time (day)**					**Fallen total(%), criterion (χ^2)**
	1s	**2s**	**3s**	**4-7s**	**8-14s**	
1 series	-	1	2	1	-	4 (5,3%,); $^{*\#}$p=0,00
2 series	2	4	5	5	3	19 (25,3%); $^{+}$p=0,000
3 series	2	5	4	3	3	17 (22,7%,); $^{+}$p=0,000
4 series	3	7	8	15	9	42 (56,0%)
Total:	7	17	19	24	15	82 (27,3%)
Comparison: *p – with the 2nd series; $^{\#}$p – with the 3rd series; $^{+}$p – with the 4th series						

The animals were removed from the experiment on days 1, 2, 3, 7, and 14 under chloroform anesthesia. They opened the abdominal cavity, took smears, prints and samples of peritoneal exudate for microbiological research. The material from the surviving rats was used, and the animals that fell during the experiment were opened only to determine the causes of death and mortality. In the course of the experiment, the dynamics of peritonitis was traced, the microbial landscape and the nature of the peritoneal fluid were evaluated, as well as the appearance and condition of the animals and their internal organs.

The identification of the microbial composition of peritoneal exudate was carried out according to the cultural, morphological and biochemical properties of the inoculated flora; the degree of contamination was determined by the titer of microbial bodies.

Statistical processing of the research results was performed using the «Biostat» computer program (version 4.03). Calculated indicators: arithmetic mean (X), standard deviation (σ), standard error of the arithmetic mean (σ_x), median, min and max. For this, Student’s criteria are applied: paired and for multiple comparisons with the Bonferroni amendment. For individual indicators of samples, using the Excel 2010 program, the median (Me), the 25th and 75th percentiles (p25, p75) were determined, and the differences between the groups were determined using the Kruskal-Wallis criterion (with $p <0.05$). pairwise multiple comparisons were performed according to the Dunn criterion); criterion χ^2 and Fisher's exact test (the latter for analyzing contingency tables) were also used.

Research results and discussion. One of the indicators for evaluating the effectiveness of the technique was the survival of animals in the dynamics of the study in a series of experiments (Table 1). The data for the 1st series differed significantly from the other three series in a positive direction. 82 rats were eliminated from the experiment, the results of experiments in 218 animals were studied.

The macroscopic picture of the peritoneum and internal organs after the introduction of ozonized perfluorane (1st series) at all stages of the study was significantly better than in all other series. In 70 (93.3%) rats of the 1st series, common peritonitis did not develop, but was limited to the coverage of one, in 63 animals (84.6%) - two areas. Most often, the inflammatory focus was found in the lower floor of the abdominal cavity. Only in 5 (6.7%) cases was observed the spread of the infectious process and the development of widespread purulent peritonitis.

On the 1st day, in the 1st series of rats in the abdominal cavity, 0.4-0.7 ml of unclear liquid with a milky tint was detected, and visual changes were reduced to an increase in the size of the spleen and slight swelling of the mesenteric lymph nodes. On days 3-7, small abscesses with a diameter of 2-3 mm were found, and on days 7-14, separate tender adhesions between adjacent loops of the intestines were found.

Unlike the first, in the 2nd series, 19 (25.3%) animals developed a common purulent process that covered the entire abdominal cavity ($\chi 2$; $p = 0.002$, compared with the 1st series). With the introduction of ozonized physiological solution (2nd series), 1-2 ml of purulent or purulent-hemorrhagic fluid were detected at an early date, abscesses up to 12-15 mm in diameter were detected, and after 7 days adhesions were clearly expressed; at the same time the stomach was significantly swollen, in the lumen of the small intestine yellowish foamy contents were found.

In animals of the 3rd series (perftoran without ozone), on the 1st day, a cloudy milky liquid with traces of perftoran was determined. Visual changes in the spleen and lymph nodes were also more pronounced compared with the 1st series, but less than in the 2nd series.

A distinct pattern developed in rats of the 4th series with all signs of widespread purulent peritonitis. All animals were limp, with their wool ruffled. From 1st day the animals stopped eating, and from the 5th day - drinking. There was a slowdown and obvious shortness of breath. During the first 7 days there was a massive die-off.

In animals of this series in the abdominal cavity was found a large number of abscesses, the size of a pea. The peritoneum was dim, the epiploon was crumpled and had a bluish-purple color. By days 7–14 from the beginning of the experiment, the abscesses of continuous small intestinal loops and total intestinal obstruction were found in the surviving rats.

The cytological picture of exudate in rats of the 4th series was characterized on the 1st day by an increase in the density of neutrophilic granulocytes, but from the 2nd day their steady decrease was observed, which indicated the depletion of local defense reactions, the spread of the inflammatory process and an increase in toxicity. After 48 hours, the number of neutrophilic leukocytes, compared with the first period of the experiment, decreased by 2 times and amounted to 9.78 ± 1.38 cells per smear area of 8000 μm^2. At the same time, the number of monocytes increased (Me = 3, p25 = 2, p75 = 3, min = 2, max = 4), mast cells (Me = 2, p25 = 1, p75 = 2, min = 1, max = 2) , fibroblasts (up to 3.22 ± 0.66) and destructive cells (up to 7.67 ± 1.23). Against this background, phagocytic activity of leukocytes decreased. In peritoneal smears, dystrophic leukocytes were determined, in their cytoplasm and around them - a variety of microorganisms. On day 1, the number of destructive cells and eosinophilic leukocytes increased more than 10 times. On the 2nd day, the share of destructive cells was more than 20%, fibroblasts - about 8.5% (in the 1st series for this period, the proportion of destructive cells was 5.4%, and fibroblasts - only 1.2%, in 2 series - respectively 10% and 7.3%).

On day 7, changes in the cellular composition of the exudate characteristic of a prolonged, severe purulent inflammation of the peritoneum were observed in rats of the 4th series. As before, there was a small number of macrophages and small lymphocytes. But the number of monocytes (Me = 1, p25 = 1, p75 = 2, min = 1, max = 2), eosinophilic leukocytes (Me = 1, p25 = 1, p75 = 1, min = 0, max = 2) and fibroblasts increased - 2.37 ± 0.54 ($p < 0.05$ compared with the control). Nuclei and fragments of cells were relatively common in the visual fields. The phagocytic activity of the micro-and macrophage system of the peritoneal fluid dropped sharply: most macrophages were smaller than usual, phagosomes were not detected in their cytoplasm, and neutrophilic leukocytes were "lazy" (the phenomenon of incomplete phagocytosis). The location of cells in smears is often focal: clusters have formed in the form of islands, intertwined with fibrin threads.

Changes in the composition of the liquid clearly correlated with the severity of the inflammatory process and indicated that it was the least pronounced in the 1st series, i.e. in a series with ozonized perftoran. At the same time, in the 1st series, the number of phagocytic cells, mainly macrophages, increased. Vacuolated macrophages with a broad cytoplasm, known in the literature as "perfluorophages", prevailed. Their number was 9.33 ± 0.99 (for intact animals - 3.88 ± 1.17, respectively, $p = 0.000$). In their cytoplasm, in addition to vacuoles, microbial inclusions were often found, represented mainly by associations of cocci, less commonly rods. Only in individual preparations were accumulations of microorganisms determined extracellularly, around neutrophilic leukocytes. In the cytoplasm of individual macrophages, neutrophil nuclei or their segments were determined.

The severity of adhesions in the series of experiments increased in proportion to the increase in the number of fibroblasts in the peritoneal fluid, which was also most pronounced in the 4th series. On the 2nd day, fibroblasts were counted up to 3.22 ± 0.66 (which is 8.5%) cells per unit area (8000 microns^2), and destructive cells – 7,67±1,23.

On the contrary, in the 1st and 3rd series the number of fibroblasts was significantly less (on the 2nd day, respectively, 1.2% and 2.7%). At the same time, in these series, an increase in the number of macrophages ("perfluorophages") was noted, which not only actively phagocyted detritus and microorganisms, but also probably restrained the migration of fibroblasts, and thus the development of the adhesions in the abdominal cavity.

The microbiological picture of peritoneal fluid under conditions of developing peritonitis in rats of the 4th series was traced by us only up to 7 days, since up to 14 days, the vast majority of animals did not live. On all used media, continuous creeping growth was observed on the 1st day. Cultural properties were not clearly expressed. On the 2nd day, continuous growth of colonies was observed in Petri dishes, and on blood (CA) and alkaline (S) agars, due to the abundant growth of the culture, it was difficult to determine the shape of the colonies. The entire surface of the AE at that time and up to 7 days was completely germinated Proteus vulgaris. Smears were detected in a significant amount of E. coli and Staphylococcus aureus. The titer of microbial bodies was about 25×10^6 m. in 1 ml..

Fundamentally different microbiological picture of exudate in animals of the 1st series. On the first day, 5-8 colonies with a diameter of 2-3 mm were detected on all media, on the 3rd day of the experiment only single colonies were sown, and by the 7th day and subsequent periods, the sowing was futile. And in the 2nd and 3rd series, the growth of cultures was more significant, compared with the 1st series, but scanty than in the 4th series.

Thus, the experimental studies performed on the model of fecal peritonitis according to the parameters studied indicated significant advantages of intra-abdominal administration of ozonized perfluorane, both for the purpose of sanitizing the abdominal cavity and preventing the development of intestinal paresis and adhesions. The obtained results allowed to recommend this technique in clinical practice.

Conclusions

1. The development of experimental fecal peritonitis in animals against the background of the introduction of saline is characterized by the rapid spread of the inflammatory process and is accompanied by high mortality (56.0%; $p = 0.000$). Until the end of the experiment, animals survive in which the purulent process is delimited.

2. The results of the experiments indicate the high efficiency of the method of treatment of purulent peritonitis developed by us, which consists in irrigating the abdominal cavity with ozonized Perftoran, which makes it possible to reduce the microbial number of peritoneal exudate 10^2-10^5 times, the development of adhesions of the abdominal cavity 2.5-4.5 times compared with the series, where ozonated saline solution (2nd series), perftoran without ozone (3rd series) and saline solution (4th series) were similarly injected. In animals of the experimental group with the introduction of ozonized perfluoroine, mortality rates decrease: compared with the 2nd series by 20.0% ($p = 0.003$), from the 3rd - by 16.6% ($p = 0.005$) and from the 4th - by 50.7% ($p = 0.000$).

3. Intra-abdominal use of ozonized perftoran is not accompanied by any adverse side effects and can be recommended for use in clinical practice.

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中亚的主要地球化学分为地球物理场和异常

THE MAIN GEODIVIDER OF CENTRAL ASIA INTO GEOPHYSICAL FIELDS AND ANOMALIES

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注解。 102-104°E以北亚，中亚和南亚的众多地质和构造特征而着称，其中部通过地震活动，地震活动断层和地壳现代块体结构的数据得到证实。它在第一个近似区分为两个过境区 - 中亚和东亚。在中亚地区，在印度斯坦压头的持续压力的影响下，地质分区西部释放的地震能量急剧增加。东亚过境区显示地理分区东部的热流值增加，可能与太平洋板块影响下的地球动力学状况变化有关，从地震波速度增加的分析重建。关于岩石圈地震各向异性和层析成像的数据证实了西藏东南地壳在与中国东南部较冷和较厚的岩石圈相互作用过程中分层（分层）的过程及其上层运动。 SE，由GPS矢量方向确认。

关键词：地球动力学体系，地质划分，过渡带，地震活动断层，块体，块间带，地震活动，热流，地球物理场。

Annotation. *The geodivider of 102-104º E is distinguished by numerous geological and tectonic features in Northern, Central and Southern Asia, confirmed in its Central part by data on seismicity, seismic active faults and modern block structure of the earth's crust. It divides in the first approximation two transitional zones – Central Asian and East Asian. Within the Central Asian zone, there is a sharp increase of released seismic energy to the West of the geodivider under the influence of the continuing pressure of the Hindustan indenter. The East Asian transitional zone shows an increase in the heat flow values to the East of the geodivider, presumably associated with a change in the geodynamic regime under the influence of the submerged Pacific Slab, reconstructed from the analysis of the increase in seismic wave velocities. Data on seismic anisotropy and tomography of the lithosphere confirm the processes of delamination (stratification) of the South-Eastern Tibet crust in the process of its interaction with the colder and more thick lithosphere of South-Eastern China and the movement of its upper layers to the SE, confirmed by the direction of GPS vectors.*

Keywords: *geodynamic regimes, geodivider, transitional zones, seismic active faults, blocks, interblock zones, seismicity, heat-flow, geophysical fields.*

Initial data and problem statement

The zone of noticeable geophysical and geodynamic changes is established on the territory of Central Asia by the analysis of the Electronic geodynamic globe (*http://ears.jscc.ru*) and other geological materials. It approximately matches with meridians 102-104° E, and is characterized as predominantly strong and major or rarely the most intense (great) seismicity and the development of seismic active faults of different directions, including coinciding with the stretch of the zone in its Central part [Gatinsky et al., 2018]. It was originally called the "Geological geodivider of 102-103° E [Rundquist et al., 2004]. A more detailed study of the seismicity and other geophysical characteristics of this zone concluded that it is more widespread from 102° to 104°, although it cannot be excluded that further study of its Eastern boundary may move it further to the East.

A detailed study of the geodivider and parts of the transitional zones separated by it makes it possible to interpret the modern geodynamics of Central Asia, the ratio of its surface structures and their kinematics to geophysical fields and deep anomalies in the crust and upper mantle from new positions, and to establish the main reasons for the difference in tectonic regimes in the West and East of this region. This work considers the geodynamics of the most clearly expressed Central part of the geodivider and the Central Asian and East Asian transitional zones located to the West and East of it, its connection with the surface and deep structures and various geophysical fields and anomalies.

Problem solution

The authors constructed deep seismic sections and graphs of seismic energy dissipation along the transects crossing the geodivider and its Western wing [Gatinsky et al., 2018], show a sharp increase in the level of seismicity in the Western direction with earthquakes whose magnitudes (M) reach 6-8 (Fig. 1). This level increases most intensively on the border of Eastern Tibet with the South-Eastern China Block, where in May 2008 there was a devastating earthquake Wenchuan West of Chengdu [Gatinsky et al., 2008]. To the East of the geodivider, the intensity of seismicity decreases, and M events usually do not exceed 3-5. At the same time, in the Eastern direction there is a distinct increase in the value of the heat-flow (HF), often accompanied by Cenozoic volcanism and a slowdown in the depth of the velocities of *S*-waves in the upper mantle.

It is interesting to trace changes in the values of HF [Tan, Shen, 2008; Duchkov et al., 2012; The Global Heat-Flow ..., 2011] together with the volumes of released seismic energy and GPS vectors within the geodivider, to the West and East of it (Fig. 1, 2). The South-Western part of the Baikal Rift HF is 54-60 μw/m^{-2}, the amount of energy up to 10^{6-7} J, the azimuth of the vector GPS 105.6° SE. To the East in the North of the Amurian Block HF is 65-84, and in the Central part of the Baikal Rift it reaches 96-140 µw/m^{-2}. To the West of Ulaanbaatar, the volume of seismic energy within the geodivider is 10^{8-10} J, M of events up to 6.99-7.99. To the West of the Hangay Block the amount of energy increases up to 10^{11} J, M of earthquakes up to ≥ 8. In the East, near Ulaanbaatar, HF is equal to 71-86 µw/m^{-2}, the amount of energy is reduced to 10^{-1-2} J, the azimuth of the GPS vector is 106.86-108.00° SE [San'kov et al., 2015]. Further South in the South-West Mongolia Block, the energy volume in the geodivider is 10^8, to the West of it up to 10^{9-10} J. Further South in the Qilian Block to the East of the Qinhai (Kukunor) lake HF is 76-87 µw/m^{-2}, energy volume 10^{11-12} J, M to ≥ 8. To the west in the blocks of Qaidam (in Chinese English transcription of local geographical names, as a rule, instead of the letter "C" is used "Q") and East Kunlun (Kunlun) HF decreases sharply to 40-47 µw/m^{-2} simultaneously with the increase in energy level to 10^{12-16} J. In the East, in the area of Sian, HF is 64-67 µw/m^{-2}, the azimuth of the vector is 108.43° SE.

In the Central segment of the considered part of the geodivider in Bayanhar Block HF reaches 66-71 µw/m^{-2}, energy volume 10^{8-13} J, M ≥ 8. To the East in the Southeastern China Block HF increases to 68-124 µw/m^{-2}, the amount of energy falls to 10^1 J, the azimuth of the GPS vector in Uhan is 109.72° SE. The southern segment of the geodivider in Kunmin, the HF is 77-92 µw/m^{-2}, the energy volumes reach 10^{15-16} J, the azimuth of the vector further deviates to the South to 120.11° SE. Eastward in the Southeastern China Block HF is 60-71 µw/m^{-2}, the volume of released seismic energy is reduced to 10^{3-10} J. It should be noted that most of the fields with high HF coincide with the *S* - wave deceleration to ≤ 4.2-4.25 km/sec.$^{-1}$ (Fig. 2) at depths of 100-300 km [Kozhevnikov, Yanovskaya, 2005].

The authors, as well as a number of Chinese researchers, associate such a warming up of the lithosphere to 100 µw/m^{-2} or more with the influence of the deeply submerged slab of the Pacific Lithospheric Plate under East Asia and its stagnation – standstill, inertia with gradual death. Group of geophysicists led by Ch. Chen studied the continuation of the active Pacific Slab under Japan and the Sea of Japan within the contiguous territory of South Korea and northeast China based on the analysis of *P* - and *S* - waves tomography and teleseismic tomography [Chen et al., 2016]. At a distance of about 1000-1100 km from the Japanese trench, the slab is clearly traced along the earthquake hypocenters to a depth of 500-600 km with wave acceleration up to 4-6%, sinking into the mantle in an inclined zone with a width of 70-50 to 100-150 km. Then it becomes quasi-horizontal and continues for another 1000 km to the West under the territory of South Korea and North-East China, maintaining approximately the same indicators of *dVp* and *dVs*, but without hypocenters. The whole slab is covered by the mantle with wave deceleration from 0 to -4 - -6% and it is overlapped by a mantle wedge with wave deceleration from 0 to -2%, locally closer to the surface to -3 - -4%. The other works trace the continuation of the slab to the west for 1500 km up to the "North – South Tectonic Belt", which corresponds to the geodivider of 102-104° E [Huang, Zhao, 2009; Chang et al., 2015].

Chinese researchers connect the formation of volcanic foci in the upper mantle and crust and the eruption of active Holocene volcanoes in the border areas of South Korea and China with the rise of hot and wet material to the surface during dehydration of deeply submerged slab [Chen et al., 2016]. One of the sources of this volcanism can also serve as fluids released due to deep faults over intensively circulating mantle flows near the slab. The slowering down of *S* - waves at the top of the upper mantle down to -4 - -6% at depths of 100 to 200 km occur also to the southeast and to the southwest of Lake Baikal [Legendre et al., 2015] and up to 4.1 - 4.3 km/sec^{-1} under the Baikal Rift, Hangai and Northeast China at depths of 100 to 350 km (Fig. 2) [Kozhevnikov, Yanovskaya, 2005]. The majority of these areas there are known by their outpourings of Holocene alkaline basalts.

Most of the blocks in the southern and central parts of the geodivider and in the East of its western wing in the magnetic field are represented by weakly negative or weakly positive anomalies (-30...+10 *nT*). This refers to the Kam Dian, Bayanhar, Qilian, Jartai, South-Western Mongolia blocks and others. Interblock zones and large faults at their boundaries are often distinguished by higher bandpass positive anomalies up to +20...+50 *nT* [Gatinsky, Prokhorova, 2014]. The most intense negative gravitational anomalies in the Buge reduction coincide with the blocks of Tibet, Hangai, Eastern Kunlun and most of the Himalayas [Bonvalot et al., 2012], corresponding to a sharp increase in crust thickness to the West from 35-40 km to 45-70 km, which is most clearly seen within the geodivider in the transition from Southeast China to Tibet blocks [Wang et al., 2015].

Discussion of results

The 102-104° geodivider began to form in Central Asia, most likely not later than the emergence of the active phase of the collision between India and Eurasia about 20 million years ago and continues its formation to the present time, as evidenced by the strong earthquakes in recent years within its borders (Wencuan and others). This phase of the continental collision led to the formation of the modern Central Asian transitional zone with its fault-block structure and to a sharp increase in the level of seismic energy releasing within the central part of the geodivider and to the West of it. If in the central and southern segments of this part of the geodivider it largely coincides with the boundaries of blocks and large submeridional faults, then to the North this structure crosses most geological boundaries and is distinguished mainly by the increased level of seismicity, HF and anomalies of the deep structure, including mantle anisotropy.

It should be noted that according to the results of the analysis conducted by Irkutsk geophysicists, the anisotropy directions of *P* and *S*-waves prove a single deformation of the upper mantle and crustal lithosphere within the greater northern part of Central Asia [San'kov et al., 2011], including the northern half of the central part of the geodivider. This suggests the source of modern geodynamic activity in the mantle, which is confirmed by the development of mantle plumes. One of these plumes can be selected under the blocks Hangay and Sayan at a depth of 100-150 km (Fig. 2), where the thickness of the lithosphere is reduced to 70-50 km and the temperature based on the correlation of isotopes $^{3}He/^{4}$can be 1000-1200° C [Lysak, 2009; Duchkov et al., 2010].

To the West of the geodivider, under the conditions of tectonic regime of transpression, there are developed thrusts and major slips with compression, northern and north-eastern directions of GPS vectors, and their velocities from South to North vary from 50 to 23-25 mm/year. To the East of it the regime of transtension dominates with stretching in the Baikal Rift System, around Ordos as well as slips with stretching inside the blocks of South-Eastern China and Japanese-Korean [Gatinsky et al., 2017]. Vectors are directed here mainly at 106-121° SE with velocities of 26-35 mm/year. This change of geokinematic presumably connected with the action of mantle flow that occurs under the influence of a deep subduction of the Pacific Slab and the alleged lifting of a mantle plume under the Baikal and Northern Mongolia [Gatinsky et al., 2011]. This leads to a warming up of the lithosphere with an increase in HF values, the development of late Cenozoic intracontinental volcanism and rift basins in the East Asian zone.

Eastern extrusion of the Tibetan lithosphere was first suggested in [Molnar, Tapponier, 1975]. Experimental GPS vectors confirm the clockwise rotation of the Bayanhar block (*http://itrf.ign.fr/ITRF_solutions/2014/*). Apparently, only the upper part of the crust participates in this rotation, because the results of seismic and magnetotelluric sounding according to the INDEPTH program establish in the crust of Central and Eastern Tibet layers of increased electrical conductivity at depths of 20-45 km, presumably corresponding to partial melting of rocks [Hu et al., 2012]. Hot and plastic crust of Eastern Tibet on the border with the cold, hard and more powerful lithosphere of South-Eastern China under the pressure of the Indian indenter breaks from the mantle and lower-crust substrate and moves at a speed of 20-30 mm/year on SE around the Eastern syntax of the Himalayas, as confirmed by GPS data [Gan et al., 2007] (Fig. 3).

The plastic flow of material from the Tibetan plateau to the East and the increased permeability of the lateral boundaries along the active faults limiting the blocks contribute to the release of seismic energy. Thus, the stress field in the lithosphere of the Central and southern segments of the geodivider at the border of the Tibet blocks with the South-Eastern China block is controlled jointly by the compression from the Indian plate to the NE and NNE and the movement to the SE of the material of the middle and upper crust of the Tibetan plateau, which is squeezed along major slips.

In the South, the geodivider runs along the eastern edge of the Tibetan plateau. Observations of the splitting of *S*-waves from a rich array of seismic information and data from permanent seismic stations allow us to assess changes in the dynamics of the Central and southern segments of the Central part of the geodivider and adjacent transit zones [Chang, 2015]. The direction of polarization is submeridional in the North and changes almost to the latitudinal in the South, where the observed anisotropy is associated with the flow of matter of the asthenospheric mantle under the thin lithosphere of Southeastern Tibet, which, along with GPS data, corresponds to delamination and rupture of its heated and relatively thin lithosphere [Hu, 2012] and the movement of its layers in different directions (Fig. 3).

Conclusion

The analysis of various parameters of seismicity, HF, and deep anomalies under the geodivider and adjacent blocks allows us to draw the following conclusions. The level of seismicity intensity in general increases from East to West with maximum values within the geodivider and to the West of it in the Central Asian transitional zone, which is primarily due to the continuing pressure of the Hindustan indenter. HF values are growing in the opposite direction from West to East, reaching the maximum values in the geodivider and in the East Asian transitional zone, which is most likely due to the continuation and disintegration of the Pacific Slab under this territory. According to data on seismic anisotropy in the North and NE of Central Asia, a vertically coordinated single deformation of the entire lithosphere is assumed, in the South, the observed anisotropy is associated with the flow of matter of the asthenosphere mantle to the SE under the thin lithosphere of Tibet, in which delamination (stratification) occurs.

Gratitudes

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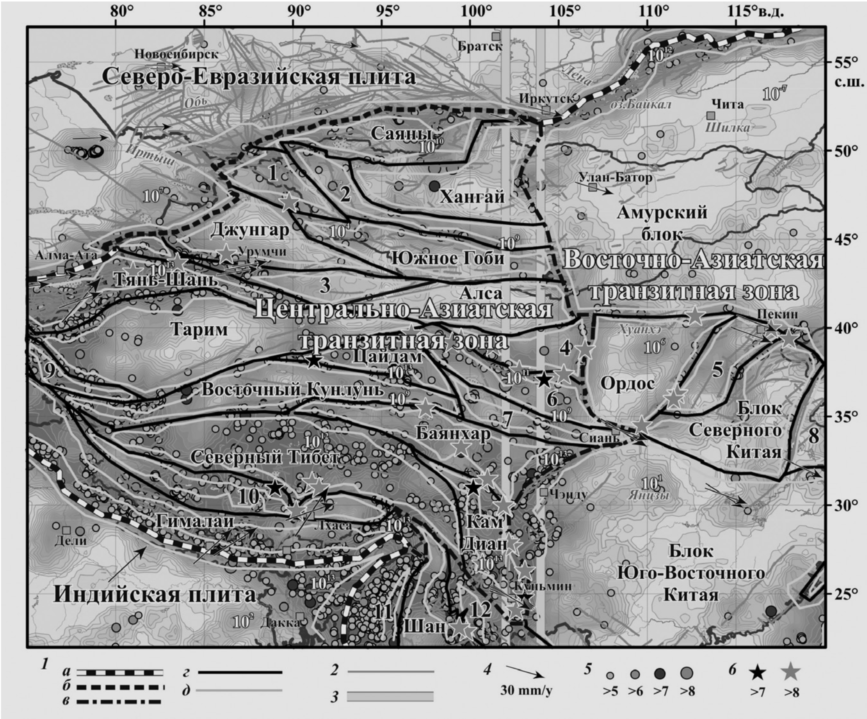

Fig. 1. *Scheme of modern geodynamics of Central and East Asia South of the North Eurasian plate. Compiled by the authors. Symbols: 1 – boundaries of lithospheric plates (a), the same assumed (b), transit zones (b), blocks (d) and interblock zones (d); 2 – active faults [Trifonov et al., 2002; Gatinsky et al., 2011; Sherman, 2012; Wang et al., 2015]; 3 – boundaries of the geodivider; 4 - experimental vectors of horizontal displacements of plates and blocks (http://itrf.ign.fr/ITRF_solutions/2014/); 5 - epicenters of instrumentally measured strongest earthquakes from M to NEIC2018 (https://earthquake.usgs.gov/data/); 6 - epicenters of historical earthquakes [Xu, Deng, 1996] with assumed M. Figures on the diagram are blocks: 1 – Altai, 2 – Southwestern Mongolia, 3 – Beishan, 4 –Jartai, 5 – Taihang Shan, 6 – Qilin, 7 – Western Qingling, 8 – Japanese-Korean, 9 – Western Kunlun, 10 – Southern Tibet, 11 – West Burmese, 12 – Indochina – Sunda.*

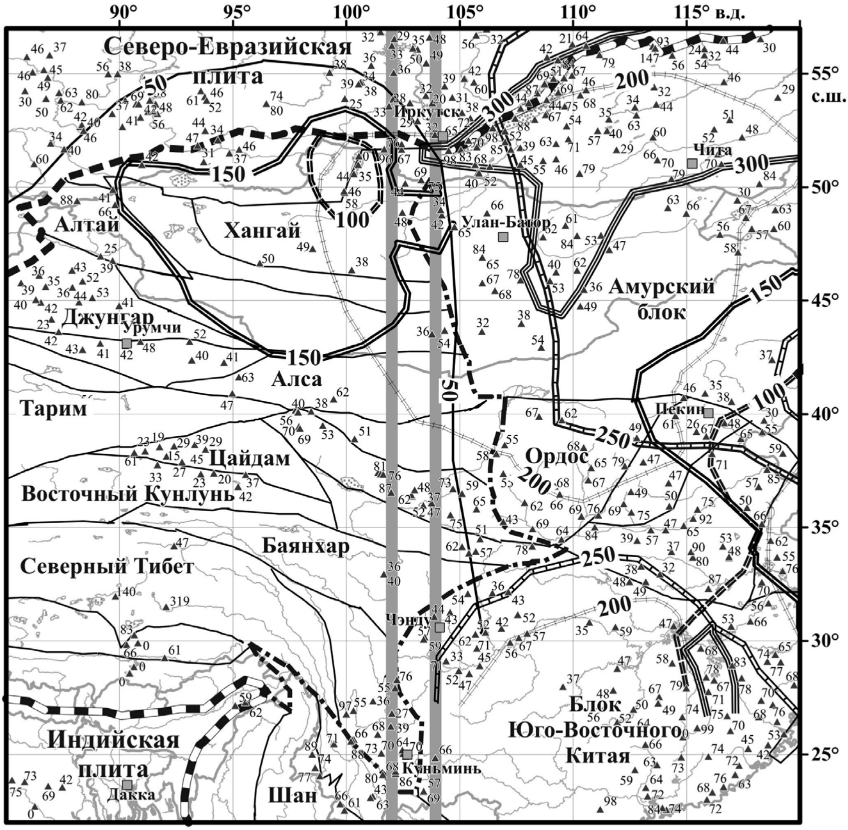

__Fig. 2.__ Heat flow and seismic tomography of Central and East Asia. HF values in μw/m^{-2} are taken from [Tan, Shen, 2008; The Global Heat-Flow ..., 2011; Duchkov et al., 2012]. The lines of different types correspond to the projections of the boundaries of the Areas of S-wave velocity deceleration up to ≤ 4.2-4.25 km/sec.$^{-1}$ at depths of 50, 100, 150, 200, 250 and 300 km [Kozhevnikov, Yanovskaya, 2005]. Border and unsigned title blocks, see Fig. 1.

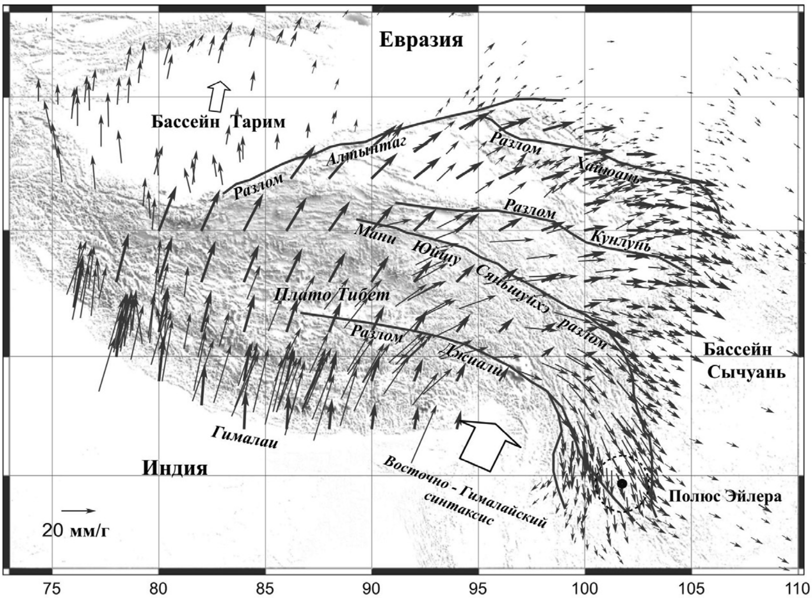

__Fig. 3.__ A map of the observed GPS velocity field (thinner arrows) around the Tibet plateau of relatively stable Eurasia and the calculated steady rotation field (thicker arrows) along with the Eulerian plateau vector [Gan, 2007]. The Euler pole is located near the southeastern corner of the plateau within the 102-104º geodivider with an ellipse of 95% confidence. Black solid lines indicate the main active faults.

基因型和选择对黑白奶牛生产力的影响
INFLUENCE OF GENOTYPE AND SELECTION ON PRODUCTIVITY OF COWS OF BLACK-AND-WHITE BREED

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注解。在不同国家和不同品种的牛进行的大量研究表明，牛奶中的牛奶产量，脂肪和蛋白质含量是遗传性状。这可以通过不同品种奶牛的不同生产力水平，不同世代之间的差异，在相同的饲养和住房条件下使用属于不同品系的不同育种公牛，但受各种环境因素的影响来证实[1]。已经确定，奶牛的生产寿命和产奶量受遗传因素的影响，例如品系关系，繁殖公牛的影响和选择的类型。高变异率和牛奶生产力指标之间关系的性质在很大程度上取决于奶牛的线性隶属关系。在评估育种育种活动中评估动物育种价值的最完整方法是建立遗传趋势[2]。

关键词：产奶量，产奶量，基因型，黑白品种，选择，品系，终身产奶量。

Annotation. *Numerous studies conducted in different countries and on different breeds of cattle have shown that milk yield, fat and protein content in milk are hereditary traits. This is confirmed by different levels of productivity in cows of different breeds, differences between generations, the use of different breeding bulls belonging to different lines, under the same feeding and housing conditions, but influenced by various environmental factors [1]. It has been established that the productive longevity of cows and the level of milk production are influenced by genetic factors, such as line affiliation, the effect of breeding bulls and the type of selection. The high rate of variability and the nature of the relationship between the indicators of milk productivity largely depend on the linear affiliation of the cows. The most complete method in assessing the effectiveness of breeding activities in cattle breeding, in assessing the breeding value of animals, is the establishment of genetic trends [2].*

Keywords: *milk production, milk yield, genotype, black-and-white breed, selection, line, life-long milk yield.*

Introduction. One of the main factors of the intensification of dairy cattle breeding in modern conditions is purposeful breeding work with the black-and-white and Holstein breed of cows that have a high genetic potential. The result of breeding work depends on the interaction of genotypes of the parent individuals, and on the methods of selection. Based on the principle of intraline selection, the improvement of the livestock of black-and-white cattle is based.

Materials and research methods. The studies were conducted in CJSC PZ "Povadino" of the Moscow region in 2016-2019. The main material for the study was the data of zootechnical and pedigree accounting of animals (form 2-MOL). For the analysis of productive qualities of cows, depending on their linear affiliation, with intralinear selection, cows of different generations were selected, the number of which was 295 heads. Cross-processing cows that belong to the main lines of Holstein cattle were included in the processing: Vis Beck Ideal 933122, Reflection Sovereign 198998, Montvic Chieftain 95679 and Baron 307369. The majority of animals of these lines are descended from manufacturers of import breeding of the USA, Canada, Holland, Denmark.

Results and its discussion. As a result of the study of the milk production of Holstein cows with intraline selection, it was established (Table 1) that the daughter cows outnumbered the mother cows. The cows-daughters of the Vis Beck Ideal line 933122 and Montvic Chieftain 95679 have the highest productivity - 6275 kg and 6221 kg, respectively. hey were significantly superior in terms of milk productivity to mothers of the Vis Beck Ideal line 933122 per 828 kg of milk (P> 0.999), Montvic Chieftain 95679 per 867 kg of milk (P> 0.999). The moderate milk yield was observed in cows-daughters in the line of Reflection Sovereign 198998 - 6079 kg of milk, they significantly exceeded mother-cows by 652 kg of milk (P> 0.999). Low productivity indices were recorded along the line of Baron 307369, which amounts to 5719 kg for daughters-cows and 5294 kg for cows-mothers.

Table 1 - *Milk productivity of black-and-white cows at intraline homogeneous selection (n=295)*

Line	Mothers	Dy, %	n	Daughters	Dy, %
Baron 307369	5294±130	5,5	6	5719±260	11,2
Vis Beck Ideal 933122	5447±102***	9,7	26	6275±115***	9,4
Reflection Sovereign 198998	5427±86***	9,7	47	6079± 85***	9,6
Montvik Chieftain 95679	5354±145***	10,1	23	6221±108***	8,3

Note: hereinafter reliably: *) with P> 0.95; **) at P> 0.99; ***) at P> 0.999

According to many scientists, one of the effective methods of improving the black-and-white breed is breeding along lines. In studies in CJSC PZ "Povadino" of the Moscow region, when assessing the lifetime performance of cows of different generations (table 2) it was found that cows-daughters were also reliably superior to cows-mothers.

Table 2 - *Lifetime milk yield of cows of black and motley breed of different generations (n=295)*

Line	Mothers	Dy, %	Daughters	Dy, %
Reflection Sovereign 198998	14617±858***	70,4	22575±934***	49,6
Vis Beck Ideal 933122	23172±1223	45,1	23482±1416	51,2
Montvik Chieftain 95679	19146±1474	58,1	21433±1166	41,1
Baron 307369	18270±2617	60,8	21188±3206	54,6

The best milk production of cows-daughters was noted along the lines of Reflection Sovereign 198998 and Vis Beck Ideal 933122, where the lifetime milk yield was 22575 (P> 0.999) kg and 23482 kg of milk per head, respectively. Baron 307369 line was marked by low productivity indicators, where milk yield per head was 21,288 kg of milk. Analyzing the performance of full-aged mother cows, the following lines can be noted, Vis Beck Ideal 933122 and Montvik Chieftain 95679, where the life-long milk yield for cows per head was 23172 kg of milk and 19146 kg, respectively. The lowest lifetime productivity observed in cows mothers Reflection Sovereign 198998 lines - 14,617 kg of milk per cow, which was significantly lower compared to cows of other lines (P> 0.999). An important link in the breeding system is the assessment of manufacturing bulls by the productive qualities of their daughters. We carried out a comparative study of the life-long milk yield of daughters-cows from cross-breed Holstein sires. An analysis of the milk productivity of full-aged cows-daughters of different breeding sires, the Reflection Sovereign 198998 line, showed that the greatest lifelong yield was in daughters of bulls Lonni 354448, Odysseus 15 and amounted to 34,267 and 25,341 kg of milk per head, respectively (P> 0.95). The lowest yield was observed in the daughters of the bull Mandingo 1810969 and averaged 12660 kg of milk per head (table 3).

Table 3 - *Lifetime milk yield of cows-daughters of black-and-white breed, different breeding bulls of the Reflection Sovereign line 198998 (n=118)*

Breeding bulls	Lifetime milk yield of cow daughters, per 1 head, kg	Dy, %
Mich 395531-122	24183±4452	41,2
Lonni 354448	34267±7420*	48,4
Tokay 117	18064±3623	56,7
Skipper 394946	23028±2847*	41,0
Roger 18	15643±2018	42,8
Mandingo 1810969	12660±3322	47,4
Odysseus 1911805	25341±3093*	47,3
Rotation 1928291	21152±2012*	40,4
Souvenir 88	21736±1917*	51,4

In studies (table 4) of the milk productivity of full-aged cow-daughters from different breeding bulls, the Montvik Chieftain 95679 line found that Revardo 84 bull daughters had the highest milk productivity, their lifetime milk yield was 24747 kg of milk per head. The lowest rates were observed in the daughters of the bull Monitor 97, where the lifelong yield of daughters per head was 18,848 kg of milk.

Table 4 - *Lifetime milk yield of cows-daughters of black-and-white breed, different breeding bulls of the Montvik Chieftain95679 line (n=44)*

Breeding bulls	Lifetime milk yield of daughters-cows, per 1 head, kg	Dy, %
Monitor 97	18848 ±2476	29,4
Plus 65	22627 ±1928	37,1
Revardo 84	24747 ±1632	29,5
Total	23161 ±1171	33,5

Evaluating the milk production (table 5) of full-aged cow-daughters of different bulls of the Vis Beck Ideal 933122 line, it was found that the greatest life-long milk yield was recorded for the daughters of the bull Vergill 1721111 and Astronaut 17 and averaged 33083 kg and 29652 kg of milk per head ($P > 0.95$). The lowest lifetime milk yield per head was observed in the daughters of the bull Veri 1700553 and amounted to 17741 kg of milk, respectively.

***Table 5 -** Lifetime milk yield of cow-daughters of black-and-white breed, different breeding bulls of the Vis Beck Ideal line 933122 (n=39)*

Breeding bulls	Lifetime milk yield of cow daughters, per one head, kg	Dy, %
Virgil 1721111	33083 ±5958	40,3
Astronaut 17	29652 ±4200*	40,1
Elasto 502503-1817889	22231 ±1897	29,6
Veri 1700553	17741 ±2613	55,1
Total	23533 ±1834	48,7

Conclusion. Thus, in PZ Povadino CJSC of the Moscow Region, cow daughters outnumbered cow mothers by milk yield for a third full-age lactation. The best indicators of productivity were observed in the descendants of the Vis Beck Ideal line 933122 and the Montvik Chieftain line 95679, where the yield of cow-daughters was 6275 (P> 0.999) and 6221 (P> 0.999) kg of milk with intralinear selection. Analysis of the lifetime performance of cow daughters showed the best result in the Reflection Sovereign 198998 and Vis Beck Ideal 933122, where the lifetime yield was 22575 kg and 23482 kg of milk per head respectively (P> 0.999). This suggests that line breeding is one of the main methods for producing animals with desirable qualities.

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HYPOPHTHALMICHTHYS NOBILIS（Richardson，1846）KUBAN BASIN
（生物学，生态学和形态学）

HYPOPHTHALMICHTHYS NOBILIS (RICHARDSON,1846) KUBAN BASIN (BIOLOGICAL, ECOLOGICAL AND MORPHOLOGICAL)

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注解。 有史以来第一次详细介绍了big鱼的生物学，生态学和形态学指标 - Kuban盆地的Hypophthalmichthys nobilis（Richardson，1846）（生长，营养，青春期，繁殖力，繁殖，meris和塑料标志等）。
关键词：库班盆地，big鱼，生物学，生态学，形态学
Annotation. For the first time, detailed biological, ecological and morphological indicators of the bighead carp are given - Hypophthalmichthys nobilis (Richardson, 1846) (growth, nutrition, puberty, fecundity, reproduction, meris and plastic signs, etc.) of the Kuban basin.
Keywords: Kuban basin, bighead carp, biology, ecology, morphology

Introduction. The bighead carp lives in the Amur River basin, in central and southern China (the Yangtze River). G.V. Nikolsky [7] notes that the bighead carp did not occur earlier in Amur. I got into the Amur River in the late 1950s from Chinese fish farms located in the Sungari Basin. Widely found from Blagoveshchensk to the Amur Estuary, is in the Ussuri and Lake Khanka [1]. It instilled in many water bodies of Russia and former Soviet republics. Currently found in the waters of the Volga, Don, Kuban and other basins.

The bighead carp is a valuable commercial fish of rivers and reservoirs. It is also an aquaculture object. The meat is tasty, tender and not bony. Fat content ranges from 12 to 23%. Large specimens of more than 5 kg used for the manufacture of balyk products, which has a high taste.

Material and research methods. Ichthyological material on the main biological, ecological and morphological indicators (growth, nutrition, reproduction, fertility, meristic and plastic signs, etc.) of the silver carp population of the Kuban basin was collected and processed according to generally accepted methods [8,9,10].

Morphometric measurements were carried out on fresh fish specimens according to 33 signs (8 meristic and 25 plastic). Material for characterizing the age, size, weight and sex structure of fish populations was selected from control and commercial non-aqueous and net catches in different parts of water bodies. Age of fish was determined by scales. The growth rate was studied by direct measurements, as well as by relative length and mass gains. The spawning areas and the breeding dates were determined by the concentration of producers at the spawning sites, as well as by the presence of females with gonads of IV - V stages of maturity. During the spawning period in the spawning grounds, the temperature of the water, the depth, the rate of flow of the water were measured and samples of phytoplankton and zooplankton were taken. Fertility samples were taken during the pre-spawning and spawning periods, and absolute and relative fecundity were determined.

To determine the qualitative and quantitative composition of the food of the bighead carp, samples were taken from uneven-aged individuals from non-water catches during the entire period of fish feeding. During processing, the taxonomic composition of the food objects of the first intestinal section of each individual was investigated. The contents were distributed to the mass of the whole food lump. The percentage of mineral particles in the food lump was determined by dry burning in a muffle furnace [4]. The intestinal filling indices were calculated according to LA Zenkevich and V.A. Brotskoi [2]. Expeditionary trips to collect ichthyological material were carried out 3 times during the growing season (in spring during fish spawning, in summer during fish feeding and in autumn during concentration of fish in wintering pits).

Total collected, processed and analyzed - 1575 different-age silver carp individuals from water bodies of the Kuban basin, including: for morphological analysis - 86 spec, fecundity - 188 spec, fish nutrition - 258 spec.

Processing and analysis of primary material was carried out in the laboratory of the Krasnodar Research Institute of Fisheries (KrasnIIRKh) (1976 - 2009) and at the Department of the Kuban State University (KubSU) (1998 - 2018). Digital processing of the obtained materials was carried out according to I. F. Lakin [3].

Data analysis. The bighead carp - *Hypophthalmlchthys nobilis* (Richardson, 1846) looks like a white carp; however, it has a larger head and a darker body color, eyes somewhat shifted to the bottom of the head. The upper mouth, gill stamens are long, thin, not growing together, well developed and resemble a dense mesh. Gill membranes are spliced between individuals and do not grow to the interstitial spacing. The pharyngeal teeth are single-row (4-4), their surface is flat, without chipping. The body color of adults is light brown, sometimes grayish, with a blackish back and dark spots on the sides. The keel on the belly is located between the ventral fins and the anus. The pectoral fins are long and pointed; they extend beyond the bases of the abdominal. Scales relatively small, thin. It lives mainly in the middle layers of water. When knocking, unlike white silver carp, it does not jump out of the water.

Morphology. D III 7 – 10, A II – III 9 – 14 (average 12,48 ± 0,164), *l.l.* 90 – 128 (average 114,16 ± 0,538) scales. The number of vertebrae 35 – 39 (average 37,46 ± 0,102). Indicators of plastic signs are presented in table 1.

The coefficient of variation is an indicator that shows the level of variability of the trait: the greater the value of the coefficient of variation, the more this characteristic is subject to changes under the influence of the environment. If Cv ≤ 10%, then the variability is considered low, Cv from 10 to 25% - the variability is average, Cv ≥25% - the variability is high [3].

According to the analysis of the variation coefficients given in Table 1, it can be noted that among the plastic signs, none of the 25 are in the group with high variability. The average level of variation has two signs as a percentage of body length (snout length Cv 11.674%, lowest body height Cv 11.997%). All other signs (18) as a percentage of body length and (5) of the length of the head do not exceed 10%. According to G.F. Lakinu [3], 10% variation is considered weak.

Analysis of the morphological characteristics of the motley silver carp of the Kuban basin waters showed that they do not go beyond the limits of variations of the attributes characteristic of the species *Hypophthalmichthys nobilis* (Richardson, 1846)

Puberty. Mottled silver carp in the waters of the Kuban basin reaches sexual maturity at the age of 5-6 years with a mass of 6-7 kg. Males mature a year earlier than females. In the prespawning period, there is only one generation of caviar in the gonads, the size of which varies from 1.15 mm in younger age females (5+ - 6+) to 1.25 mm in older age females (8+ - 9+). The mass of gonads in females of younger age groups (5+) is 1154 ± 1.86 or 14.8% of body weight. With an increase in linear mass parameters of females, the number of eggs produced also increases in females 93.7 cm long, weighing 25.4 kg (9+), reaching 3174 ± 1.53 g. The absolute fecundity of females also increases with age, length and weight of individuals, and the relative fecundity, on the contrary, tends to decrease (Table 2).

Table 1. *Morphological signs of the bighead carp of the Kuban basin (n = 86).*

Sign	min	max	M ± m	S_x	Cv,%
Fish weight, g	655,00	18800,00	7430,61± 11,647	66,905	0,900
The total length of the fish (L), cm	40,00	108,00	79,29 ± 0,742	4,263	5,377
Body length without C (l), cm	35,00	98,00	70,39 ± 0,705	4,050	5,753
Age, yy	1+	8+			
Sex	♂♀	♂♀			
Meristic signs.					
Scales in the lateral line	90,00	128,00	114,16 ± 0,538	4,440	3,890
Scales over the lateral line	20,00	105,00	34,00 ± 0,722	2,820	8,294
Scales under the lateral line	16,00	106,00	31,32 ± 0,747	2,954	9,431
The number of non-branched rays in D	3,00	3,00	3,00 ± 0,000	0,000	0,000
The number of branched rays in D	7,00	10,00	7,97 ± 0,148	0,653	8,193
Number of unbranched rays in A	2,00	3,00	2,93 ± 0,068	0,265	9,041
The number of branched rays in A	9,00	14,00	12,48 ± 0,164	0,942	7,549
The number of vertebrae	35,00	39,00	37,46 ± 0,102	0,958	2,557
Plastic signs in% of body length					
Torso length	66,07	94,59	72,61 ± 0245	1,407	0,938
Caudal stem length	10,71	21,23	18,18 ± 0,253	1,452	7,988
Head length	23,88	37,50	27,43 ± 0,229	1,318	4,805
Snout length	5,52	11,05	9,04 ± 0,184	1,056	11,674
Postorbital head	10,00	21,43	16,02 ± 0,193	1,111	6,938
Horizontal eye diameter	2,09	4,05	2,77 ± 0,107	0,213	7,684
Forehead width	9,19	16,14	12,82 ± 0,205	1,178	9,184
Head height at the nape	16,22	28,57	19,88 ± 0,246	1,414	7,113
Highest body height	24,55	48,51	28,73 ± 0,262	1,503	5,231
Lowest body height	8,48	26,21	10,37 ± 0,217	1,245	11,997
Antedorsal distance	25,00	53,76	49,15 ± 0,277	1,592	3,239
Postdorsal distance	28,57	43,88	39,54 ± 0,262	1,507	3,812
Distance P-V	8,98	23,61	18,19± 0,275	1,580	8,684
Distance V-A	9,37	24,88	20,58 ± 0,319	1,832	8,900
Base length D	9,08	16,07	10,45 ± 0,153	0,881	8,433
Highest height D	12,58	21,43	15,58 ± 0,213	1,223	7,847
Base length A	12,410	18,91	14,88 ± 0,177	1,017	6,829
Highest height A	9,35	14,28	11,47 ± 0,164	0,941	8,207
Length P	15,92	25,00	18,62 ± 0,206	1,181	6,341
Length V	11,19	19,64	14,44 ± 0,181	1,041	7,209
Plastic signs in% of head length					
Snout length	23,12	40,00	33,04 ± 0,352	2,021	6,115
Postorbital head	38,04	74,89	58,54 ± 0,373	2,141	3,658
Horizontal eye diameter	6,79	15,79	11,17 ± 0,212	1,018	9,109
Head height at the nape	56,47	93,06	72,59 ± 0,447	2,568	3,538
Forehead width	35,78	59,35	46,91 ± 0,398	2,289	4,879

Table 2. *Individual fertility of the bighead silver carp of the Kuban basin*

Age	Length, cm	Weight, kg	Mass of gonads, g	Fertility		MR of gonads, %	n
	M ± m	M ± m	M ± m	AF, thous. M ± m	RF, икр./г		
5+	68,3 ± 0,16	7,8 ± 0,05	1154 ± 1,86	974 ± 2,91	124,8	14,8	62
6+	76,1 ± 0,45	10,1 ± 0,12	1872 ± 1,67	1325 ± 1,87	131,2	18,5	55
7+	81,7 ± 0,71	15,9 ± 0,16	2123 ± 1,45	1786 ± 2,46	112,3	13,4	37
8+	86,3 ± 1,10	19,2 ± 0,48	2912 ± 2,78	2074 ± 1,98	108,1	15,2	22
9+	93,7 ± 2,20	25,4 ± 0,98	3174 ± 1,53	2195 ± 3,25	86,4	12,5	12
Avg.	81,2 ± 1,19	15,7 ± 0,82	2247 ± 2,27	1671 ± 2,92	112,6	14,9	∑=188

Note: AF - absolute fecundity, RF - relative fecundity,
MR - gonad maturity ratio

Breeding. Under natural conditions, spawning of the bighead carp occurs in the river bed at a water flow rate of 0.3 - 1.7 m/s. in the period of rising water levels during floods. Spawns later than the silver carp, at a water temperature of 20 - 24 ° C. For spawning, the silver carp chooses parts of the river that have a turbulent flow, on shallows, or at the confluence of the main river with the channels.

Studies conducted by us in 1978–2005 showed that silver carps from the Krasnodar reservoir at a water temperature of 16–18 ° C begin spawning migration, going up the river Kuban to Armavir (length of about 100 km). Carp spawning migrations annually. Spawning herd consists of individuals 4 - 9 years of age. Males are found at the age of 4+ - 8+, females - 5+ - 9+. The main part of the spawning herd of silver carps are females and males at the age of 5 - 7 years. In r. Kuban spawning occurs above the city of Ust-Labinsk to the city of Armavir. Spawning of the carp occurs in the middle layers of water. There are two or three males per female. Caviar is semi-pelagic, buoyantly maintained by turbulent water flows, and in standing waters, caviar quickly sinks to the bottom and perishes, as is the case in the Krasnodar reservoir, where there is practically no flow [5,6]. Spawning is one-timed. Terms of spawning stretched from one to two months.

It should be noted that silver carps annually make spawning migrations, but spawning occurs only in years with a rise in the water level in the r. Kuban. The water level rise in June-August, when the producers are ready to spawn and the water temperature reaches 20 - 24 ° C, is observed very rarely and lasts no more than 1 - 2 days. For fish that did not manage to spawn during this short period, after 20–30 days, the process of resorption of eggs begins. Females with uncooked caviar are found annually; at the end of July and in August-September, they predominate in numbers, amounting to 65–90%. Caviar resorption in such females lasts 1-2 years. In the future, these females no longer participate in spawning and their number increases from year to year.

Special studies conducted by us in 1981–1985, 1988, and 1993 to collect caviar with a caviar net with an inlet opening of 50 cm, both in the reservoir bowl and in the r. Kuban above the reservoir, showed that for all the time of research no herbivorous fish larvae were found. Caviar met throughout the river. Kuban from Armavir to the confluence of the reservoir.

Unfavorable conditions for spawning and development of caviar lead to negative efficiency of the natural reproduction of silver carps in the rivers of the Kuban basin.

Age and growth. The bighead carp is a fast-growing, thermophilic fish. Differs in more rapid growth, than white silver carp. Under natural conditions, it reaches a length of more than a meter and a mass of 35 kg [1]. The silver carp in the Krasnodar reservoir is growing very quickly - individuals at the age of 5 years old have a mass of 7–8 kg. At the age of ten, individual specimens reach a mass of 35–42 kg with a length of 105–110 cm [5].

There are good conditions for high growth of motley silver carp in the waters of the Kuban basin: sufficient biomass of zooplankton (from 2.64 to 9.21 g / m^3) and phytoplankton (from 6.0 to 19.7 g / m^3), long vegetation period (205 - 215 days), the optimum water temperature during the growing season (20 - 28.5 ° C), etc.

The highest growths were observed in the bighead carp from the Krasnodar and Varnavinsky reservoirs (Table 3).

The low growth rate of silver carps in the Great Reservoir is explained by the low temperature of the water of this reservoir, which does not exceed 15–18 ° C in the summer months. In the remaining waters of the Kuban basin, the growth rate of the bighead carp is relatively high. This is facilitated by good feeding conditions: a high feed base of up to 9.21 g / m^3 zooplankton, a long growing season with a water temperature of 20–28.5 ° C, etc.

Feed. Analysis of the intestinal contents of the bighead carp in the Kuban basin living in water showed that the food ball consists of zooplankton, phytoplankton, as well as organic substances and mineral particles (Table 4).

The amount of zooplankton in the food lump of the bighead carp varies from 19.3% to 29.7%, averaging 25.9 ± 0.12%. The phytoplankton content ranges from 3.4 to 7.2%, averaging 4.9 ± 0.04% of the mass of the food lump. Food gruel (digested food, organic matter and mineral particles) is found in the intestines of all investigated fish from 63.1 to 75.0%, averaging 69.2 ± 0.03% of the mass of food lump, including mineral particles - 13 , 7 - 21.4%, on average 17.7 ± 0.03%. The feeding intensity of the bighead carp in different age fish is different. The intestinal filling indices vary from 201.6 to 350.8% oo, averaging 230.5 ± 1.02% oo (Table 4).

***Table 3.** Average long-term growth of bighead carp in various water bodies of the Kuban basin*

Water	1+	2+	3+	4+	5+	6+	7+	8+	9+	n
Krasnodar reservoir	42,5 0,61	48,7 1,45	54,8 3,28	61,5 6,85	67,8 7,48	75,8 10,23	79,5 14,66	84,8 19,75	89,4 24,85	424
Bolshoye reservoir	26,0 0,31	35,4 0,74	40,6 1,20	42,4 2,60	47,3 4,35	52,6 6,10	58,2 8,85			64
Shapsugskoe reservoir	39,5 0,53	44,5 1,18	50,3 2,95	55,5 4,85	61,5 5,95	67,4 9,24	73,5 11,56	81,5 16,62		185
Kryukovskoe reservoir	41,2 0,55	48,5 1,38	53,5 2,95	57,8 5,89	62,5 7,25	67,8 9,86	74,6 13,24			115
Varnavinskoe reservoir	41,5 0,56	48,8 1,25	54,5 3,14	62,2 6,28	65,8 7,25	72,4 10,75	78,4 14,65	81,6 17,86	88,5 21,97	235
Priazovskie estuaries	39,5 0,52	46,8 1,36	51,6 2,25	59,8 5,52	64,5 7,15	71,3 10,25	76,4 14,14	82,6 18,84		240
Rivers of the Azov-Kuban Plain	39,8 0,54	46,5 1,28	52,8 2,94	58,2 5,98	64,5 7,50	72,5 11,45	77,8 14,76			312
Average reservoirs	38,6 0,52	45,6 1,23	51,2 2,67	56,8 5,43	61,9 6,70	68,3 9,84	73,9 13,26	82,4 18,27	88,9 23,41	∑= 1575

Note: above the line - length, cm
below the line - weight, kg

Conclusion. The bighead carp in the waters of the Kuban basin grows relatively well. Individual specimens reach more than 110 cm and a mass of 42 kg [5, 6]. Since in the reservoirs of the Kuban basin there are no appropriate conditions for the natural reproduction of the variegated silver carp, its stocking is possible only on the basis of artificial breeding and cultivation of fish seed material in pond farms.

Table 4. *The qualitative and quantitative composition of the food of the bighead carp,% by weight*

Food components and indicators	**Age groups**									**M ± m**
	1+	2+	3+	4+	5+	6+	7+	8+	9+	
Zooplankton,	26,3	28,7	27,8	29,7	23,1	24,7	19,3	27,9	25,3	25,9 ± 0,02
incl. rotifers	4,1	2,5	1,4	0,9	3,4	1,2	2,1	0,7	0,1	1,8 ± 0,46
branchy crustaceans,	14,3	20,4	14,0	23,9	9,1	17,9	14,0	19,3	16,9	16,6 ± 0,42
copepods,	7,8	5,6	12,1	4,5	9,4	5,2	3,1	7,9	8,1	7,1 ± 0,73
other	0,1	-	0,3	0,4	1,2	0,4	0,1	-	0,2	0,4 ± 0,16
Phytoplankton	5,3	6,1	3,4	7,2	3,8	4,5	5,7	3,4	5,2	4,9 ± 0,04
Food gruel, including	68,4	65,2	68,8	63,1	73,1	70,8	75,0	68,7	69,5	69,2 ± 0,03
digested food and organic matter,	54,7	49,4	53,6	43,4	51,8	53,6	60,7	47,3	48,6	51,5 ± 0,58
mineral particles	13,7	15,8	15,2	19,7	21,3	17,2	14,3	21,4	20,9	17,7 ± 0,03
The average weight of the fish, g	610	1520	3250	5950	7850	11480	15350	19560	23650	9913 ± 9,84
The mass of food lump, g	12,3	29,0	75,4	121,2	275,4	320,3	381,4	397,2	484,6	196,2 ± 6,18
Filling index,% oo	201,6	190,8	232,0	203,7	350,8	279,0	248,4	203,1	204,2	230,5 ± 1,02
Viewed intestines, pcs.	38	32	35	31	33	29	27	21	12	∑=258

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网络媒体的信息和交际空间及交际潜力

INFORMATION AND COMMUNICATIVE SPACE AND COMMUNICATIVE POTENTIAL OF WEB MEDIA

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注解。 文章揭示了"信息与交流空间"和"交际潜力"概念的本质，即使只有在获得创造性信息社会特征的社会中才具有专业意义，后者是后工业时代的继承者。

Annotation. *The article reveals the essence of the concepts of "information and communication space" and "communicative potential" even only professionally make sense only in a society that acquires the features of the created information society, which is the heir to the postindustrial era.*

The information society, the noospheric civilization, the information space, cyberspace, the information environment, virtual reality - these words have become familiar not only in the pages of scientific and popular publications, but also in everyday speech. Mass consciousness strongly links these terms with computers and telecommunications. At the same time, computers and communications have at their disposal vocabulary and conceptual tools of the existential plan - they travel on the Internet, enter it, live in it. Writers and filmmakers, who have long been fond of this topic, regularly throw out another clone of the Lawnmower on the market. Programmer slang, and behind it the logical constructs of clearly "machine" origin, are increasingly being introduced into everyday life. There are new areas of artistic creativity and new genres related to computer technology, such as computer games, computer animations, which force us to recognize the fact of the birth of a special computer aesthetics and, perhaps, the formation of a virtual culture in general. Philosophers, economists and political scientists talk about the transition to the information society, which should replace the post-industrial. This puts informational content on a par with the concepts of a global socio-political and economic plan.

It makes us treat computers and networks not only as technical achievements and means of simplifying the life of modern man, but also as distinctive beings that open up other life worlds to humanity.

Something similar happens with the perception of time - its marks, allowing to see the events in their sequence, the virtual computer environment as if erases and confuses. Information about the events of the past, stored on the Internet, is very different from the one we can get, flipping through the yellowed newspaper pages. Actualization of the past is carried out by referring to the appropriate information resource, and it immediately becomes on a par with the present. In other words, the time frame of the actual is arbitrarily extended, and the past, present and future (the future can be modeled with the help of modern prognostic tools) are just as arbitrarily rearranged.

It is clear that the computer not only transfers to some other point of the same space-time, but allows not only to enter another space, but also to re-create it, to build a new life plan.

What is the information society, in which, apparently, and we have to live? The information society is a global economic, political, anthroposocial and technological project that involves a controlled civilization transition to a world social structure, in which the system of mass communications will play a dominant role in all areas of life. computer telecommunications technologies, in particular Internet technology.

The project, prognostic and scenic nature of the information society is manifested, in particular, in the formulation of national programs and concepts of transition to the information society, as well as programs for informatization of various sectors of activity, primarily science, education, management, politics, etc. P.

The concepts of the information society, for all their pragmatism and concreteness, are accentuated as utopias, anti-utopias and practicals (Alvin Toffler), i.e. orient themselves to a global ideal composed of the values of ecologism, humanism, anti-universalism, anti-totalitarianism, pluralism, priority of the spiritual and cultural over utilitarian, civilizational. The technological dependence of the information society does not exhaust the deep philosophical, social and socio-political meaning of this concept. The doctrine of the information society reflects the transition of civilization from the industrial to the post-industrial phase of development. The concept of "post-industrial society" was introduced by Bell (1973) 1, in accordance with the periodization scheme of the historical civilization social process, involving three stages: pre-industrial (agrarian), industrial and post-industrial.

Post-industrial society is characterized by the following features:

1. the reorientation of the economy from commodity production to service;

2. Determination of intellectual technologies in the technological and production spheres;

3. the decrease in the significance and fundamental nature of material ownership in the system of values;

4. increasing the importance of knowledge as the basis of technological and socio-political structures of society;

5. the shift of semantic and axiological accents in the structure of social organization;

6. reorganization of the cultural sphere, implying an imperative orientation to the priorities of intellectualism and the transformation of the ethics and morality of the individual, self-determined through the awareness of oneself as a producer of knowledge;

7. the emergence of the dominant "university" (education, science) as a system-generating social factor.

Just as an enterprise (firm) has been a key institution in the last hundreds of years thanks to its role in organizing the mass production of goods-things, the university, or some other form of institutionalizing knowledge will be a central institution for the next hundreds of years thanks to its role as a source of innovation and knowledge.

对供应商和买家，电子交易平台参与者的好处
BENEFITS FOR SUPPLIERS AND BUYERS, PARTICIPANTS OF ELECTRONIC TRADING PLATFORMS

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Both suppliers and customers have significant advantages when working with electronic trading platforms. In particular, those who buy products or services significantly save time in searching for a potential supplier, and save their money on organizing purchases. Honest transaction is observed, as the site administration provides for measures against unscrupulous suppliers. An auction in electronic form can have participants who at the time of the meeting are located in completely different corners of the planet.

He gets his advantages and supplier, he can quickly find the most interesting bidding by assortment and prices, does not spend money on an advertising campaign, sales are carried out openly and transparently. You can also sell your products from anywhere in the world and at any time - when a profitable buyer has appeared.

Functions of electronic trading platforms. Electronic marketplaces perform a large number of popular functions. First of all, it is informational. All participants can quickly get acquainted with the latest and relevant information. The site also performs marketing services - it helps suppliers find profitable buyers, and vice versa. In addition, all participants can receive data about the objects of sales or purchases of other subjects. The trading platform conducts an advertising function, because all participants immediately enter into a single advertising space. An analysis of the activities of organizations is carried out, the analysis makes it possible to more profitably find possible business partners, customers. The site protects all transactions, business, document flow.

Electronic trading platform - a hardware-software complex that ensures the interaction of suppliers of goods / services with customers and customers before the conclusion of the transaction. In some cases, trading platforms additionally allow you to monitor the implementation and compliance with obligations from all parties to the transaction.

Features of electronic trading platforms:

- consolidation of supply and demand on one web-resource;
- low transaction costs;
- direct income from the first buyer (sometimes from the organizer of the auction);
- operational aggregation of goods / services in accordance with market trends;
- ease of development of the client base;
- high level of security.

Modern electronic trading platforms, among other things, are accompanied by accounting and electronic signature modules that provide legal value to the bidding process.

Types of electronic trading platforms. The formats of the organization of the trading process on electronic trading platforms may differ from each other, but the basic concept always remains the same - bidders compete for the right to conclude a contract, while the winner is determined by a number of rules stipulated by the draft.

Types of trading platforms:

1. State and municipal - systems for the organization of trade relations between enterprises and government agencies (for example, electronic platforms for the sale of assets of insolvent banks or the organization of tender purchases).
2. Corporate - trading platforms of large companies where they also place tender bids for finding suppliers or performers (for example, Euroset Tenders, Gazprombank Tenders, etc.).
3. Commercial - systems for the organization of trade relations in one or several industries, and both individuals and legal entities can take part in the auction. Current trends in the development of the e-commerce market do not rarely stimulate the creation of complex projects that combine the functionality of state and commercial trading platforms.

Why open an electronic marketplace?

In the first place, this is beneficial, since electronic trading platforms are focused on the organization of passive income with minimal labor costs. The owner of the trading system does not need to rent warehouses, search for suppliers and hire a large staff of specialists; all you need is to buy / develop a web-resource and invest in its promotion.

Moreover, the cost of developing an electronic trading platform is much lower than the implementation of a full-fledged online store. The site is filled with lots, delivery, contract processing and other intricacies of online trading by users of the trading platform, while its owner acts as an intermediary. The e-commerce market in Uzbekistan is only gaining momentum, which provides opportunities for young projects that do not have huge advertising budgets. In fact, in order for an electronic platform to start making a profit, it is enough to provide it with an intuitively understandable interface and extensive functionality to implement the main tasks of users. As part of the implementation of trading platforms, you can use the PHP platform Yii2, which has a flexible building architecture in which the user interface, the data storage logic and the control logic are separate components. Thus, the modification of any elements of the system is carried out with minimal impact on the overall structure of the trading platform, thereby providing savings on those. service. Yii2 also has a built-in integration module with third-party systems, which makes it possible to expand the web-resource with additional tools (for example, telephony, converters, settlement systems, etc.).

选择单一国家电子交易平台的软件技术环境

SELECTION OF THE SOFTWARE-TECHNICAL ENVIRONMENT OF A SINGLE NATIONAL ELECTRONIC TRADING PLATFORM

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The creation of a multifunctional electronic trading platform is aimed at efficient and profitable interaction of suppliers and buyers. The interaction takes place through electronic communication systems, so it is always prompt and relevant. Electronic trading platform is a complex of information and modern technical solutions. Requirements for computing resources The capacity requirements of the infrastructure for the organization of a trading platform for the full and sustainable operation provides for the definition of a program-technical environment.

- Rent a VPS (virtual private server);
- Databases for web server;
- Choice of programming language and web development

The marketplace should be developed and implemented using modern Internet technologies. Used programming languages HTML, CSS, PHP, JavaScript. Site management should be provided by Content Management System (site content, CMS).

VPS is an intermediate solution for customers who already have few virtual hosting resources, and a dedicated server is a rather expensive solution.

The advantages of choosing a VPS for the implementation of the trading platform:

- Access to the server as an administrator - root access, which allows you to customize software for yourself, full SSH access. This option is not available for virtual hosting rates.
- Guaranteed allocated resources, although the physical server is divided between users of the UPU, but the amount of disk space, RAM and processor are legalized so that only the owner of the UPU uses resources.

The client owns their virtual space.

The personal IP address of the resource that is provided to the VPS tenant, compared with the fact that all servers on the hosting are located on the same IP. A wide range of VPS settings allows you to optimize individual projects that are on it. There are no restrictions on the number of sites, MySql databases, FTP connections, mailboxes. On a regular hosting these parameters are limited. Ability to transfer your sites one to one without additional settings. Ability to control all running processes. VPS restart function. Application virtualization KVM and OpenVZ. Virtual dedicated servers may differ according to the virtualization method. VPS with OpenVZ provide the ability to dynamically manage resources, in addition, in some hosting companies such services have a small price, subject to lower overhead for virtualization. VPS with KVM (hardware virtualization) allow you to install any OS, including Windows, FreeBSD and others (there is no such possibility on OpenVZ). The advantages of KVM: fair allocation of resources, the availability of remote desktop access via the VNC protocol and serious security. On the basis of the VPS server, virtualization will be implemented and a web server and the necessary software will be raised.

The web server should provide the ability to manage the content and structure of the trading platform through the content management system. Provide user feedback and provide a contextual search mechanism. The site's web server is implemented on Apache, the database is in MySQL, and the client part is in PHP and PHPmyAdmin. Technical characteristics of the VPS server: Dedicated IP address: 1 pc. CPU: 12 cores. RAM: 16 GB. SSD: 160 GB. HDD backup space: 250 GB.

There are several types of electronic trading platforms - for commercial customers, for placing government orders. Sites where electronic operations are performed by commercial customers are divided into specialized and multi-disciplinary. Users, participants in the sites, auctions and tenders themselves can decide on which of the sites it is more convenient and profitable for them to work. In addition, on a multi-resource, a customer can also act as a supplier, a seller — this is envy of his business, of opportunities.

Objects of sales and the direction of the trading platforms.

Objects for sale on trading floors can be a variety of goods, materials and products, as well as professional services. A narrower specialization of the site helps the participant to quickly find the required name. But multi-faceted resources also have a fairly high level of user convenience. Their structure makes it possible to select only the necessary information about the goods. It is very important that on electronic trading platforms you can also learn a lot about a potential supplier or buyer, about the company with which you plan to cooperate. Such opportunities make the business more secure, reliable and stable. The principle of operation of electronic trading platforms consists in uniting suppliers and consumers, customers of services, goods and products in a large economic area. The participants of the site have more opportunities for active development of their business, for making profit and increasing the prestige and prestige of the brand. Also one of the main tasks of the trading platform is to conduct various tenders, the main objects of which can be various tenders, auctions. Such auctions are conducted by suppliers. And customers make profitable purchases of the most high-quality and sought-after products.

评估地理分布的信息教育环境的电子资源基础
EVALUATION OF THE ELECTRONIC-RESOURCE BASE OF A GEOGRAPHICALLY DISTRIBUTED INFORMATION-EDUCATIONAL ENVIRONMENT

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注解。 本文考虑了“信息与教育环境”系统电子教育资源评估子系统的发展方面，以及构建评估大规模在线教育系统，对电子教育资源进行分类和形成 系统的信息功能集。
关键词“信息与教育环境”，电子资源，自适应模型，信息符号，启发式方法，识别环境，电子资源类别。
Annotation. *The paper considers aspects of the development of the subsystem for the evaluation of electronic educational resources of the "Information and Educational Environment" system and the tasks of building an adaptive model for evaluating large-scale online educational systems, classifying electronic educational resources and forming a set of informative features for the system.*
Keywords *"Information and Educational Environment", electronic resources, adaptive models, informational signs, heuristic methods, recognition environment, category of electronic resources.*

As is known, the creation, operation and improvement of the information and educational environment (IEE) using the latest achievements of information and communication technologies [1] is important. The world pays great attention to the preparation of the scientific and methodological complex in the most rapidly developing segment of the education market and the organization of online learning processes based on electronic educational resources.

IEE is a network of program-communication environment, it is independent of the number and professional-qualification orientation of educational institutions, it provides the learning process with monolithic technical means, equipped with innovative information support, reliable evidence base from the "INTERNET" environment.

For the full functioning of the IEE, the role and place of the educational-methodical complex is incomparably large. The outlined categories of a continuous sequence of IEE learning, information, and system-wide resources are given in works [2,3].

As noted in this IEE structure, e-learning materials are of particular importance and they, like other tutorials, are carriers of educational content and serve as a category of training in the structure of e-learning tools, containing educational materials presented in schematic form in Fig. 1 .

At this stage, the structure of training materials is developed, and a mechanism for interaction with the user is being designed. Main and additional elements are separated, a hierarchical structure of information blocks is built, an interface block is developed, based on the connection between individual blocks and screens.

It is worth noting the following results of work at this stage, which are as follows:

- working copy of educational material of the hierarchical structure of the "tree" type

- a set of templates of information blocks and screen forms, the availability of feedback, ensuring its interactivity, is one of the important features of the electronic training manual. Figure 2 shows the provision of feedback to the electronic training unit.

Here it is worth noting the need to comply with the requirements when creating an e-learning tool at a practical level, which are formed through training programs:

- the completeness of the part of the electronic presentation, the level of generalization and volume;
- level of individualization of training;
- student programmatic capabilities;
- type of control in the system, type of feedback (open or closed);
- the main blocks and the composition of the methods of interrelation between them.

Along with this, the question arises of assessing the state of IEE e-learning resources using interface tools developed for the database of LMS systems.

When classifying electronic resources and forming a complex of informative features, it becomes necessary to build an adaptive model for evaluating large-scale online educational systems, developing algorithms and heuristic pattern recognition methods.

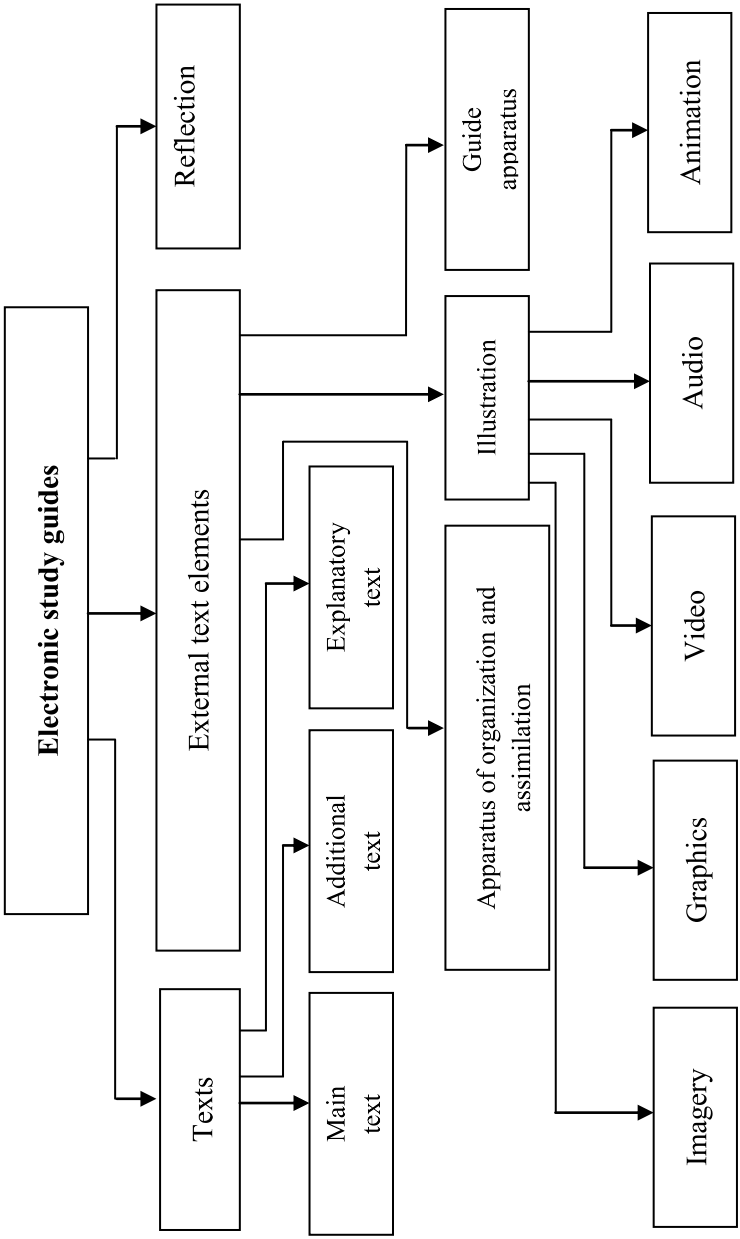

Fig.1. *Structure of e-learning materials*

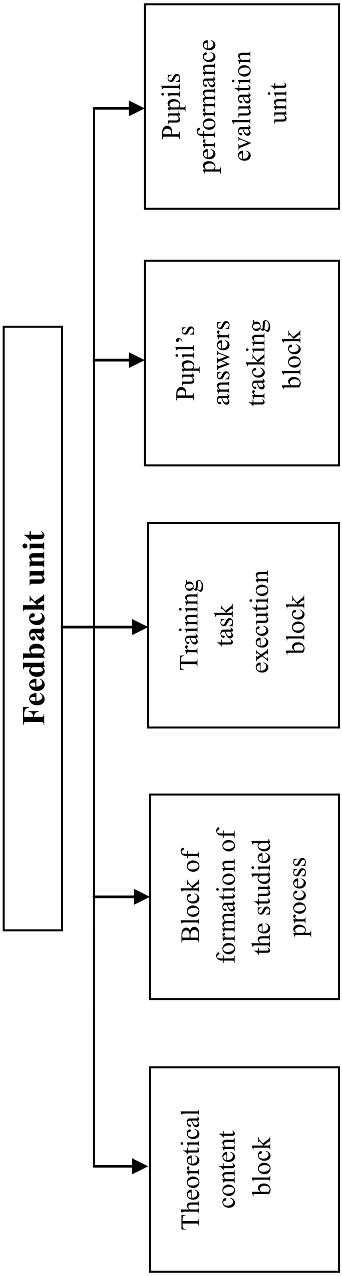

Рис.2.
Fig.2. *Providing feedback in e-learning aids*

Information and mathematical security for the software components for evaluating the electronic resource base of IEE should include tasks based on a variety of different data to determine the quality of education, based on protocols and events in LMS systems. It is their organization and management, analysis of the effectiveness of online technologies, user references to the system, the meaning of the work performed by the user, information about from which IP address the user connects and which geographically-distributed resources are accessed, requests to the system and their location, activity of teachers and students in the system, the level of use of resources by students, the performance of tasks and tests, as well as the assessment of student's knowledge.

The program component should include an assessment of the state of electronic information resources, training courses, teaching aids in the IEE, created by the teacher. It should also solve the problem of determining the quality of training courses for LMS systems widely used in the educational environment. Based on the application of methods for analyzing and classifying data from protocols and events, it is necessary not only to process the data, but also to filter it by informative features, since later electronic educational resources are ranked by attributes to high-quality, medium-quality and low-quality.

Here, it is advisable to use the algorithm [4], developed on the basis of estimation calculations, which is as follows:

1st step: select one of the v_i representatives of the reference class;

2nd step: the next objects are selected from the complex of protocols, events and the complex of objects k_i, corresponding to the representative selected by v_i, determined on the basis of the estimation algorithm. $i = \overline{1, n}$;

3rd step: after determining the complex of all objects K_i the algorithm is considered to have fulfilled its function;

4th step: objects not belonging to the complex of objects K_i, are considered objects of unclassified events.

This method of evaluation of electronic educational resources IEE, based on algorithms for calculating assessments, will allow to determine the rating of the selected object in relation to another object or to selected classes.

As a result of the introduction of this methodology in the education system and IEE, the quality of education is improved by monitoring the improvement of e-courses created by teachers and specialists.

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一般经济计算汽车对电力牵引的过渡
GENERAL ECONOMIC CALCULATION OF THE TRANSITION OF THE CAR ON THE ELECTRIC TRACTION

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注解。今天的汽车是最受欢迎和舒适的移动选择之一。它们有几个优点，但不能排除它们的缺点。其中一个主要缺点是汽车运输对环境造成了极大的破坏 – 高达63%。值得注意的是，汽油车具有相对较高的价格，并且其燃料成本每年都在增长。正是这些以及许多其他因素促使发达国家设计出更加环保和实用的交通工具 – 电动汽车。今天，这种运输的数量在世界所有国家都在增长。但是像所有新的和未充分研究的一样，它们有许多缺点，在他们的"汽油同行"面前，其中之一就是价格。这就是导致汽车驾驶员数量增加的原因，他们以极大的兴趣取代了汽车的组件，将它们变成了电动汽车。我们在本文中计算了这个事件的盈利能力以及它何时能够收回成本。

Annotation. *Cars today are one of the most popular and comfortable options for moving. They have several advantages, but their disadvantages cannot be excluded. One of the main drawbacks is that motor transport causes great damage to the environment - up to 63%. It is also worth noting that a gasoline vehicle has a relatively high price, and the cost of fuel for it grows every year. It is these and many other factors that led developed countries to engineer a more environmentally friendly and practical means of transport - an electric vehicle. Today the number of this type of transport is growing in all countries of the world. But like all new and not fully studied, they have a number of shortcomings and in front of their "petrol counterparts", one of them is the price. This is what led to an increase in the number of motorists who replace components of their cars with great interest, turning them into electric cars. How profitable this event is and when it will pay for itself, we calculated in this article.*

Materials and methods: *The method of statistical analysis and numerical calculation methods were used.*

Results: *The cost of the transition to electric, annual economic effect, payback period are determined*

Conclusion: *A method is proposed for calculating the cost of transferring a car to an electric traction and calculating the payback period, taking into account the annual rise in prices for fossil fuel and tariffs for electricity.*

关键词：电动汽车，汽车，内燃机，电动机，充电电池。

Keywords: *electric car, car, internal combustion engine, electric motor, rechargeable battery.*

Today, electric cars are rapidly gaining popularity, and every year more and more so. This is primarily due to the constant development of new technologies, which make the production and operation of electric vehicles cheaper every year, as well as the constant rise in prices for fossil fuels for conventional cars. [5] Many car companies are already predicting an early transition from internal combustion engines to electric. That is why the economic side of this issue is relevant.

As an example, we consider the transfer to the "Lada Vesta sedan" car of the 5AMT configuration, the fuel consumption in the urban cycle is 9.3 l / 100km, with the VAZ 21179 engine, whose maximum power is 90 kW, and the specific fuel consumption is 370g / kWh. The recommended fuel is - gasoline AI 92. [4]

First it is needed to calculate how much the engine consumes liters per kilowatt-hour of energy:

$$C_V = V * \frac{m_2}{m_1} = 1 * \frac{0,370}{0,76} = 0,49 \frac{л}{кВт * ч} \tag{1}$$

If V– volume, which is taken as a unit, l

m_1– weight of one liter of AI 92 gasoline, kg

m_2– mass of gasoline burned per kilowatt-hour, kg

The average car mileage in Russia per year is 16700 km, then the ICE generated energy per year will be equal to:

$$W = \frac{P * S}{C_V} = \frac{\frac{9.3}{100} * 16700}{0.49} = 3169.59\, кВт * ч \tag{2}$$

If P – gas mileage, l / km

The amount of energy that must be taken for the year from the industrial network when using electric traction will be equal to:

$$W_{г} = \frac{W}{n_{акб} * n_{пр} * n_{дв}} = \frac{3169,59}{0,95*0,8*0,9} = 4634\,кВт*ч \qquad (3)$$

If $n_{акб}, n_{пр}, n_{дв}$ – The efficiency of the battery, converter and motor, respectively.

Total cost:

$$Q_1 = W_г * h = 4634 * 4.20 = 19462.8\ Rub \qquad (3)$$

If h – Cost of 1 kWh for individuals in the town of Kamyshin.

EM57 engine has an average cost of $Q_1^{mot} = 50000$ rubles and a weight of 59 kg. [3]

The cost of the battery from Nissan Leaf 30 kW (85% capacity ≈ 25.5 kW) $Q_1^{a} = 262400\ rubles$.[2]

Weight of engine VAZ 21179 - 99.3 kg, fuel tank - 42 kg, electric motor - 59 kg, batteries - 294 kg, therefore, the weight of the car will increase by 212 kg

Part of the costs can be compensated by selling remote components. So b / y engine VAZ 21179 can be sold for 75,000 rubles, and the fuel tank for 7500 rubles. Total income from the sale – Q_S = 82500 rubles

Then the total cost of the transition to electric:

$$Q_1^{э} = Q_1^{a} + Q_1^{mot} - Q_s = 262400 + 50000 - 82500 = 229900\ Rub$$

(7)

Calculate the cost of gasoline per year

$$Q_2 = P * S * C = \frac{9.3}{100} * 16700 * 42.10 = 65\,385{,}51\ Rub \qquad (8)$$

If C– the cost of 1 liter of AI 92 gasoline in Kamyshin [1]

To find the payback period, you need to solve the following equation:

$$Q_1^{ç} = \sum_{k=1}^{x} \left(P*S*\left(C+1,9x\right) - W_r * h * 1,1^x \right) \qquad (9)$$

If 1,9 – increase of gasoline prices, rubles

1,1 – increase in electricity prices, %

x – number of years

To find a solution, we will make a table where "Annual economic effect" – is the kth member of the series (9), "Total economic effect" – is the sum of k members of the series (9).

Table 1

Year	Petrol Costs	Electricity Costs	Annual economic effect	Total economic effect	Cost compensation
1	68491,71	21409,08	47082,63	47082,63	-182817,37
2	71597,91	23549,99	48047,922	95130,552	-134769,45
3	74704,11	25904,99	48799,1232	143929,6752	-85970,32
4	77810,31	28495,49	49314,82452	193244,4997	-36655,5
5	80916,51	31345,03	49571,47597	242815,9757	12915,98

According to the data in the table it is clear that the payback period, taking into account the increase in prices for gasoline and electricity, will be less than 5 years. Here we took the cost of 1 kWh at a single-rate tariff for the urban population with gas stoves (4.20 rubles). [6]

If the contract for the supply of electricity is concluded with the tariff for electricity differentiated by two or three zones of the day, and the house is equipped in the prescribed manner with an electric stove and (or) electric heating devices, then in the night zone the tariff will be 2.36 rubles. [6] That will greatly affect the payback process.

Table 2

Year	Petrol Costs	Electricity Costs	Annual economic effect	Total economic effect	Cost compensation
1	68491,71	12029,86	56461,85	56461,85	-173438,15
2	71597,91	13232,85	58365,06	114826,91	-115073,09
3	74704,11	14556,14	60147,97	174974,88	-54925,12
4	77810,31	16011,75	61798,56	236773,44	6873,44

According to the obtained data, it is clear that in this case the payback will be less than 4 years, and since the average service life of lithium-ion batteries is 7-10 years, then from an economic point of view, the transition from internal combustion engines to electric traction pays off. However, it is worth remembering that the calculations were made taking into account the real growth rates of gasoline prices and electricity tariffs, which will be unknown in the future.

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