



SCIENTIFIC RESEARCH OF THE SCO COUNTRIES: SYNERGY AND INTEGRATION

上合组织国家的科学研究：协同和一体化

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这些会议文结合了会议的材料 – 研究论文和科学工作者的论文报告。它考察了职业化人格的技术和社会学问题。一些文章涉及人格职业化研究问题的理论和方法论方法和原则。

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未來經濟：「黑天鵝」和「灰犀牛」誰會贏？

THE ECONOMY OF THE FUTURE: WHO WILL WIN THE “BLACK SWANS” OR “GRAY RHINOS”?

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抽象的。作者分析了在持續的資訊通信技術轉型過程中人工智慧（神經網路和機器學習）和大數據所有領域逐漸佔據主導地位的當前趨勢，考慮了世界經濟數位化領域的一系列新創企業和綠地能源，作為全球化國家工業演化過程中不同成熟度的一系列選擇。他們在研究中指出，後疫情時代的復甦需要針對後工業化「知識經濟」和不斷增長的「消費者經濟」的新方法、獨特商業模式，這些經濟體正在尋找自己的有效收入分配模式和技術解決方案在克服困難方面，沒有極端的災難和徹底去工業化的選擇，系統性和片段性決定了人類社會關係的自發性和毒性。也就是說，世界可以用言語等待“黑天鵝”，驚恐地稱它們是平靜生活計劃的“不可理解的自發殺手”，但同時又依賴於系統地表現出來的“灰犀牛”，它們毫不猶豫地佔據了越來越多的人類空間，在全球治理引入的神話的重擔下欺騙自己，並期待著科學和技術革命帶來不應有的奇蹟，按照自己的法則生活，並為緩慢的發展提供間歇性的解決方案。把容易上當受騙的人擊倒在死亡邊緣。

關鍵字：「黑天鵝」、「灰犀牛」、生成人工智慧、大數據、ICT產業、替代現實、額外現實、市場、巨型宇宙、生態系統、創新、俄羅斯、美國、中國、解耦、LML（大語言模型）、聊天、機器人、神經演算法、網路解決方案、機器學習（ML）、工業 4.0、生成智慧。

Abstract. *the authors analyze current trends in the gradual dominance in all areas of AI (neural networks and machine learning) and Big Data during the ongoing ICT transformation, consider a series of startups and greenfields in the field of digitalization of the world economy in the world of energy, as a set of options of different levels of maturity in the evolution of globalized national*

industries. They point out in their study that post-Covid recovery requires new approaches, unique business models for the post-industrial “knowledge economy” and the growing “consumer economy”, which are looking for their own solutions to effective models of income distribution and technology in terms of overcoming difficulties, without extremes disasters and options for complete deindustrialization, when systematicity and fragmentation determine the spontaneity and toxicity of relationships in human society. That is, the world can wait, in words, for “black swans”, in horror, calling them “incomprehensible and spontaneous killers” of plans for a quiet life, but at the same time become dependent on systematically manifested “gray rhinoceroses”, which do not hesitate to occupy more and more the space of humanity deceiving itself, under the burden of myths being introduced by global governance and in anticipation of undeserved miracles from the scientific and technological revolution, living by its own laws and providing spasmodic solutions to slow down gullible people on the brink of death.

Keywords: “black swan”, “gray rhinoceros”, generative AI, Big Data, ICT industry, alternative reality, additional reality, marketplace, megaverse, ecosystem, innovation, Russia, USA, China, decoupling, LML (large language models), chats, bots, neural algorithms, network solutions, machine learning (ML), Industry 4.0., generative intelligence.

Modern civilization is bursting at the seams, because the trends of philosophy and culture do not become a systemic airbag to prevent the destruction of humanity, and the efforts of science and accumulated knowledge, applied in practice in the context of the accelerating scientific and technological revolution (STR), doubling every 50 years, do not contribute to rethinking paradigms of existence and only lead to an even greater intensification of competition and new battles for highly profitable markets [1].

At the same time, the accelerated topics with the “climate agenda” and the “carbon-free economy” [2], with “global warming/cooling”, and with the ultimate “scarcity of resources” are increasingly becoming similar to toxic fakes [3], cartoon series, and consumers are increasingly being led astray by the antics of generative AI, which, through the work of various neural algorithms and chats/bots, transform the real world into a stream of avatars living in the virtual worlds of metaverses and not ready to realize themselves as full-fledged people, independently responsible for their lives, as well as responsible and proactive capable of changing it for the better [4].

Therefore, the previously introduced concepts of Nasim Taleb about “black swans” [5], suddenly bursting, unexpectedly, into the life of the planet, ethnic groups, industries and entire states should be more pragmatically clarified by another concept of the “gray rhinoceros” by Michelle Wucker [6], who clarified the

systematic nature of such “obvious and highly probable events that are not taken seriously before they occur.”

Indeed, both of these concepts can, in their development, transform into one another and, with the madness of the existing spontaneous forces of corruption, transnational crime, but most importantly, total bureaucracy, despite the control of digitalization and public institutions, demolish all the basic flags of established traditional values and evolving approaches to all ongoing events. This means that everyone who wants to believe in his own madness or a previously imposed meme or myth must dogmatically and categorically look for those facts that would confirm his conspiracy theories and would not allow him to look at things rationally from the standpoint of, say, the law of large numbers, as well as various mathematical models, increasingly complex dynamic processes and samples of limited admissibility (not always the human eye or a tool for studying any process can accurately, and most importantly, completely, explore the field of fact and identify all the latent data presented to the observer in the studied material). This expected inattention, along with the present error of error, on a small scale can create a trend of an irreversible, but quite controlled process, which, through its increase and upon reaching an increase in the level through a change in criteria (scale effect), can independently move into the multiplicative sphere and begin to work with positions of accumulating synergistic advantages and favorable additions moving into the mainstream [7].

The presence of feedback systems of such classical processes (both in the business environment and in the field of evolutionary changes in the animal world or in social evolution) through a negative or positive connection reveals not only the essence and profile of the system itself, but also allows us to evaluate the effectiveness of its action, the size of expected changes and the ability of external forces to control internal ones, so that the latter help the former fight entropy and reduce chaos to possible relevant and significant mathematical models of controlled control [8].

Therefore, the existing 2 approaches: the school of mathematical models and the scenario school set themselves tasks based on planning the future or versions of various forecasts of strategic potential management of events of varying degrees of probability and their impact on the world of ideas and developing trends, to find the expected compromise or avoid insurmountable contradictions [9].

In Soviet times, our state was the leader in the meaning and ideological defense of the potential discourse of reconciling a bipolar world with a set of growing contradictions and challenges, forcing us to adjust both the party course and the economy to the dreams or wishes of the classes that formed the basis of socialist construction: workers, peasants and intellectuals, who, according to the approaches of V.I. Lenin, it was worth “reorganizing” for its subsequent adequacy and

loyalty to the development of social institutions, so that it would cease to be “shit”, could not continue to behave apathetically and defiantly, “like a kitchenette”...

Therefore, the modern world, which lives at the junction of the earth’s flora and fauna and the dead and cold space surrounding us, must always remember that everything is finite and how much we are present in the drama of our existence or play the pathetic role of a hero striving to achieve infinity or eternity is not something to decide us, but God’s Will, called providence, Fate, the threads of the three moiras, karma, the elementary ambition of the powers that be, exercising their power over the world through total and, alas, far from perfect, institutions of global governance. Therefore, corporatocracy itself, as the apotheosis of the unity of TNCs and TNBs, on the body of the fading global grid of sovereignty of national economies, must understand the force of compression of the spring and the speed of its return, the force of impact. Degradation to the level of small industries of global industries that have lost their own interests and are escaping through fragmentation and clustering of geographical zoning and glocalization of their own resources cannot radically affect the involvement of national personnel themselves in the orgy of rebuilding post-Covid labor flows, “brain drain”, making our world extremely volatile and unpredictable [10].

For example, in the Land of the Rising Sun, despite the growing energy shortage and the imbalance between different parts of the islands in its development, the introduction of renewable energy sources encounters significant and legitimized resistance from the ruling industrial and banking circles. Based on their own priorities, under the guise of the “green agenda”, more expensive and cascaded photovoltaic installations and energy storage systems obtained from them are used, which are more to the liking of the authorities, despite their obvious cost. At the same time, in comparison with them, wind turbines, generator blocks using the “wind rose” and the influence of tidal currents (including seismic and ocean-centric projects) would cost the samurai authorities much less, but they do not contribute to the interests of the local elite, which means the introduction of photovoltaic installations is happening faster and, on the basis of energy efficiency and energy saving standards created for them, will continue, drawing on the costs of municipalities and hiding under the banner of the growth of even greater “environmentally friendly cities” and “smart houses” and “energy-saving enterprises” [11].

This lobbying and stubbornness in choosing to use the fruits of scientific and technological revolution are characteristic of many states, not just Japan, because the ruling classes, representing the national oligarchy and embedded in the chains of creation and distribution of the additional value of global management institutions, are passionate about the search for business processes to maximize profits. This also leads to the accelerated burying of their competitors under the guise

of tightening the same ESG standards, which is especially evident today in the Asia-Pacific countries and in those places where the desire for energy leadership is becoming a manic goal in itself for plutocrats “thinking” about saving the planet, who do not give competently and rationally distribute financial tranches among truly needy countries and companies, declared under the guise of achieving the UN Millennium Declaration or its 17 SDGs (sustainable development goals) of equalizing earthly processes for improving the quality of life of all humanity from the super-rich to the increasingly poorer layers of the population mired in poverty and disease, hunger and ignorance [12].

At the same time, the emerging movement of such disadvantaged people as a set of events, the “tribe of gray rhinoceroses,” begins to snarl in its hopelessness and fatal doom to extinction and the lack of justice for them both from vital positions in the form of extremism and terrorism, and from the point of view international rights and personal freedoms, and from the standpoint of reviving natural opportunities for one’s own self-affirmation within the framework of private public law determined by them [13].

At the same time, the same lobbying forces us to continue to shelve the fruits of progress in the battle for the environment, in accordance with the covenants of the Paris climate agreement, but the same desire for profit in competition with traditional energy based on fossil energy sources, which does not allow innovation to take place the warmer and cleaner air around us destroys any good intentions [14].

For example, in the United States, as of 2013, the cost of solar energy was \$0.056 per kilowatt-hour, and wind energy was \$0.014. At the same time, the cost of a kilowatt-hour of energy from gas and coal costs 0.061 and 0.066 US dollars, respectively, which gives a chance of survival only to those who pay for the “shale revolution” [15], and it irreversibly destroys significant reserves of drinking water, and arable land, and deprives energy workers of a fair share of income in such a skewed energy balance of their country, bringing to life... “black swans” of the already irrevocable humanism of people who do not know themselves and are fighting for the priorities of their energy saturation known only to them. Saving the costs of heating and developing North American territories loses its meaning, because the risks of man-made disasters will not allow harvesting twice where it can only be harvested once and optimized, based on the positions of reasonable earnings and preserving the habitat as a place further development and set of vital functions of each participant in the life process. [16]

The transition to renewable energy sources is associated with a number of philosophical and economic problems, which, based on an analysis of data from 1990 to 2007 in the context of 24 European countries, proved that while coal limits economic growth opportunities, natural gas has no effect on it, and at the same time, the use of oil stimulates the growth of both the economy and all auxiliary in-

dustries that ensure the breakthrough of “blue chips” oil and gas companies [4;15]. This can only mean one thing: the cessation of the use of a certain set of natural resources affects economic growth, which may slow down and the competitive advantages of even the same renewable energy sources can be nullified [16].

This means that the struggle for an extra dollar, and not for the prosperity of specific people within a separate state, on the basis of the law and large numbers, and cumulative effects, unsuccessful combination of development maps and energy structures will continue to create imbalances that affect the planet itself and bear breakthroughs of the expected “gray rhinoceroses” running to the lakes of “black swans”, capable of fulfilling the final, and therefore, alas, “swan song” of humanity about its insatiable desire to earn everything and... perish...

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大學3.0框架內高等教育系統的研究活動

RESEARCH ACTIVITIES IN THE HIGHER EDUCATION SYSTEM WITHIN THE FRAMEWORK OF UNIVERSITY 3.0

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註解。 本文提供了有關高等教育機構活動領域的分析和實踐材料。 該活動旨在在州級已製定計劃的框架內培養大學內的研究科學家，幫助支持年輕科學家並推動所有行業和活動領域的新技術達到新的發展水平。

關鍵字：研究、科學家、科技、數位經濟。

Annotation. *The article presents analytical and practical material on the areas of activity of higher educational institutions. This activity is aimed at the development of research scientists within universities within the framework of developed programs at the state level that help support young scientists and promote new technologies to a new level of development in all industries and fields of activity.*

Keywords: *research, scientists, technology, digital economy.*

Introduction

The sphere of higher education has always been and remains the main social institution for the training and retraining of future researchers in the field of university, academic and industrial science that the country needs so much. Teachers of higher professional educational institutions are the main factor, the bearer of human capital in the form of knowledge, experience, skills, and competencies necessary for the sustainable reproduction of personnel.

Recently, it should be noted that there has been a growing wave of unreasonable formalized demands on teaching staff, which leads to an unnecessary increase in the intensity and tension of teachers' work. The phenomenon of restrictions on the academic freedoms of teaching staff is growing, regardless of the status of the university. However, the academic freedom of a teacher is one of the most important conditions in the work of the university and institutional environment. We are observing a trend towards a decrease in the worthy assessment of the productivity of the scientific activity of the teacher himself and the research process as a whole.

According to the study conducted by Shinyaeva T.S. and Tarasevich Y.Y. (8), currently in Russia there is no fair and understandable policy for objective assessment of the achieved results of scientific activity of a particular higher educational institution. At the same time, there is a practice of displaying formal labor accounting indicators.

Novelty.

The fundamental development of education and scientific and technological breakthrough is not possible without research activities. The novelty of the research lies in the reorganization and correct distribution of financial resources of the state and business allocated for scientific research.

Main part

The first strategic guidelines for the modernization of higher education were defined in the article by A. Fursenko, A. Volkov, D. Livanov "Higher Education: Agenda 2008-2016." and published in 2007 in the journal "Innovative Education and Economics". Here, approximate guidelines for the upcoming modernization of higher education were predetermined (2). It provides for a mandatory transition to two-level higher education with a simultaneous change in the model of financing higher education. (2, p. 11). It is quite obvious that with such an orientation, the long-term functioning of graduate school is practically impossible, and master's programs are mainly concentrated in large university centers in metropolitan areas. This can have an extremely negative impact on the strategic perspective of higher educational institutions and can lead to the loss of the possibility of personnel reproduction. At the moment, research activity is cyclical in nature. This process is presented in Figure 1.

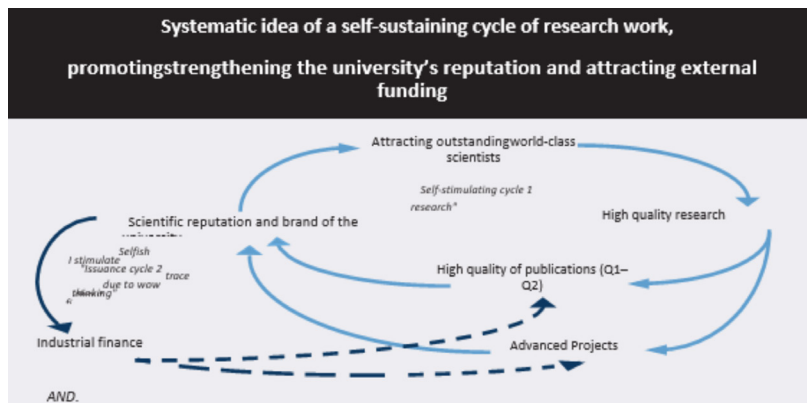


Figure 1. Systematic idea of a self-sustaining cycle of research work

One of the main challenges that universities face in terms of changing roles and missions is related to the funding model. In light of declining government funding and increasing involvement of the private and industry sectors, universities have to rethink their sources of income.

The analysis shows that public funding for universities in many countries is declining, and growth is provided through external sources. (3) However, in Russia, a significant share of research funding still depends on the state, although universities are actively looking for opportunities to attract extra-budgetary funds.

Currently, there is a need to make significant changes to the legislation on education. The already established traditional system of education and advanced training of specialists has a number of certain shortcomings.

They are as follows: specialists without higher or secondary specialized education, in accordance with the law, cannot take the necessary advanced training course. Without completing such courses in the educational program, graduating bachelors may not obtain the competencies necessary for the development of the digital economy. Also, the courses provided do not always correspond to the declared competencies.

Without the participation of the Ministry of Education and Science of the Russian Federation, at present, so-called educational services can be provided by individual entrepreneurs who have not received any licenses for this. Only the Federal Service for Supervision of Consumer Rights (RosPotrebNadzor) can control them.

The “digital economy” program provides for the creation of a system for the early identification of diverse talents in secondary educational institutions. But, unfortunately, to date there is no proper regulatory framework regulating the creation and operation of this system. This issue should be resolved soon.

According to average forecasts for the development of higher education, an assessment was made of the size of the country's population aged 17 to 30 years and the number of students studying in universities through funding from the federal budget in accordance with the Law "On Education in the Russian Federation".

Figure 2 shows funding data from the federal budget; 2342.7 thousand budget places were allocated in 2014, and 2000.4 thousand budget places were allocated in 2018. However, Rosstat data is much lower, for the study period 2014-2015 1990.5 thousand people were trained at the expense of the federal budget, and in 2015-2016 only -1859.9 thousand people.

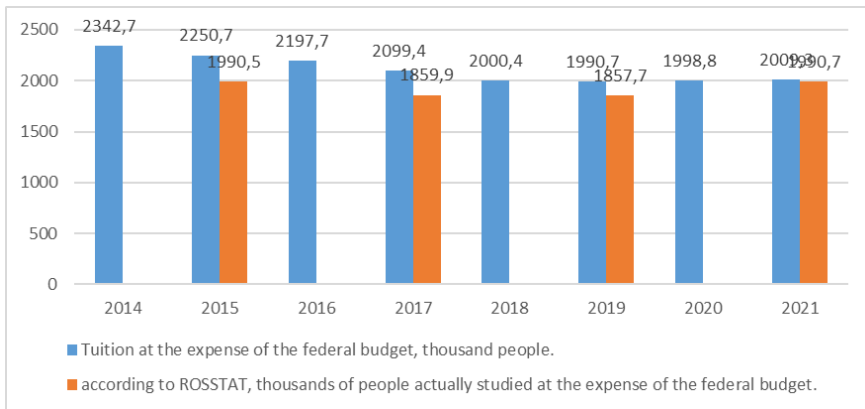


Figure 2. *Financing of budget places from the federal budget*

One of the main areas of research is the study of activities and financing in higher educational institutions. Sources of funding in higher educational institutions are income from educational activities. Their share accounts for up to 90%. The share of extra-budgetary funds in these incomes can be from 30 to 50%. The participation of educational institutions in federal programs, research work and commercial business agreements can be an additional source of income.

D. Katalevsky, N. Kosmodemyanskaya, A. Harutyunyan, K. Fortin Clément (3) proposed an approach focused on optimizing the financial and non-financial aspects of university portfolios of technological R&D and market-oriented educational programs. The idea is to maintain a balance between these aspects to achieve the strategic goals of universities, ensure financial stability and meet market demand for their services.

The goal is to create a balance between these aspects to achieve the strategic goals of universities, ensure financial sustainability and meet market demand for their services.

In addition to funding direct educational activities, the state allocates funds for priority areas of scientific research. When identifying priority areas, the RDPM matrix is used. See fig. 3.

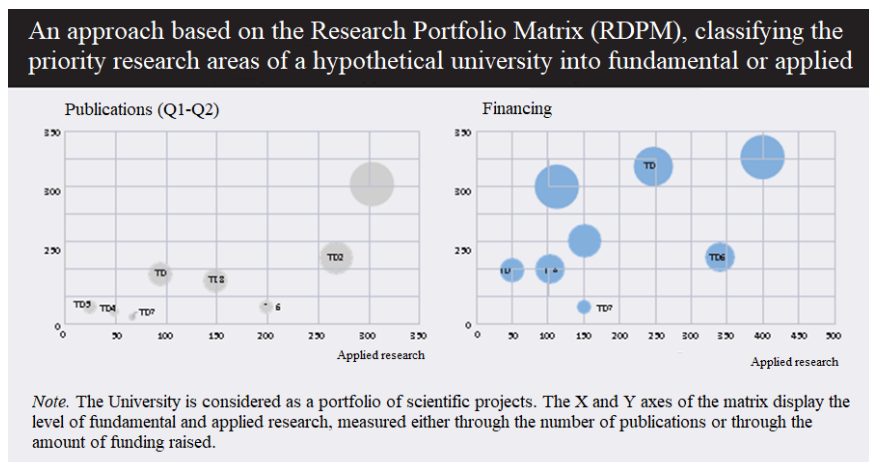


Figure 3. Priority areas of research

Optimization of financial aspects includes the development of effective models of financing, budget management and use of resources, as well as building a system for monitoring and controlling the financial activities of the university. This helps universities allocate financial resources effectively and cope with budget constraints, ensuring financial stability and sustainability. Non-financial aspects, including technological research and development, as well as market-oriented training programs, are based on an analysis of market demand and trends in education and innovation. Universities strive to develop and offer programs and services that meet market needs and contribute to the growth and development of society. They also actively research and develop new technologies, innovations and practices to remain at the forefront of their field and contribute to the public good.

In addition to government funding, universities themselves have priority areas for financial investments in research activities. The research portfolio matrix helps to highlight the most promising areas and sources of their funding. See fig. 4.

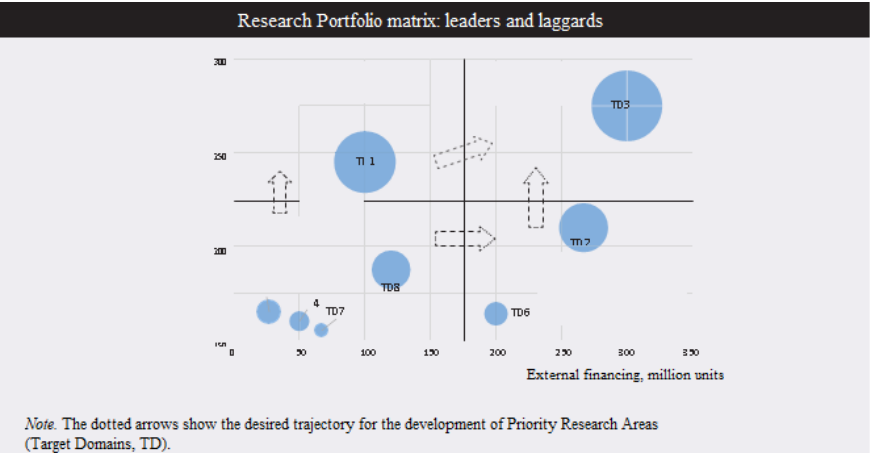


Figure 4. Research portfolio matrix

In summary, the proposed approach aims to ensure a balance between the financial and non-financial aspects of university portfolios. This helps universities achieve their strategic goals, ensure financial stability and meet market needs.

Let’s consider the number of awards received in the field of research activities of some leading universities.

Table 1
Number of awards in the field of research activities

Leading universities	Number of awards in the field of science and technology (2013/2022)
National Research Moscow State University of Civil Engineering	9
Moscow State University named after M.V. Lomonosov	7
Moscow State Technical University named after N.E. Bauman (national research university)	7
First Moscow State Medical University named after I.M. Sechenov of the Ministry of Health of the Russian Federation	6
National Research University «MPEI»	5

The research aspect is an integral element of the higher education system within the framework of University 3.0. It allows you to confirm, develop and re-

vise existing knowledge, as well as create innovations. However, to achieve these goals, existing problems must be overcome, such as the relatively low level of scientific research and insufficient interaction with public needs.

Conclusion

From all of the above, I would like to highlight the need to develop the research activities of students and teachers, to provide them with resources and opportunities to conduct research. This will help not only improve the quality of education, but also ensure the growth and development of science-intensive technological processes in all industries and areas of activity at the state level.

The changing role of universities and the transition to active participation in the development of society requires new funding models. Reducing public funds is unacceptable, but it is worth focusing on increasing the role of the private sector. This circumstance will help stimulate universities to search for additional sources of income and strengthen international cooperation. In this situation, it is important to develop effective strategies that will allow universities not only to attract extra-budgetary funds, but also to integrate into the global research environment.

This is the only way to ensure a high level of education, innovative development and compliance with the requirements of modern society.

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法人組織和進行索賠工作的特點
**FEATURES OF THE ORGANIZATION AND CONDUCT OF CLAIM
WORK FOR LEGAL ENTITIES**

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註解。就像這個概念本身一樣，訴訟制度大約在兩千多年前就出現了，從那時起它就成為保護人類權利的最完美方式。

早在羅馬帝國時代，這種說法就已經成為研究的對象。

隨後，律師普布利烏斯·尤文圖斯 (Publius Juventius) 引入了「訴訟」一詞，它被理解為在法庭上主張自己應得的權利。

在現代世界，對權利要求概念形成問題的討論不僅是國內個別科學家的研究，也是俄羅斯和國外領先的過程主義者的積極討論。

索賠工作始終先於提交索賠聲明，對於許多索賠來說，此階段是強制性的。

關鍵字：索賠工作、索賠、預審階段、爭議。

Annotation. *Like the concept itself, the institution of a lawsuit appeared about two thousand years ago, and since then it has been the most perfect way to protect the rights of mankind.*

Back in the days of the Roman Empire, the claim was already the object of research.

Then the lawyer Publius Juventius introduced the term “action”, which was understood as the right to claim in court what you are entitled to.

In the modern world, the discussion of the problem of the formation of the concept of a claim is not only studied by individual domestic scientists, but is also subject to active discussion by leading processualists in Russia and foreign countries.

Claim work always precedes the filing of a statement of claim and for many claims this stage is mandatory.

Keywords: *claim work, claim, pre-trial stage, dispute.*

Despite the fact that the category “claim” is one of the fundamental ones for civil procedural law, modern legislation regulating this area does not include a legal definition of this category.

It is worth saying that, in general, modern jurisprudence does not have a consensus on the definition of this category.

But, despite the fairly large number of definitions, all of them can be grouped, since when analyzing them it becomes clear that all definitions represent three directions of understanding this category.

Experts who adhere to the first direction say that a lawsuit is a remedy.

Using such a means, an interested person can apply to a state jurisdictional body (court) with a request that it, using its existing powers, resolve the legal conflict that has arisen, i.e. carried out the protection of the subjective rights or existing interests of this person or any other party against whom this person filed a lawsuit.

Within this understanding of the category “claim” it is said that filing a claim is the basis for initiating proceedings in a case.

Claims work is an important component of the process of resolving disputes and conflicts between the parties. This is a legal procedure in which one party expresses its grievances and demands against the other party, with the aim of achieving a peaceful settlement of differences.

The basis of claims work is the desire to establish contact between the parties, provide them with the opportunity to exchange their positions and develop a constructive solution to the dispute without involving the courts. This approach allows you to reduce the costs of considering a case and speed up the process of conflict resolution.

An important feature of claims work is the formal direction of a written appeal from one party to the other. Such an appeal contains substantive arguments, facts and evidence confirming the basis of the claims. In this case, the legal skills of the writer play a decisive role, since the accuracy and correctness of the presentation of the argument are important factors in determining the claim.

The main goal of claims work is to achieve a mutually beneficial agreement between the parties. However, this is not always possible, since the other party may not recognize the basis of the claims or may reject the possibility of resolving the dispute. In such cases, claims work can serve as a preliminary step to initiating legal proceedings.

In the modern world, claims work is widespread in the field of commercial relations, family law, labor disputes and civil law relations. Claim work can be carried out by legal entities, as well as individuals whose legal capacity is not limited.

Overall, claims handling plays an important role in the dispute resolution system, helping to save time and resources, as well as preserving business and personal relationships between the parties. As a professional writer with legal writing skills, I am ready to draft a letter of claim that most effectively expresses the client's interests and is aimed at achieving a constructive resolution of the dispute.

A claim as a demand for protection must indicate who is demanding and for whose benefit, what is being demanded and on what basis. A mandatory component of the concept of a claim must indicate the purpose of the claim. A claim is a demand strictly defined in purpose, content and addressee.

The purpose of any claim is to protect a violated or challenged right or legitimate interest.

An essential feature of a claim is the presence of disputing parties.

Supporting the point of view of defining a claim as a demand for the protection of a violated or disputed right or legally protected interest, let us present the essential characteristics of the concept of a claim:

1. A claim always involves a dispute over a right or interest.
2. The existence of a dispute about subjective law presupposes the presence of disputing subjects with opposing legal interests.

In the science of civil procedural law, including the history of its development, there is a fairly widespread view that only subjective civil rights are protected through a lawsuit.

For example, Konstantin Dmitrievich Kavelin once said that the formal side of claims is based on civil law, and divided claims into real, obligatory and personal.

Sergei Naumovich Abramov connected the lawsuit with the protection of subjective civil rights or legitimate interests.

In turn, Mark Arkadyevich Gurvich noted that filing a claim means going to court for the protection of civil law or an interest protected by law.

However, there is another point of view, which is based on the fact that the claim is a defense not only of subjective civil law, but also of other subjective rights, including administrative legal relations.

Galina Leonidovna Osokina says that the protection of a right or legitimate interest against its violation is what allows us to consider civil, criminal (accusation) and administrative claims as one-dimensional procedural phenomena, as varieties of a single generic concept of a claim, acting as a universal legal instrument to set the judicial machinery in motion in order to protect violated or contested rights or legitimate interests.

It is obvious that if the plaintiff does not have requirements to protect the violated right or legitimate interest, the claim is not possible.

In this regard, it should be noted that such a requirement for the court may exist not only as a result of a violation of subjective civil rights in the broad sense. A demand for protection may also be presented to the court if there is a threat of violation of rights and legitimate interests, for example, in the field of public legal relations.

An administrative plaintiff may go to court, for example, to protect interests that are affected in public legal relations.

Therefore, in this case, the claim will be a means of protecting public interests.

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使用數位金融資產的潛力

THE POTENTIAL OF USING DIGITAL FINANCIAL ASSETS

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註解。 本文探討了在俄羅斯聯邦立法背景下使用數位金融資產的潛力。此外，文章還討論了資訊系統營運商和數位金融資產交易營運商需要註冊的限制及其對產業發展的影響。同時，由於實施該法律的要求而開闢的前景也得到凸顯，例如刺激創新、提高俄羅斯金融市場的競爭力和擴大投資機會。

關鍵字：營運安全、立法、投資機會、投資者、資訊系統、競爭力、合法化、限制與前景、營運商註冊、金融創新、金融交易、數位轉型、數位金融資產、有效監管。

Annotation. *The article examines the potential for the use of digital financial assets in the context of the legislation of the Russian Federation. Also, the article discusses restrictions in the form of the need to register information system operators and digital financial asset exchange operators and their impact on the development of the industry. At the same time, the prospects that open up due to the implementation of the requirements of the law are highlighted, such as stimulating innovation, improving the competitiveness of the Russian financial market and expanding investment opportunities.*

Keywords: *security of operations, legislation, investment opportunities, investors, information systems, competitiveness, legalization, restrictions and prospects, registration of operators, financial innovation, financial transactions, digital transformation, digital financial assets, effective regulation.*

In the era of rapid development of digital technologies, financial assets based on digital technologies are becoming an integral part of the modern economic system. This phenomenon is attracting attention not only in finance, but also has significant potential for application in other areas. One of these areas is civil law - the science of civil law and civil relations. In this context, we will consider the potential of using digital financial assets (hereinafter referred to as DFA) within the framework of civil law studies, identifying the prospects and opportunities they provide for the development and improvement of modern civil legislation

On January 1, 2021, Federal Law No. 259-FL “On digital financial assets, digital currency and changes to legislation” came into force in Russia [1]. The law regulates relations in the issuance, accounting and circulation of digital funds and digital currency in the country. This publication analyzes the basic concepts of crypto-economics, presents new provisions of the law, and outlines possible directions for their application. The law defines four types of DFAs, including monetary claims and rights under equity securities. An important aspect is the distinction between a token, a digital asset and a crypto asset, as well as their possible applications in the context of the new law.

DFAs represent an evolution of traditional financial instruments (hereinafter referred to as FIs), introducing innovative forms of ownership and circulation of digital rights into the world of economics. According to the new Law, DFAs include digital rights, such as monetary claims, participation in equity securities and the right to participate in the capital of a non-public joint stock company.

The definition of digital law (DL) according to the Civil Code of the Russian Federation (Article 141.1) establishes that DL are obligations and other rights regulated by the information system [2]. In the context of DFA, this includes the ability to exercise, dispose of, and transfer these rights within the established rules of the information system [3].

Although DFAs include a wide range of digital rights, not all digital assets fall within this definition. Utilitarian digital rights, for example, are not included in the category of DFAs focused on monetary claims and equity securities [4]. Cash demands, as part of the DFA, are requests for the transfer of rubles or foreign currency. However, it is worth noting that Russian legislation does not recognize crypto-currencies such as Bitcoin and Ethereum as money. Equity securities, also included in the definition of DFAs, cover a wide range of FIs, from stocks and bonds to options. The legislation emphasizes their characteristics, including equal rights within the same issue.

Let’s look at the key concepts introduced by the DFA Law, and also analyze three important types of DFAs: crypto-currencies, tokens and digital bonds.

A token, or digital token, is a unit of accounting and measurement in a software interface or information system. This form of digital asset can serve a variety of functions in digital ecosystems, marking ownership or granting rights according to the established rules of the system. Tokens can be issued as crypto assets using cryptography, or simply represent digital assets, depending on the environment in which they are issued.

Crypto assets are digital assets issued using cryptography. This is an important distinction because cryptography provides security, tamper resistance, and authentication in the digital space. Cryptocurrencies such as Bitcoin are a form of crypto-assets, providing an alternative means of exchange that is not subject to central control.

Digital bonds represent a new type of FI in the digital era. These assets have the same basic characteristics as traditional bonds, but are issued, recorded and traded entirely in digital form. This simplifies management processes and ensures more efficient interaction in modern financial systems.

In the context of DFA legislation, the key concepts are distributed ledger (DL) and information system (IS). A distributed registry is a database that ensures the identity of information when using algorithms. At the same time, the ISO 22739:2020 standard gives a precise definition of PP and blockchain, emphasizing their immutability and design in such a way as to prevent changes in records [5].

DFAs, including crypto-currencies, tokens and digital bonds, represent an innovative approach to the creation and circulation of digital wealth. The diversity of these assets reflects the dynamics of modern financial technology and provides unique opportunities to participate in the digital economy. DFAs, in particular blockchain tokens, provide unique opportunities to transform traditional FIs. One of the most important areas of their application is the expression of company shares and shares in the form of tokens on the blockchain.

The pioneer of this innovative practice was CoinOffering Ltd., registered in 2016 in the Republic of the Marshall Islands. Its charter introduced a game-changing approach by recognizing the corporation's shares in the form of digital tokens on the Ethereum blockchain [6]. This introduced key changes to the mechanism for transferring shares, establishing strict rules through a smart contract located at the address 0x684282178b1d61164FEbCf9609cA195BeF9A33B5 [7]. According to the charter, the transfer of shares could be carried out exclusively in the form of transfer of the corresponding tokens through the specified smart contract, recognizing this method as the only valid one. This innovative step by CoinOffering Ltd. had a number of important consequences and determined new directions in the use of DFA. In particular:

The introduction of blockchain tokens opens the way for a wider range of investors, giving them access to company shares in a more democratic manner. Minimizing bureaucratic barriers and simplifying the transaction process contributes to a freer and more open market.

Blockchain technology provides a high level of security and transparency. The distributed nature of the ledger ensures that share ownership information cannot be manipulated or falsified, increasing investor confidence.

Digital tokens enable more efficient and timely exchange of shares, which improves liquidity. This is especially true when compared to traditional processes involving exchanges and intermediaries.

The ability to use smart contracts in equity management opens the door to new innovative models of corporate governance. Smart contracts can automate a number of processes, such as paying dividends and voting at shareholder meetings.

In the modern world, blockchain technologies and digital financial services are becoming increasingly important in the field of corporate relations. Against this backdrop, a new law is emerging in Russia, opening up opportunities for the introduction of innovative designs similar to those already successfully used in some American jurisdictions such as Delaware and Wyoming.

The cryptoshares.app project is becoming a shining example of this new stage of development. Created in accordance with the laws of these American states, this project is developing a platform for issuing electronic shares on the blockchain. Such innovative practices are recognized as effective and promising, which opens the way for similar initiatives in Russia [8].

The new law in the Russian Federation regarding DFA provides the opportunity to create similar structures in domestic jurisdiction. In particular, it promotes the tokenization of shares and the maintenance of a shareholder register on the blockchain. This is an important step towards digital transformation and increasing the efficiency of FI.

An important aspect is the possibility of creating hybrid structures that combine the legislation of different countries. For example, it could be a foreign company registered in the US that issues tokenized shares on a decentralized blockchain. Such a company may have a subsidiary in the Russian Federation, and its tokenized shares become available for acquisition and sale by residents of the Russian Federation through a Russian DFA exchange operator in accordance with Law No. 259-FZ. These innovative approaches not only expand opportunities for investors, but also help develop international partnerships and attract foreign investment. Equity tokenization represents a promising FI for creating more open and democratic financial markets, facilitating progress in the digital economy.

DFAs open up new horizons for innovation in finance and payments to the modern world. One of the most noticeable areas of their application is the area of monetary claims, and in particular bills of exchange. The question of whether the circulation of digital bills of exchange can be effectively implemented using blockchain technologies is the focus of the new DFA Law.

Initially, a bill of exchange, as a document of obligation, was created on paper. However, with the advent of the era of digitalization and the spread of blockchain technologies, the question arises: is it possible to adapt this ancient tool for use in the form of digital tokens?

Article 4 of the Federal Law “On Bills of Exchange and Promissory Note” states [9] that the bill must be drawn up on paper, which contradicts the idea of digitalization. However, the new legislation on DFAs implicitly indicates the possibility of introducing digital forms of bills of exchange. The term “monetary claims”, introduced by law, provides the opportunity to implement virtual bills in the form of digital tokens on the blockchain.

Digital bills can provide a number of advantages over traditional paper forms. First of all, they provide fast and secure transactions. Thanks to blockchain technology, digital bill transactions can happen instantly, minimizing the risks and delays associated with processing paper bills. In addition, the introduction of digital bills of exchange will reduce maintenance and document management costs. Eliminating the need for physical transfer of paper documents simplifies accounting and storage processes, which improves the efficiency and ease of use of promissory notes. However, despite the potential benefits, the introduction of digital bills also raises security and regulatory issues. A clear legal framework defining the status and protection of digital bills is needed to ensure trust among participants and prevent possible abuse.

In the era of rapid development of digital financial instruments, the implementation of digital bills becomes an important issue for economic efficiency and the development of financial markets. The assumption about the possibility of this implementation in Russia is supported by the Geneva Convention of 1930, aimed at resolving conflicts in the laws on bills of exchange and promissory notes.

Article 4 of the Federal Law “On Bills of Exchange and Promissory Note” currently requires that the bill of exchange be drawn up exclusively on paper. However, taking into account the provisions of Article 3 of the Geneva Convention of 1930, the Russian legislator can soften this restrictive aspect by recognizing that the form of acceptance of obligations under a bill of exchange can be determined by the law of the country in whose territory the obligations were signed [10]. This approach seems promising, given the progressive perception of digital technologies in modern society. The Geneva Convention opens the door to modern innovation and adaptation of the bill system to new realities. In the context of DFAs, this means that digital bills represented as tokens on the blockchain can meet the requirements of Article 3 of the Convention.

The integration of digital bills of exchange into Russian legislation has the potential to bring significant benefits. Electronic bills have a high degree of mobility and speed of transfer, which helps speed up financial transactions and reduce transaction costs. With the ability to conduct transactions in a digital environment, digital bills also provide transparency and security.

However, the introduction of digital bills also raises security and consumer protection issues. It is necessary to develop clear regulations that guarantee legal protection for participants in transactions with digital bills of exchange, and also ensure the prevention of possible fraudulent activities.

Thus, the presence of the Geneva Convention opens the legal path for the introduction of digital bills of exchange in Russia. This is not only a matter of improving legislation, but also of supporting technological progress that can make financial transactions more efficient and accessible.

The issue of digital bills is becoming a key in the development of financial markets. According to the Geneva Convention of 1930, if the obligations under a bill of exchange are signed in a place where electronic bills of exchange are not prohibited, then such a bill of exchange is considered valid in the territory of other states, even if it appears in a territory where electronic bills of exchange are officially prohibited.

In the case of Russia, the provisions of Article 4 of the Federal Law “On Bills of Exchange and Promissory Notes,” which requires the drafting of a bill of exchange only on paper, collide with the potential of digital bills of exchange. However, taking into account the Geneva Convention, it can be assumed that digital bills issued in countries where they are not prohibited will be valid in Russia, even if they are signed electronically.

To comply with Russian laws, a hybrid design could be considered, where a digital bill issued under foreign law is treated in Russia as a DFA in the form of a “cash claim.” This allows Russian residents to purchase and dispose of it through a DFA exchange operator.

An example of this practice can be seen in the use of English law and the Cryptonomica platform to issue digital bills in electronic form. Subject to compliance with the requirements of the Law, Russian residents can participate in the circulation of these digital bills through the DFA exchange operator.

Digital bills presented in this way could become a new stage in the development of FI. They combine the benefits of traditional bills with the power of digital technology to create an innovative means for efficient and secure financial transactions. The potential replacement for stable coins highlights the versatility and promise of such digital bills.

The introduction of DFA legislation in Russia creates both restrictions and prospects for financial market participants. On the one hand, the new Law provides a regulatory framework for the introduction of digital assets, which contributes to their legalization and increasing the level of confidence in this type of financial transactions. On the other hand, it imposes strict requirements, warning against potential risks and misunderstandings.

One of the significant restrictions proposed by the Law is the need to register information system (IS) operators and DFA exchange operators in the register of the Bank of Russia. This effort aims to control and secure DFA transactions, but at the same time, it introduces additional barriers to participation in this area, which may slow down the development of new technologies.

However, despite the restrictions introduced by the legislation, the new law opens up prospects for the development of the DFA industry. Fulfillment of requirements by IS operators and DFA exchange operators registered in the Bank of Russia register creates a structured and safe environment for working with DFAs.

This may attract the attention of investors and entrepreneurs who view DFA as a promising asset.

One important perspective is to stimulate innovation in the financial sector. The law provides a legislative framework for the creation and use of digital assets, which can facilitate the development of new FIs and technologies. Such innovations can increase the competitiveness of the Russian financial market on the world stage.

In addition, the prospects for DFA activities open up opportunities to diversify the investment portfolio and participate in projects that were previously limited. This could lead to increased accessibility of financial instruments to a wider audience and expanded investment opportunities.

Thus, the legislation on DFA, despite the restrictions introduced, creates a favorable environment for the development of the industry and stimulates innovative approaches in the financial sector, providing new opportunities for entrepreneurs and investors

The results of the study lead us to the conclusion that the prospects for the development of civil law in the context of the CFA involve not only overcoming challenges, but also the creation of a flexible, adaptive legal system. Recommendations for further research and legislative changes are aimed at ensuring effective regulation and protecting the interests of participants in transactions with DFAs in the context of digital transformation.

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在馬術治療課程中進行語言治療工作以培養殘疾兒童的溝通技能
**SPEECH THERAPY WORK ON THE DEVELOPMENT OF
COMMUNICATION SKILLS IN CHILDREN WITH DISABILITIES
DURING HIPPO THERAPY CLASSES**

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抽象的。研究的目的是比較殘疾兒童（即肌肉骨骼系統疾病）在言語治療或言語治療與馬術療法相結合的課程影響下運動和溝通技能的變化。調查涉及10名5-8歲的兒童，其中5人參加了馬術療法課程。溝通技能的診斷是根據非語言（溝通的非語言成分、聽覺感知、面部肌肉）和言語溝通（令人印象深刻的和表達性的言語、表語和發音詞彙、言語的語法結構）指標進行的。使用旨在製定診斷指標的普遍接受的方法對違反溝通技巧的行為進行了糾正。參加語言治療師和馬術治療課程的孩子顯著提高了他們的溝通技巧：溝通的非語言成分、聽覺感知、模仿肌肉的狀態、令人印象深刻的演講、預測詞典的狀態、歸因詞典的狀態、言語語法結構的狀態。

結論：結合馬術療法和語言治療師的課程來糾正運動技能障礙，有助於實現患有肌肉骨骼疾病和全身言語發育不良的兒童的溝通技能。所提出的方法對於矯正殘疾兒童的言語障礙是新穎的。

關鍵字：馬術治療、身心障礙兒童、溝通技巧。

Abstract. *The aim of the study was to compare the changes in motor and communication skills in children with disabilities, namely musculoskeletal system disorders, under the influence of classes with either a speech therapy or the speech therapy and a hippotherapy combined. The survey involved 10 children 5-8 years of age, 5 of whom attended hippotherapy classes. The diagnostics of communication skills was carried out according to the indicators of non-verbal (non-verbal components of communication, auditory perception, facial muscles) and verbal communication (impressive and expressive speech, predicative and articulatory vocabulary, grammatical structure of speech). Correction of violations of communication skills was carried out using generally accepted*

methods aimed at the development of diagnosed indicators. Children who attended classes with a speech therapist and hippotherapy classes significantly improved their communication skills: non-verbal components of communication, auditory perception, the state of mimic muscles, impressive speech, the state of the predictive dictionary, the state of the attributive dictionary, the state of the grammatical structure of speech.

Conclusions: correction of motor skills disorders using a combination of hippotherapy and classes with a speech therapist contributes to the actualization of communication skills in children with musculoskeletal disorders and systemic speech underdevelopment. The presented approach is novel for the correction of speech disorders in children with disabilities.

Keywords: *hippotherapy, children with disabilities, communication skills.*

Introduction. The problem of rehabilitation of children with disabilities with in modern Russian society is of serious importance, with respect to the increase of the number of children in this category. According to Rosstat, there are about 600 thousand children with disabilities in Russia. In this regard, one of the primary tasks in the country's social policy is the creation of a system for the rehabilitation of children with disabilities through psychological, pedagogical and medical and social support.

In recent years, therapeutic methods using animals, including horses, have been actively introduced into the field of rehabilitation of children with disabilities. Despite the fact that hippotherapy is mentioned in the works of Hippocrates, there are still no clear recommendations on the use of hippotherapy for rehabilitation purposes. The active growth of scientific research in this area began in 2006, when the results of observations of hippotherapy treatment had been described alongside with certain criteria the treatment effectiveness. Thus, at present, there is a discrepancy between the increased need of rehabilitation services using hippotherapy for children with disabilities and their parents, and the standardization of hippotherapy in Russia. Hippotherapy as wellness and adaptive riding has long been recognized all over the world as an effective method for correcting disorders of physical and mental development [8, 9, 12]. The American and Canadian Hippotherapy Association has developed standards for the certified clinical hippotherapy practitioner [3, 11]. Over the past 20 years, interest in hippotherapy has grown significantly in Russia. At the moment, there are more than 150 hippotherapy centers in Russia. However, despite such a rapidly growing popularity, there are very few theoretical and methodological works in this area. For this, it is important to identify psychological and pedagogical criteria for the effectiveness of hippotherapy [7, 10, 16].

The aim of this study was to study the effect of hippotherapy on communication skills in children with disabilities.

Materials and Methods. The cross-sectional study involved 10 children of 5-8 years old with disabilities, who attended hippotherapy classes. The examination included children with disorders of the musculoskeletal system (atonic-astatic, atonic-atactic forms of infantile cerebral palsy), spinal muscular atrophy. All children had systemic speech underdevelopment. Children were divided into groups: 1 - control group, with whom speech therapy was performed, aimed at correcting systemic speech underdevelopment ($n = 5$); 2 - the main one, the children from which attended hippotherapy classes and worked with a speech therapist to correct systemic speech underdevelopment ($n = 5$).

Hippotherapy classes were held in the equestrian club “House of the White Horse” (Rostov-on-Don) 2 times per week. The assessment of motor and communication skills was carried out in the main group after 10 sessions of hippotherapy and speech therapy, and in the control group before and after 10 sessions of speech therapy, 2 times per week.

Since all the examined children had systemic underdevelopment of speech, the assessment of speech skills, thinking and perception according to V. Strasmeier's test was not carried out. The assessment of communication skills was carried out by a speech therapist according to the following criteria: 1) P1 — non-verbal components of communication (contact productivity, motor and speech negativism, the ability to imitate, the manifestation of the child's gaze fixation); 2) P2 — auditory perception (reaction to the voice, the ability to determine the source of non-speech sound, distinguishing onomatopoeia by ear); 3) P3 — the state of mimic muscles (meaningful face, the presence of mimicry, the ability to perform mimic movements in imitation); 4) P4 — impressive speech (the state of the nominative vocabulary, the ability to correlate a name with a person, objects with their name and purpose, understanding of generalizing words); 5) P5 — the state of the predictive dictionary (using plot pictures); 6) P6 — the state of the attributive dictionary (understanding the names of the attributes of objects); 7) P7 — the state of the grammatical structure of speech (understanding of the singular and plural forms, the meanings of prepositions reflecting spatial relationships) Each of the listed criteria was assessed on the following scale: 0 points — unable to fulfill; 0.25 points — performs with outside help (stimulation, expansion of instructions, clarification of the question); 0.5 points — performs with minor errors (corrects independently or with the help of a clarifying question); 1 point — performs correctly, independently.

Correctional work was aimed at the development of communication skills, namely, the development of non-verbal means of communication, auditory perception, facial muscles, as well as predictive and attributive vocabulary, impres-

sive and expressive speech. For this, a set of didactic games was used, during which they taught the child to understand and isolate from speech the names of surrounding objects and actions with them, to answer simple questions using simple words or sound complexes, to designate the most common actions, some of their physiological and emotional-affective states, to express simple desires with simple requests and appeals, as well as to name parts of a person's body and clothing. Correctional work with children, subjected to both speech therapy and hippo-therapy, was carried out both in the hippotherapy class and in the stables: during didactic games, the child was introduced to animals, their conditions of detention, taught the skills of onomatopoeia, etc.

Statistical processing of results was conducted as follows: if the distribution of the initial data was normal, the Student's t-test was used to assess intergroup differences; if the hypothesis of normality was not met, the Mann-Whitney test was used. Statistical comparisons of these groups (control and main groups) were performed using the Statistica-10 software package. The differences were considered significant at $p < 0.05$.

Results. To identify the social factor of hippotherapy, that affects, among other things, the formation of communication skills, the results of correctional work with a speech therapist in children of the main and control groups were compared (Fig. 1). In both groups, there was a frank improvement in communication skills in children with disabilities. However, the combination of hippotherapy and speech therapy classes had a more favorable effect on all aspects of communication skills compared to speech therapy sessions only within the control group. Combined classes in hippotherapy and speech therapy contributed to the more pronounced changes in non-verbal communication (children made better contact, fixed their eyes on the required object, a pointing gesture and interest in eye contact appeared). These children had more representative improvements in determining the direction of both non-speech and speech sounds (improved auditory perception), facial muscles, which was manifested in the ability to either show interest in articulation or to perform facial exercises. After classes with a speech therapist in the main group, children were noted for the appearance of reactions to their name, for understanding in correlating objects with their names, including parts of the human body (improvement of impressive speech). When studying the predictive vocabulary in the main group, a more representative improvement in understanding of actions performed with an object was found when using plot pictures, and when examining the attributive vocabulary, extensions of the attributes of objects (size, color) were noted. At the same time, those children showed a more significant improvement in the grammatical system of speech within the scope of understanding the meaning of the prepositions "in", "on", "under". Also, in the children of the main group, after hippotherapy classes, the appearance of the ability to onomat-

opoeia was established, in some cases — to the appearance of the first conscious verb forms (“give”, “stop”, etc.), expansion of vocabulary. For comparison, in the control group, these changes were less pronounced.

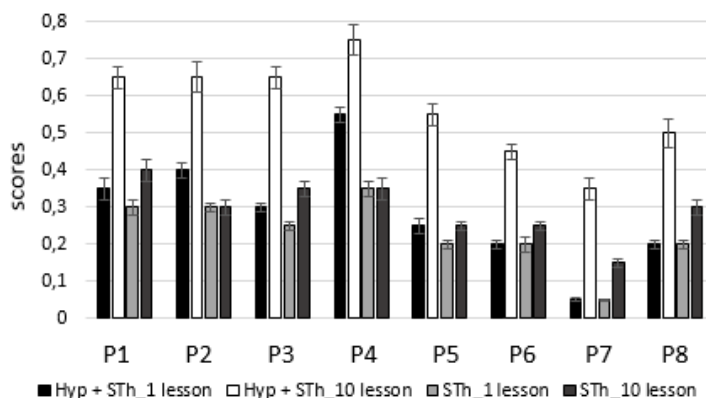


Figure 1. Indicators of communication skills in children with disabilities in the main and control groups before and after classes with a speech therapist (Compiled by the authors).

Note: Hyp + STh_1 lesson - data from children of the main group in the 1st lesson; Hyp + STh_10 lesson - data from the children of the main group in the 10th lesson; STh_1 lesson - data from children of the control group for 1 lesson; STh_10 lesson - data from children of the control group for 10 lessons.

Discussion

The emergence of communication skills is one of the important stages in the process of rehabilitation and habilitation in children with disabilities. This applies to both non-verbal [13] and verbal means of communication [6]. Among other things, it was found that for the successful use of communicative gestures, it is necessary to integrate several developmental skills associated with social, cognitive and motor abilities [15]. Normally, there is a pronounced longitudinal relationship between gesture use and perception [14], as well as verbal communication [5].

In this study, a connection between non-verbal and verbal means of communication and motor skills in children with disabilities (with disorders of the musculoskeletal system) was established. A comparison of these indicators in children who are engaged in a speech therapy group, as well as in children who received speech therapy assistance and at the same time attended hippotherapy classes,

showed the high efficiency of hippotherapy, which consists in its general beneficial effect on different aspects of the motor development of children. At the same time, the influence of hippotherapy is not limited only to the development of motor skills: in children who attended hippotherapy classes, the indicators of non-verbal components of communication, the work of facial muscles, auditory perception, and also verbal means of communication significantly improved. Moreover, these changes in communication skills were much more pronounced relative to the group of children who did not attend hippotherapy classes.

These results support the earlier suggestion that motor development plays an important role in speech development: children with speech impairments have difficulty performing various motor tasks [1]. Disorders of motor skills in them are observed not only at the level of oral and fine motor skills, but also at the level of general motor skills. These observations formed the basis for the hypothesis of a genetic basis for the combination of motor and communication skills [2]. Violations of these skills are accompanied by a cascade of deviations that do not fall within the scope of motor development only: impaired communication and cognition [4, 6]. These views are consistent with the results presented in the study.

Conclusion

This study compares the influence of hippotherapy classes on the formation of motor and communication skills in children with disabilities and disorders of the musculoskeletal system. It was found that the most pronounced effect of hippotherapy classes is on fine and general motor skills. Correction of movement disorders with the use of hippotherapy classes is an effective factor in the actualization of communication skills in children with disabilities: compared with children who do not engage in hippotherapy, children from the group attending hippotherapy classes show significant progress in both non-verbal and verbal communication skills (against the background of classes with a speech therapist for children of both groups).

The obtained confirmation of the effectiveness of the influence of hippotherapy on motor and communication skills may form the basis for further research in this area, as well as for recommending the combined conduct of speech therapy and hippotherapy classes in the scope of corrective work with children with disabilities of other nosological groups (visually impaired / blind, hearing impaired / blind, with delayed speech and / or mental development, children with autism spectrum disorders), who have no contraindications to hippotherapy.

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資訊和電腦科技在未來音樂教師系統器樂和表演培訓中的應用
**INFORMATION AND COMPUTER TECHNOLOGIES IN THE
SYSTEM INSTRUMENTAL AND PERFORMING TRAINING OF
FUTURE MUSIC TEACHERS**

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抽象的。文章強調了資訊和電腦科技在未來音樂教師的器樂和表演培訓系統中的作用。

關鍵字: 電腦科技、器樂和表演訓練、學生、方法。

Abstract. *The article highlights the role of information and computer technologies in the system of instrumental and performance training of future music teachers.*

Keywords: *computer technology, instrumental and performing training, students, methods.*

The global process of society's transition to information and computer technologies requires significant changes in many areas of human activity. First of all, this concerns education. The national doctrine for the development of education in Russia provides for the development of education on the basis of new progressive concepts, the introduction of the latest pedagogical technologies, scientific and methodological achievements into the educational process, and the creation of a new system of information support for education. That is why modern society needs a generation of teachers who are able to initiate new ideas, produce original ones, actualize their own creativity both in personal life and in the professional educational sphere, who are capable of ensuring the progressive development of domestic education in accordance with world standards.

Today we are not only witnesses to the information revolution, but also its participants. Under such conditions, teachers of higher educational institutions teaching the academic disciplines "Main musical instrument", "Additional musical instrument", "Playing folk instruments", "Concertmaster class", "Ensemble", "Orchestral class", etc., face the need to use modern computer technologies in the process of developing instrumental and performing skills of future music teachers.

This approach significantly expands the possibilities for intensifying the educational process, and the level of computerization becomes a decisive indicator for assessing the viability of modern education in general and music education in particular.

An analysis of scientific sources gives reason to believe that in music pedagogy the issues of developing the instrumental and performing skills of future teachers are covered in the works of foreign and domestic musicians-teachers: G.M. Kogan, E.Ya. Liberman, G.G. Neuhaus, (piano); G.T. Stativkin, M.I. Imkhanitsky, I.G. Puritsa, N.Ya. Chaikin, V.I. Petukhov, S.F. Naiko, V.A. Semenov and others (accordion, accordion); P.S. Agafoshin, A.M. Ivanov-Kramskoy, E.D. Larichev, P.N. Veshchitsky, I.E. Kuznetsov and others (guitar); V.V. Sumerkin, A.I. Usov, A.A. Fedotov and others (wind instruments).

But today the problem of using modern

Information and computer technologies in the system of instrumental and performing training of future music teachers are not sufficiently covered in the scientific and methodological literature.

In particular, scientists worked on the study of this problem: I.B. Gorbunova, M.S. Zalivadny, O.O. Borozdina, A.A. Karabanova, E.M. Panferova.

Scientist I.B. Gorbunova believes that "...the use of musical and computer technologies in the system of instrumental and performing training will help increase the amount of information through the use of multimedia, diversify the forms of training, self-training and self-control of students" [2, p. 123].

Today's pedagogical problems of developing readiness for instrumental-performing activities are a natural reflection of the contradictions that arise between the growing requirements for the quality of training of a future teacher and the established practice of university education between theoretical and performing training of students, and their ability to implement acquired knowledge and skills in professional activities [1, p.135].

The purpose of the article is to highlight the role of information and computer technologies in the system of instrumental and performance training of future music teachers.

Instrumental and performing training of future music teachers is an active form of their self-expression and self-affirmation, and therefore occupies an important place in the educational process.

Musicologists consider instrumental-performing activity as "... a complex, multifaceted and multifunctional process of manifestation by a musician of his own creative abilities, the disclosure of his individuality, a reflection of the acquired aesthetic and performing experience, and associative connections. Like any other activity, it presupposes the presence of a motive that gives it direction and meets the interests, needs, and aesthetic value orientations of the performer" [3, p. 5].

According to modern scientist A.A. Pankova, instrumental and performing training of a music teacher should be considered as "... the process of becoming a harmoniously balanced musician who knows rational ways of working on an instrument, competently understands the text of a musical work and is able to carefully think through his own interpretation, synthesizing different performing traditions" [4, p. 342].

Now a modern teacher in the professional system

instrumental and performing training of students of music and art faculties is increasingly turning to information and computer technologies.

Today, some teaching practitioners believe that the development of practical skills in instrumental and performing activities in students should be based on the principle of interdisciplinary interaction of a number of educational disciplines of the artistic direction ("Main musical instrument", "Accompanist class", "Additional musical instrument") in combined with educational disciplines of an informative nature ("Musical Informatics", Computer Modeling and Arrangements", "Practical Course in Music Writing on a PC").

It should be noted that the introduction of information and computer technologies into the system of instrumental and performance training of future music teachers is a controlled process that ensures optimization of their professional training, adaptation to the conditions of a modern school and requires a certain rethinking of the methodological training system.

In particular, such a methodological system using the latest computer modeling methods provides for:

- * transfer of knowledge and skills in intellectual and practical activities;
- * formation of methods of creative activity;
- * general scientific and general cultural training;
- * mastery of various aspects of the chosen specialty;
- * using the acquired knowledge, skills and abilities directly in everyday life;
- * accumulation of one's own practical experience, which will become the basis for further improvement of professional activity and self-realization of a young specialist in the information space of modern society;
- * adaptation to the conditions of a modern school.

The implementation of these tasks largely depends on the formation of the readiness of future music teachers for professional pedagogical work, in particular, instrumental-performing activity, which is the basis of the professional qualities of the future teacher and an important component of his pedagogical activity. The use of computer technologies in instrumental and performance training of students involves the use of the following areas:

- * programs for listening to music;
- * applications for recording musical information on electronic media;

- * programs for the study of history and theory of music;
- * programs for creating and arranging music;
- * music editor applications for typing music text.

Analyzing the more detailed applications of computer technologies in instrumental-performing training, we can state that programs for listening to music are used to familiarize themselves with a piece of music, which is offered for study in the class of basic and additional musical instruments at the initial stage of work. Preliminary familiarization with a piece of music is necessary for determining its structural structure, analyzing artistic and technical features, as well as understanding the final sound design.

Undoubtedly, each teacher and student can have their own imagination about the interpretation of the musical composition they listened to, but, in our opinion, such a preliminary listening to the work will contribute to its more professional performance.

Preliminary listening to musical works occurs using a music player installed on the computer.

Using a player program in music classes is advisable, first of all, for listening to music in real time, which is usually accompanied by interesting and vivid video effects that correspond to the nature and specificity of the composition. And this, of course, significantly increases students' interest in the process of instrumental and performing training.

Of course, to listen to music you need to use a set of speakers (audio monitors). It is desirable that the speakers be active (with an amplifier and equalizer built into their housing), and their frequency response be in the range from 20 Hz to 20 kHz, this is the range of sound vibrations that the human ear perceives.

The next area of application of computer technology in the system of instrumental performance is programs for recording musical information on electronic media, which give the student the opportunity to record his own performance of a musical work, and then, together with the teacher, carefully analyze the results of his own work, first of all, to identify successful moments and shortcomings. This type of work can be provided by the Sound Forge computer program, which has extremely broad capabilities for working with video files and for recording; playback and editing of sound files in any audio format, including the popular MP 3. It is by listening to one's own music-making (play - listen - analyze), "... the student automatically forms his own experience of self-analysis, which becomes a priority for his growth as a performing musician, and then develops his creative abilities" [5, p. 132].

For instrumental and performance training of future music teachers, it is necessary to use computer programs of the so-called encyclopedic direction, which include dictionaries of musical terms, biographies of many composers, informa-

tion about performers, the structure and principles of sound production on many musical instruments, etc. Here you can also find relevant illustrations, audio and video fragments, as well as various quizzes that give everyone the opportunity to test their knowledge in the field of music.

As a means of creating, storing and reproducing illustrative materials, the computer is a very effective technical device in teaching. And the possibilities for operational data management are so great that they cannot be compared with any other types of technology.

A very important role in the instrumental and performing training of students of music and art faculties is played by a program for typing music text. Using the technical capabilities of a computer, students using such a program can record, edit and print musical texts planned for the study of musical works. Of course, music editors, like text editors, perform mainly a technical function, namely the written recording of musical notations. But in this case, the result of your own work can not only be seen, but also heard.

Today there are many different music editors, but all of them are significantly inferior in their technical characteristics to Finale and Sibelius. Thanks to their user-friendly interface and wide range of technical capabilities, they have been the leaders in music software for the past few years.

Of all the previously listed areas of application of information and computer technologies in the system of instrumental and performance training of future music teachers, programs for creating and arranging music also play an important role. First of all, this applies to those teachers of higher educational institutions teaching the academic disciplines “Instrumentation and Orchestration” and “Choral Arrangement”. Music editors such as Cubase SX, Sonar, Band-in-a-Box, which belong to the group of fairly advanced professional-level editors, can be of great help in their teaching activities.

As an example, let’s analyze a practical lesson in the academic discipline “Musical Informatics”. Here, in the process of mastering the content module “Computer Modeling and Arranging,” each student has the opportunity to realize himself as an arranger. After all, to work on a musical composition, a student can independently prepare the score of a future phonogram from the proposed clavier, select musical instruments to his liking, set their parameters, edit the dynamics of each instrumental part and the entire composition in general. As a rule, for this type of work, the teacher selects extended claviers with rich content, where a bass line with full accompaniment, various echoes, etc. would be interesting.

After successfully completing these tasks, students move on to the next, much more complex creative stage. For the arrangement, they are offered a musical text, where only a unanimous melody is recorded, and harmony and bass are indicated by digital symbols. When dealing with this type of musical notation, the student

arranger independently prescribes one or another structure of the instrumental composition: adds a bass line, forms a rhythmic and harmonic basis and can, at his discretion, introduce elements of polyphony, pedaling, etc. into the accompaniment.

Of course, for some, the proposed activities will be the first step to participation in such creative work, and for others, perhaps, an impetus for future professional activity. After all, the production of such creative works is an effective method for maintaining their creative activity and creates conditions for a fairly thorough mastery of the knowledge and practical skills of an arranger. Thus, it is possible to transfer a student from the category of a passive listener to a higher category - an active performer. Of course, demonstration projects made by students, most often, as a rule, do not pretend to be any kind of complexity, originality or "hit". Here's the main goal

- demonstrate technological techniques for working with musical material. But at the same time, as practice shows, over time, the literacy of their creative achievements constantly increases and improves, and finally, sometime in the future, for some, such work may become a conscious part of their musical thinking.

It should be noted that in addition to this combination of instrumental and performing training and information and computer technologies in practical classes, an important component in the structural formation of a music teacher's readiness for instrumental and performing activities is his independence, that is, the ability to approach creatively on the basis of potential and acquired knowledge and abilities to solve certain problems. Therefore, successful professional musical and performing development of a student is possible only if he is able to independently obtain the necessary knowledge and skills and navigate the multifaceted phenomena of musical art without outside help.

Conclusions. Thus, the specificity of the performing activity of the future music teacher allows us to consider instrumental and performing training in combination with information and computer technologies as a necessary component of the professional development of students of music and art departments of universities. The use of innovative methods of instrumental and performing training in the educational process using information and computer technologies will contribute to the full professional development of future music teachers, increase mastery of the volume of information, a variety of forms of independent work, self-preparation and self-control, and will significantly reduce the time for working through educational material.

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訓練/同化單元作為向外國學生教授俄語的方法模型
**UNIT OF TRAINING/ ASSIMILATION AS A METHODOLOGICAL
MODEL FOR TEACHING RUSSIAN TO FOREIGN STUDENTS**

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抽象的。 本文將訓練和同化單元的概念定義為方法論類別及其要求，由作為交流認知活動的學習方法決定； 這概念的特徵和內容是結合言語活動教學任務給予的。

在討論訓練單元 (TU) /同化單元 (AU) 問題時，我們需要考慮問題的兩個不同但密切相關的面向：

- 理解TU/AU作為方法論類別的概念及其要求，這是由作為一種交際認知活動的學習方法決定的；
- 澄清這概念的性質和具體內容與教導某種言語活動的任務有關。

關鍵字：訓練單元、同化、概念內容、建模、功能、溝通認知活動。

Abstract. *The article defines the concept of a unit of training and assimilation as a methodological category and requirements for it, dictated by the approach to learning as a communicative-cognitive activity; The characteristics and content of this concept are given in relation to the task of teaching speech activity.*

When discussing the problem of a unit of training (TU)/unit of assimilation (AU), we proceed from the need to take into account two different, but closely interrelated aspects of the problem:

- *understanding the very concept of TU/AU as a methodological category and the requirements for it, dictated by the approach to learning as a communicative-cognitive activity;*
- *clarification of the nature and specific content of this concept in relation to the task of teaching a certain type of speech activity.*

Keywords: *unit of training, assimilation, concept content, modeling, functions, communicative cognitive activity.*

Analyzing and generalizing the trends that have developed in the methodological understanding of the concept of TU/AU, we came to the following conclusion: the main disagreements lie in the object chosen for consideration and

methodological modeling. As such, speech activity and speech action as its unit were considered; educational activity and its unit – educational action; speech product – utterance (speech work, text, discourse). Without contradicting each other, each of the solutions turns out to be one-sided, focusing attention only on some aspects of this obviously complex concept [1-8] Therefore, the first task is to consider the concept of unit of learning/unit of acquisition from various aspects. When discussing the concept of TU/AU, we proceed from a number of general theoretical provisions: TU/AU is a methodological model that reflects the most essential characteristics of the ability for a certain type of speech activity, formed through TU/AU; TU/AU must be communicative, which we understand 1) as its ability to correlate with a real communicative act that occurs in a certain context of students' cognitive activity in accordance with the real needs and goals of communication; 2) how its methodological purpose is to form the skills required in real communication conditions.

TU/AU should be differentiated depending on the type of speech activity and, in a methodically “prepared” form, reflect the specifics of this type and form of communication; differentiation of TU/AU depending on the type of speech activity that students master involves taking into account the specifics of the speech generation process, therefore there cannot be a universal model for productive and receptive types of speech activity.

TU/AU should reflect the dynamics of the process of formation and formulation of thoughts using the means of the language being studied in the type of speech activity being mastered. In addition, and this is the main thing, TU/AU is methodically expedient and clearly demonstrates the progressive development of communicative abilities in a specific type of speech activity.

The TU/AU must be comprehensive. In other words, a speech act as TU/AU is a complex of educational actions with language material that is subject to assimilation, in the process of which the student masters a certain type of ability to solve communicative-cognitive communication tasks using foreign language means.

TU/AU as a methodological model of a real process and the ability to communicate is a hierarchically organized system, all components of which are connected and represent the main features of a particular communicative process, as well as the progressive complication of skills as a measure of abilities acquired in the learning process. The presence of one level of TU/AU determines another and is impossible without it - this destroys the integrity of the system, which presupposes a methodically ranked achievement of each successive learning goal.

Summarizing the above, we propose the following definition of the concept under discussion: TU/AU is a methodological model of a dynamic system of hierarchically organized speech actions; Each level of this hierarchy in different ways,

but in interconnection, represents the main psycholinguistic characteristics of the type of speech activity that students master [9-10].

As a methodological category, TU/AU performs a number of functions in the educational process:

The representing function of the TU/AU is that at each hierarchical level the components of speech activity to be mastered are comprehensively presented for students' actual awareness. We mean foreign language means (phonetic, lexical, grammatical), rules for their use, typified speech works (texts, statements) created to solve certain communicative and cognitive tasks of communication. These learning objects must be represented by appropriate presentation units. The units of presentation are speech samples of typified products of speech activity (statement, text), semantic-syntactic structures for constructing sentences, logical-syntactic schemes for constructing super phrasal units, formulations of communicative tasks, rules-instructions for performing educational actions, algorithms of actions, etc. In other words, we raise the question of a comprehensive presentation of the TU/AU by presentation units of different nature. A comprehensive representation of a unit of learning allows us to take into account the personal characteristics of students: their cognitive preferences, learning styles, past experience of educational and cognitive activity.

Determining function. The TU/AU system, like each level unit, due to its basic communicative characteristics, presupposes forms and sequence of work that correspond to its quality, ensuring the assimilation of educational material and actions with it. Based on the communicative essence of TU/AU, we can say that exercises and tasks must correspond to those phases that determine the structure of any act of communicative-cognitive activity. We believe that the organization of educational activities in the form of exercises is a derivative of the above-mentioned function of the TU/AU, because the sequence of educational actions is determined by the choice of TU/AU.

Controlling function. TU/AU serves as a measure of students' communicative abilities. This function is to help the teacher and student identify the achieved level of language proficiency and determine at what level and what requires improvement. The complex nature of TU/AU allows us to talk about the possibility of various objects of control of assimilation. We can talk about the objects of aspectual (operations - components of the TU/AU) and complex control of the development of speech action at a certain level. At each level of TU/AU, it is the quality of performance of a speech act that objectifies the communicative skills acquired by students.

The hierarchical organization of the TU/AU system assumes the cyclical nature of ongoing control of language acquisition as a means of communication. At the same time, we can raise the question of the differentiated activity of students'

consciousness at one or another level of the TU/AU, i.e. identify components that are actually conscious, consciously controlled, and components that have been brought to the point of automatism. In the learning process, this aspect of activity is dynamic, since what is consciously controlled at a lower level is then transferred to the level of automaticity [10].

The general theoretical principles outlined above lead us to the following conclusions:

1. The question of the TU/AU a foreign language, and Russian as a foreign language in particular, requires a rethinking of previously formulated definitions and interpretation of the functions it performs in the learning process.
2. A TU/AU is a methodological model of the dynamic process of developing students' ability to master one or another type of speech activity.
3. In the educational process, the TU/AU performs representing, determining, and controlling functions.
4. The TU/AU is differentiated depending on the type of speech activity and reflects psycholinguistic features and communicative-cognitive processes specific to a particular type of speech activity.

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輔導方法在教育過程中的重要性

THE IMPORTANCE OF THE COACHING APPROACH IN THE EDUCATIONAL PROCESS

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註解。 本文探討了科技快速進步和全球化背景下不斷變化的教育格局。 它強調教育系統需要從傳統的、以知識為中心的方法轉變為培養學生的終身學習技能和適應能力，為他們應對瞬息萬變的世界做好準備。 本文分析了在教育過程中應用輔導來培養學生獨立性和責任感等品質的重要性。 研究了輔導的實證例子，證明了其對學習有效性和學生動機發展的正面影響。 此外，對學術數據的回顧強調了了解大腦功能和神經系統原理對於教育策略的最佳應用的重要性。 強調現代教育體系可以受益於輔導和理解大腦活動的整合，有助於學生個人能力的發展，為他們的教育和個人成長創造良好的環境。

關鍵字: 教育、學習、教師能力、教育挑戰、輔導、教學。

Annotation. This article addresses the evolving landscape of education in the context of rapid technological advancement and globalization. It emphasizes the need for education systems to shift from traditional, knowledge-centric approaches to fostering lifelong learning skills and adaptability in students, preparing them for a swiftly changing world. This article analyzes the importance of applying coaching in the educational process to develop qualities such as independence and responsibility in students. Empirical examples of coaching are examined, demonstrating its positive impact on the effectiveness of learning and the development of student motivation. Additionally, the review of academic data underscores the importance of understanding the principles of brain function and the nervous system for the optimal application of educational strategies. It is emphasized that the modern educational system can benefit from the integration of coaching and understanding brain activity, contributing to the development of students' individual abilities and creating a favorable environment for their education and personal growth.

Keywords: Education, Learning, Teacher Competencies, Educational Challenges, Coaching, Teaching.

In many countries, there has been a significant increase in the number of people with higher education. However, simply producing more of the same education will not be sufficient to tackle future challenges in a world that is rapidly evolving. Teachers face a difficult predicament as routine cognitive skills, which are the easiest to teach and test, are also the easiest to automate, digitize, and outsource. In the past, teachers could expect their teachings to last a lifetime for their students, but now with individuals having access to information on Google and jobs changing quickly, education systems must focus on enabling individuals to become lifelong learners who can manage complex ways of thinking and working that computers cannot easily take over. Students must not only be able to adapt constantly but also learn and grow continuously and position themselves in a fast-changing world. With rapid technological advances and globalisation, education is becoming even more important for adapting to changing environments and succeeding in life.

Many nations around the world have undertaken wide-ranging reforms of curriculum, instruction, and assessments with the intention of better preparing all children for the higher educational demands of life and work in the 21st century. What are the skills that young people need to be successful in this rapidly changing world and what competencies do teachers need, in turn, to effectively teach those skills? This leads to the question what teacher preparation programs are needed to prepare graduates who are ready to teach well in a 21st century classroom. While comparative evidence on this is still scarce. [2]

With the development of technology and access to information, the requirements for the skills that are needed for students to successfully adapt to real-life situations and future professional challenges are changing. Many professions and fields of knowledge are becoming more technology-oriented, which requires new approaches to education. In the light of the global economy and the diversity of cultures, there is also a need to develop flexible and adaptive skills to facilitate successful integration into the global community and to work effectively in multinational markets.

At the same time, research shows that some parents are overly anxious about their children's academic success and try to control their children's actions and decisions, which can lead to limiting the development of their responsibility and autonomy. Thus, anxiety and stress in the learning process appears. It can be caused by various reasons, such as academic pressure, social expectations, transitional periods (e.g. the beginning of a new school year), and many other factors. It may also be related to parents' need to maintain high standards in their children's education and success in a competitive environment. However, this approach may not be effective, as it may hinder the development of children's autonomy, decision-making and problem-solving skills. Various factors can create multiple sources of anx-

ity for parents, which affects their ability to rationally assess the situation and perceive real risks. Accumulated stress and anxiety in modern parents can affect the level of trust in others for both parents and their children, which can lead to isolation and lack of emotional support. Persistent stress and anxiety lead to the development of anxiety and depression in parents, which has a negative impact on their ability to effectively parent, teach and support their children. To resist these effects, it is important for parents to pay attention to their mental health, set healthy boundaries in the flow of information, and strive for a balance between societal expectations and the actual needs and abilities of their children.

Pedagogy is coming to realise that in order to do this successfully, it is necessary to foster a positive, successful environment, to systematically monitor the student's progress and triumphs, and to provide a format of ongoing mentoring with maximum support."

In today's world, learners are faced with constant change and an accelerated pace of life. Developing responsibility and autonomy enables learners to recognise their own potential and skills. Acquiring these skills enables them to participate independently and consciously in decision-making, which contributes to their personal growth and fulfilment. They can utilise their creative potential more fully and become more aware of their goals and desires.

These factors create a need to explore and develop effective strategies for relieving stress and anxiety in parents, as well as for developing sustainable and psychologically healthy approaches to raising and educating the younger generation. Thus, the use of coaching can be an effective tool for teachers and educators who face anxiety and stress in learners, as it helps not only to achieve goals, but also to develop the skills and qualities needed to successfully raise and educate the young generation. This approach can help them recognise their emotions, develop strategies to manage them and develop problem-solving skills.

The use of coaching enables learners to become more involved in their educational process, recognise their potential and develop plans to achieve them. This can contribute to a deeper and more lasting education than simply using psychology. Teachers are in a very real sense the embodiment of leadership, providing direction, guidance, and feedback to their students in addition to acting as role models. Teachers may well thus benefit from developmental coaching that draws on theories of leadership. This study was both an experimental (randomly assigned conditions) and a quasi-experimental (pre-post) study. A randomized controlled design was used to explore the impact of coaching on goal attainment, mental health, workplace well-being, and resilience, and a quasi-experimental (pre-post) design was used to explore the impact of coaching on leadership styles. Forty-four high school teachers were randomly assigned to either coaching or a waitlist control group. The coaching used a cognitive-behavioral, solution-focused approach

and was informed by theories of self-leadership and transformational leadership. Participants in the coaching group received multirater feedback on their leadership style and undertook 10 coaching sessions conducted by professional coaches over a 20-week period. Compared with randomly allocated controls, participation in coaching was associated with increased goal attainment, reduced stress, and enhanced workplace well-being and resilience. Pre-post analyses for the coaching group indicated that coaching enhanced self-reported achievement and humanistic-encouraging components of constructive leadership styles and reduced self-reported aggressive/defensive and passive/defensive leadership styles. Findings suggest that coaching, as a professional development methodology, has great potential to contribute to the development and well-being of society beyond the corporate and organizational settings with which leadership coaching and executive coaching are normally associated. [1]

Coaching techniques can be applied in various fields of education, including school, higher education and vocational education.

In today's world, learners are faced with constant change and an accelerated pace of life. Developing responsibility and autonomy enables students to recognise their own potential and skills. The acquisition of these skills enables them to participate independently and consciously in decision-making, which contributes to their personal growth and fulfilment. They can utilise their creative potential more fully and become more aware of their goals and desires.

To relieve stress and anxiety in parents and to develop skills of autonomy and responsibility in learners, coaching can be an effective tool. The coaching approach focuses on achieving goals and developing skills and qualities in learners. In turn, psychology focuses on understanding human behaviour and thinking, which enables students to understand the causes of their emotions and behaviours and to change according to those emotions.

In conclusion, coaching can be a powerful tool for developing responsibility and autonomy in learners. It can help alleviate stress and anxiety in parents and educators, leading to a more sustainable and psychologically healthy approach to raising and educating the younger generation. By helping learners recognise their potential, develop problem-solving skills, and participate actively in decision-making, coaching can contribute to their personal growth and fulfilment. Furthermore, coaching can transform the way we approach education, empowering learners to take charge of their own development and achieve their goals. As such, coaching is an essential component of modern education, enabling learners to thrive in an ever-changing world.

The use of coaching in education allows learners to become more involved in their educational process, recognise their potential and develop plans to achieve them.[3] This can contribute to a deeper and more lasting education than simply

using psychology. In addition, a coaching approach can help parents set healthy boundaries and learn to balance society's expectations with their children's needs.

Research shows that the use of coaching in education can be an effective tool for teachers, educators, and parents who are dealing with anxiety and stress in learners. A coaching approach can help students identify their career goals and develop plans to achieve them. It can also help students develop communication, leadership and time management skills, which are important for a successful career in the future.

Overall, the use of coaching in education can be an effective tool for relieving stress and anxiety in parents, developing independence and responsibility skills in learners, and achieving career goals. A coaching approach can help students and parents recognise their emotions, develop strategies to manage them and develop problem-solving skills. This can foster deeper and more lasting learning, as well as increase trust and emotional support within the family and the wider community.

The use of coaching in the educational process can be an effective tool for fostering responsibility in students. Empirical examples of coaching application show that students trained with the help of coaching techniques show a higher level of responsibility and autonomy in their actions and successfully cope with the tasks set.

Coaching helps to stimulate the development of self-discipline, planning and decision-making skills in learners. Understanding the principles of the brain and nervous system helps learners to recognise which learning strategies are most effective for each of them and to put them into practice successfully.

Students, realising that the quality and effectiveness of their learning activities directly depend on their level of responsibility, take an active interest in the learning process and strive to achieve optimal results. The development of responsibility in students is a prerequisite for successful adaptation in adult life and can lead to more successful careers, stable relationships and a better ability to cope with life's challenges.

Further development and research into methods of fostering responsibility in the educational process can lead to even more effective preparation of students for life in the modern world. This can lead to improved learning outcomes, reduced underachievement of pupils and increased motivation to learn. The use of coaching and understanding of the brain and nervous system in the educational process is an important and effective tool for fostering responsibility in students.

In addition to fostering responsibility, coaching in education can also contribute to the development of emotional intelligence in learners. Emotional intelligence refers to the ability to recognise and manage one's own emotions, as well as the emotions of others. This is an important skill for success in both personal and professional relationships.

Coaching can help students develop self-awareness, self-regulation, motivation, empathy, and social skills, which are all components of emotional intelligence. By helping students recognise their emotions and develop strategies to manage them, coaching can improve their overall well-being and mental health.

Moreover, coaching can help students develop a growth mindset, which is the belief that intelligence and abilities can be developed through hard work and dedication. This mindset can lead to greater resilience and perseverance in the face of challenges, as well as a willingness to take risks and learn from failures.

In conclusion, coaching in education is a powerful tool for fostering responsibility, emotional intelligence, and a growth mindset in learners. By helping students recognise their potential, develop problem-solving skills, and participate actively in decision-making, coaching can contribute to their personal growth and fulfilment. As such, coaching should be an integral part of modern education, enabling learners to thrive in an ever-changing world. Further research into the effectiveness of coaching in education is needed to fully understand its potential and how it can best be implemented in different educational contexts.

Moreover, coaching can also benefit teachers and educators by providing them with the skills and tools to support their students more effectively. By adopting a coaching approach, teachers can create a more collaborative and supportive learning environment, where students feel empowered to take ownership of their learning and develop their own solutions to problems. This can ultimately lead to improved academic performance, greater engagement in the classroom, and a more positive attitude towards learning. As such, coaching should be considered an essential component of professional development for teachers and educators, helping them to better meet the diverse needs of their students and create a more inclusive and effective learning environment.

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外語言語活動中後設認知技能的形成
**METACOGNITIVE SKILLS FORMATION IN FOREIGN
LANGUAGE SPEECH ACTIVITIES**

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抽象的。本文探討了外語教育的有效性對學生感知外在世界資訊的個別特徵及其學習方式的依賴性。也分析了保證學生自主性的後設認知技能以及他們對掌握外語過程的自覺態度。作者強調了教育過程中可使用的教育元認知策略，以在學生掌握聽力和閱讀技能方面取得更好的結果。

關鍵字：外語教育、學習方式、後設認知技能、教育後設認知策略、接受性言語技能。

Abstract. *The paper examines the dependence of the effectiveness of foreign language education on the individual characteristics of students' perception of information from the outside world and their learning styles. It also analyzes the metacognitive skills that ensure the autonomy of students and their conscious attitude to the process of mastering a foreign language. The authors highlight educational metacognitive strategies that can be used in the educational process to achieve better results in students mastering listening and reading skills.*

Keywords: *foreign language education, learning styles, metacognitive skills, educational metacognitive strategies, receptive speech skills.*

Psychologists distinguish three main learning styles: visual; auditory and kinesthetic. Most people use them in combination, but if we know and understand which style works best for us, we will be able to learn the language even more effectively because our learning abilities will be fully involved [7].

Visuals, who according to statistics make up about 65% of the population, perceive information best with their eyes when they look at visual images or read

texts. Visuals usually prefer graphics, illustrations, and tables. They always have a lot of notebooks and leaflets on which everything important is recorded, clearly and systematically. Therefore, such learners need to choose classrooms which make use of multimedia equipment and a large number of handouts.

Audials (35% of the population) perceive information best with their ears. Their strong points are listening and speaking, while reading and writing are more difficult for them. Audials are easily distracted by outside noises.

Kinesthetics make up only 5% of the population. They perceive information best through movement or when they can touch something. Kinesthetics are trained through physical interaction. In fact, this is basically how children learn. For kinesthetics, to touch means to see. Experienced teachers always try to provide tactile contact with such students (as a compliment, pat him on the head, etc.).

To determine your prevailing learning style, you can tick each sentence that corresponds to you:

A visual:

- reads and watches TV to relax;
- tends to remember people by their faces, not by their first and last names;
- when trying to concentrate is distracted if there is any mess;
- learns new ideas by reading books;
- tries to spell out a difficult word to see how it is spelled.

An audial:

- listens to music to relax;
- remembers people's names, not their faces;
- distracted by noise when trying to concentrate;
- learns new things by listening to audio, including audiobooks;
- tries to remember a new word by hearing it pronounced, or by pronouncing it;
- solves problems easier by talking through possible solutions.

A kinesthetic:

- does some kind of physical activity or sports to relax;
- remembers people by what they did together;
- gets distracted when people move;
- solves problems through direct experience.

Some scholars also distinguish a fourth group – digital. These are logical people who integrate the signs of all the previous groups and perceive the world according to the principle of yes/no, white/black. Even humanitarian subjects for these learners are better explained with the help of numbers, signs, cause-and-effect relationships. Until such a student understands the essence of this or that rule, no pictures or explanations will help him/her.

Students ought to analyze why and how exactly they study, what hinders them and what helps them, and look for learning strategies that are best suited for them.

The first step of a teacher to activate the cognitive styles of students is to emphasize that the knowledge and use of metacognitive skills is effective. The second step is to form a number of students' metacognitive skills that can be used in foreign language acquisition.

The idea of teaching students learning strategies based on the development of metacognitive/reflexive skills. It should be noted that there is a difference between learning styles and learning strategies: learning styles relate rather to natural, habitual and preferred ways of perceiving, processing and preserving information, while learning strategies are special actions, steps or techniques that students use (often consciously) to achieve better results in mastering a foreign language [7].

The conscious nature of the use of learning strategies requires developed metacognitive skills, which imply a conscious attitude of students to the learning process itself, an understanding of the mechanisms of learning, a mastery of independent work techniques, possession of self-learning skills and abilities and readiness autonomous learning.

Metacognition refers to the ability to reflect on, understand, and monitor one's own learning. It is considered proven that the development of metacognitive skills can increase an individual's ability to learn. In the structure of metacognitive skills, it is customary to single out five main components:

- preparation and planning of learning activities;
- selection and use of learning strategies;
- monitoring of the strategies used;
- combination of different strategies;
- assessment of the use of learning strategies.

The prefix *meta-* in the name of 'metacognitive skills' (from the Greek *meta* – after, behind, between) means that mastering these skills requires reflection. As a rule, reflective skills are considered to be synonymous with metacognitive ones. Therefore, the process of mastering a foreign language, based on the principle of consciousness, presupposes a high level of students' reflective readiness, which implies not only their awareness of the content, but also awareness of the methods of their educational activities and ways to improve them. The principle of consciousness in foreign language teaching is about a student's ability to independently manage his/her learning activities [4].

Nowadays a student's educational autonomy becomes an imperative, so the role of metacognitive skills becomes important for the development of a student as a professional and as an individual. When describing metacognitive skills, such concepts as meta-cognition, meta-memory, meta-understanding and self-regulation are usually used.

Meta-cognition is defined as understanding one's own cognitive processes in isolation from their content and using this understanding to manage and improve

cognitive processes, cognitive strategies, knowledge of performance control systems, monitoring of cognitive processes, ability for self-directed learning, assessment of cognitive states, self-esteem and self-management [1; 2; 5; 8].

Meta-memory is a student's knowledge of the structures of his/her memory and conscious mastery of certain strategies, as such awareness of various memorization strategies, knowledge of which strategy should be used to solve a particular problem, and knowledge of how to apply this strategy in the most effective way.

Meta-understanding refers to a student's ability to monitor his/her level of understanding of the information received, to identify violations in the process of understanding, and apply corrective strategies to eliminate them. For example, in reading, such strategies include repeated reading, matching different parts of the text, finding key sentences or a summary paragraph, and making connections between incoming information and existing knowledge [6].

Self-regulation implies a student's ability to independently make adjustments to the course of his/her learning in response to the feedback received.

In the structure of metacognitive knowledge J. Flavell [2] and A.L. Wenden [9] distinguish knowledge about oneself, knowledge about a task, knowledge about strategies. Therefore M. Lessard-Clouston describes a three-step model of teaching language acquisition strategies (LAS) [5]:

1. The first step is to study the context in which foreign language learning occurs. This stage involves observing what strategies students already know and use. Do they often ask questions for clarification, verification, correction, etc.? Do they communicate with their classmate/classmates? At this stage it is necessary to analyze the textbooks and teaching aids used as well as teaching methods and techniques.
2. At the second stage, it is recommended to focus on specific strategies in teaching a foreign language, usually used by the teacher.
3. The third stage involves teacher reflection and stimulation of student reflection. The objects of reflection can be the effectiveness of the lesson, or the role of educational strategies in achieving the goals.

An effective method that meets the task of developing metacognitive knowledge of students is a dialogue between the teacher and students when they discuss students' motives and preferences, clarify their understanding of the goals and objectives of the course of study, select training routes and identify expected results. Such dialogues make it possible to implement individualization and differentiation of learning and contribute to the development of students' independence, their reflexive and metacognitive skills.

When foreign language students use metacognitive strategies, they achieve better results in receptive skills of listening and reading.

C.C.M. Goh [3] suggested a number of metacognitive strategies to improve listening skills as such: 1) preliminary familiarization with the content; 2) training in pronouncing words that may appear in this text; 3) determining the purpose of listening, 4) selective listening in accordance with the chosen purpose, 5) attention to discourse markers, 5) attention to visual cues and body language, 6) attention to pauses and intonation, 7) managing comprehension based on the use of the context, 8) assessing the level of one's understanding using the context and past knowledge.

D. Jafari [4] experimentally proved the influence of metacognitive strategies on reading. As metacognitive strategies, students were taught to 1) use their individual strengths; 2) guess the meaning (through word analysis, etc.); 3) separate known information from new information.

The data obtained indicate that strengthening the elements of reflection in the organization of learning, conducting classes in which the teacher stimulates students' active participation in managing the process of their own learning, directing their attention to the analysis and assessment of the progress and results of various stages of the educational process, contribute to the development of students' metacognitive skills and increases the effectiveness of foreign language learning. In this regard, there is no doubt about the need for foreign language teachers to master the described methods of developing students' metacognitive skills and including them in the process of teaching foreign languages in higher education.

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語言治療師教師實踐中藝術治療的教學與發展功能

DIDACTIC AND DEVELOPING FUNCTION OF ART THERAPY IN PRACTICE OF A SPEECH THERAPIST TEACHER

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註解。 本文探討了景觀藝術療法和沙畫法在言語治療實踐中的可能性, 透過聽覺記憶的針對性工作, 進一步探討糾正兒童言語發展的深度工作的有效手段和技術。發展精細運動技能、動作協調、實現學生的創造潛能和研究興趣。

關鍵字: 補習教育、聽覺記憶、克服言語障礙的方法、沙畫、沙書法、沙療法、感官工作、情緒放鬆、精細運動技能、運動機能學、創造力。

Annotation. *This article discusses the possibility of using landscape art therapy and the Sand-Art method in speech therapy practice as a search for effective means and technologies of deep work in the correction of children's speech development, through the targeted work of auditory memory and further on the development of fine motor skills, coordination of movements, actualization of the student's creative potential and research interest.*

Keywords: *remedial education, auditory memory, ways to overcome speech disorders, sand drawing, sand calligraphy, sand therapy, sensory work, emotional relaxation, fine motor skills, kinesiology, creativity.*

An important task of correctional and speech therapy support for a child is to increase the effectiveness of pedagogical influence using the necessary corrective means aimed at the development of speech and fine motor skills.

In the works of V.I. Belyukov, 1977; M.M Koltsova, 1961; L.A Kukueva, 1968, L.Z Harutyunyan, 1993; M. S. Pevzner defines the relationship in the movement of the hand and speech [1, 2]. Kinesthetic impulses from the arm muscles have a stimulating effect on the formation of the motor area of speech. Many years of practice and the search for new ways to increase the effectiveness of speech therapy work have shown that it is possible to achieve a positive result in working with children who are speech therapists if, along with traditional speech therapy classes, they are included in correctional work, using the integration of knowledge

from related disciplines, in this case, art therapy. Systematic exercises in sand calligraphy, sand drawing and sand painting on Sand-Art light tablets are aimed at training finger movements, are a stimulus and a powerful means of increasing the performance of the cerebral cortex.

An important aspect of working in a lesson is the students' perception of the teacher's consistent recommendations for performing certain techniques. The student learns to perceive information, process it, and carry out a given program of action. All classes are focused on the child's mental security, his comfort and the need for emotional communication with the teacher.

Sand therapy classes are conducted under the influence of a specially organized space: an office equipped with individual light tablets with sand, an interactive whiteboard, a streaming camera for real-time broadcast of the teacher's work, well-planned, effective ways of presenting techniques in tasks.

An important factor in this area of work is the preparation of the teacher for such an interesting type of activity. It is necessary to create or "awaken" certain zones of mental contact, and try to convey your attitude to a student or group of children. Thus, our main task will be realized: the ability of children's motivational readiness to perceive didactic tasks - to form a psychological mood, cognitive processes, develop fine motor skills and, as a result, stimulate auditory memory and speech zones.

The main components in the work of sand therapy are the principles of: a comfortable environment, approval (involvement, anticipation), accessibility, experiment.

All lessons are planned according to the principle "from simple to complex." The scientific basis for the development of materials was the research of: M. Montessori, V.M Bekhterev, V.A Sukhomlinsky, and A.R. Luria. [4]

The developed system of exercises for teaching sand drawing techniques on a light tablet serves each mechanism of the dynamic chain of children's listening comprehension and task performance. By stimulating fine motor skills and thereby activating the corresponding parts of the brain, we activate the areas responsible for speech.

Playing with sand is one of the forms of natural activity for children. Tactile-kinesthetic sensations are directly related to mental operations, with their help the world around us is learned. And this, in turn, contributes to the development of speech and voluntary attention. Classes are held outside of school hours, 2 times a week for 30 minutes, both individually and in groups. For preschoolers, the duration of the lesson is no more than 20 minutes. Group composition is up to 12 people. Recruitment for groups takes place in September.

Diagnostic module. The diagnostic procedure includes up to three to five sessions. Getting to know the material. Reaction to the material. In the first lesson,

children look at a light tablet, without backlight and with backlight (16 colors). Express their feelings. Determining the location for the material (sand). Familiarization with safety precautions and remembering important rules of behavior during classes and manipulations with sand. In the future, safety rules will be announced at the beginning of each lesson.

Module 1. We learn sand drawing techniques: fingers, fists, palm edge, thumb edge, pinch, and little finger.

Learning drawing techniques: simultaneously, symmetrically, cutting off, pouring.

Methods for filling the surface of a light tablet. Five plots – 5 techniques: sifting, patting, rain, tornado (right/left hand, alternately), wave (right/left).

Each technique, technique and method of backfilling is practiced using material accessible to children.

Practicing work on the entire area of the tablet, right, left sides, top, bottom.

An example of teaching how to fill a light tablet using the sifting technique:

- *Listen and follow.*

-I take a fist full of sand. Watch me do this with my right hand. (I slowly demonstrate all the manipulations for the children to further complete this task.) I draw attention to the level of raising the palm above the sand tablet - 15 cm.

- *Let's open our palm. (demonstrating)*

- Look how much sand we collected in our palms. With slight swings of my palm, I demonstrate the filling of the light tablet, saying:

I sow, I winnow, I sow,

I wish you happiness and joy.

I sow, I winnow, I sow,

I fill up all the sand.

I do similar work with my left hand, then with both hands. I ask the students to complete the quatrain lines with me.

Also, the children remember how they helped their mother sift or prepare dishes from flour. At first glance, it may seem that this is a very simple task, but by completing it, the child begins to understand how to hold the sand, how to create smooth movements in order to complete the task.

An example of teaching the technique of sand drawing “fingers”:

- *Listen and follow.*

- I will touch the sand one at a time with the fingertips of my right hand. I demonstrate the work: I touch with my thumb, index, middle, ring, and little fingers. We work in the same way with our left hand.

Imitation of rain: we touch the fingertips with both hands all over the sand tablet, saying:

Drip, drip, drip.

*Rain, rain, don't make noise,
The kids are begging, begging,
Drip, drip, drip.
Drip, drip, drip.*

Next, I demonstrate the lines of rain from each drop.

- *We draw lines with the pad of the right index finger from the raindrops, saying:*

*I know that sometimes
Water is dripping from the sky.
The warm rain came and went,
He did the job, didn't play pranks.*

All Module 1 sessions have a regulatory aspect to the work. Educational activities (games) are aimed at developing tactile-kinesthetic sensitivity and fine motor skills of the hands. Attention, memory, and phonemic hearing develop.

After learning several backfilling techniques and techniques, we begin drawing by theme.

1. **Lines. Ornament.** The technique used is fingers. Drawing technique - simultaneously. The filling method is sifting.
2. **Waves. Sea.** The finger technique is used. Drawing technique - simultaneously. Backfilling method: sifting, tornado.
3. **I write a letter in the sand. Initial letter.** The filling method is sifting. Using trowels to draw elements.
4. **Ornament in the letter.** The filling method is sifting. Using trowels to draw elements.
5. **Sea bottom.** The finger technique is used. Drawing technique - simultaneously. The filling method is sifting.
6. **Circle. Oval. Sun. Face (smiley).** The face of a girl. Boy's face. The technique used is: fingers, fist, pinch. Drawing technique - simultaneously. The filling method is sifting.
7. **Hedgehog on a walk.** The technique used is: fingers, fist, pinch. Drawing technique - simultaneously. The filling method is sifting.
8. **Footprints in the sand.** Palms. Technique used: fingers, fist. Drawing technique - simultaneously. The filling method is sifting.
9. **Animal tracks on the sand.** Technique used: fingers, fist. Drawing technique - simultaneously. The filling method is sifting.
10. **Square. Rectangle.** Technique used: fist/fingers/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
11. **City.** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting. Using trowels to draw details.

12. **Space. Planets.** Technique used: fingers, fist. Drawing technique - simultaneously. The filling method is sifting.
13. Image of a plot from the fairy tale "Kolobok". The finger technique is used. Drawing technique - simultaneously / cutting off. The filling method is sifting.
14. **Swan.** The technique used is: fist, rib, pinch. Drawing technique - simultaneously. The filling method is sifting.
15. **Snowman.** Technique used: fingers/fist. Drawing technique - simultaneously / cutting off. The filling method is sifting.
16. **Toy "Teddy Bear".** The technique used is the fist. Drawing technique - simultaneously / cutting off. The filling method is sifting.
17. **Owl.** The technique used is the fist. Drawing technique - simultaneously / cutting off. The filling method is sifting.
18. **Squirrel - Little Bunny.** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
19. **Tiger.** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
20. **Elephant.** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting. Using trowels to draw details.
21. **Learning to draw flowers. Rose. Chamomile. Bouquet. (3 lessons)** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
22. **Basket of flowers. Basket with mushrooms.**
23. **Learning to draw trees. Spruce. Christmas tree (with toys).** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting. Using trowels to draw details.
24. **Learning to draw trees. Deciduous trees.** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
25. **Autumn trees. Leaf fall.** Technique used: fist/fingers edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
26. **Magic tree.** The technique used is fist/fingers, edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
27. **Astronauts.** The technique used is fist/fingers, edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting. Using trowels to draw details.

28. **Candle and book.** The technique used is fist/fingers, edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
29. **The peacock is a royal bird.** The technique used is fist/fingers, edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting. Using trowels to draw details.
30. **Samovar.** The technique used is fist/fingers, edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting.
31. **Butterflies and dragonflies.** The technique used is fist/fingers, edge of thumb/pinch/. Drawing technique - simultaneously / cutting off. The filling method is sifting. Using trowels to draw details.
32. **I'm writing a telegram.** Technique used: fist/fingers/pinch/. Drawing technique - simultaneously. The filling method is sifting. Using a sharp stick for drawing.
33. **Letter to the teacher.** Work in known techniques.

Module 3.

Module 3 includes cognitive tasks on knowledge of the versatility of the world and literature.

1. **Day of Knowledge.**
2. **I love... (types of games, food, toys, travel, etc.)**
3. **Autumn mood.**
4. **Winter walk. (Draw with sand and make up a story about meeting a fairy or Santa Claus)**
5. **New Year.**
6. **Fairytale story.**
7. **Fairy gifts.**
8. **Defender of the Fatherland Day.**
9. **My mom. Bouquet for grandma**
10. **Cosmonautics Day**
11. **Victory Day**
12. **My city**
13. **My favorite fairy tale hero**
14. **Summer mood. Summer has come.**

Module 3 topics are included in the work from the second year of study. Students have mastered the basic techniques and techniques of sand calligraphy and are ready to independently create versions of sand paintings on a given topic. In this version of the work, we build a plan of activity, listen to options for executing various sketches and what techniques they will be performed with. After that, we get to work.

Musical accompaniment of classes

During the classes, quiet background classical music is used in its variety of genres: W.A. Mozart, I. Strauss, P.I. Tchaikovsky, L. V Beethoven, M. Oginsky. Instrumental folk and fusion music performed by DiDuLi, Kitaro (Masanori Takahashi), is also used in sand therapy classes. Relaxing, calm music is presented in the collection of experimental music with ethnic elements of the Enigma group.

For the first time, a scientific explanation of the influence of music on a person came from the lips of the ancient Greek scientist and philosopher Pythagoras: "Every melody synchronizes the work of the human brain..."

Light design for Sand-Art tablets

Each Sand-Art light table or tablet has 16 lighting options. During the diagnostic module, the teacher-speech therapists together with the children determine the types of work and approximate themes in the lighting design. Green backlight in the tablet – forest, clearing, lake inhabitants; blue/blue backlighting – marine theme, space, winter sketches; yellow – flowers, summer, holiday cards, illustrations for fairy tales; purple backlight – celestial fantasy; red backlight – fire, meteorites, fantasy; pink lighting – space, sweets; orange illumination – tiger, leopard, flowers; white backlighting is a neutral option for any lesson topic.

Warm-up with elements of kinesiology at each individual sand calligraphy lesson, depending on the topic of the lesson, includes:

1. Games for spatial representation: right, left, top, bottom, middle. The student, at the request of the teacher, draws certain objects with sand on the tablet; independently draws different objects and explains their location in relation to each other. We create a zentangle on the sand using all known working techniques.
2. Games and exercises for the development of phonemic awareness: listen to the sound - draw a letter using a familiar technique; listen to a word, a sentence - draw a diagram; dictation of syllables; edit the word (correct errors in the word).
3. Exercises to correct lexical and grammatical speech disorders: we draw in the sand tasks for understanding the formulation of prepositions (from, to, above, under, in front of, from - for, from - under).
4. Tasks for the development of coherent speech. The teacher draws an object on his tablet, the student comes up with a sentence with this object, and completes the drawing.
5. Two-handed tasks. Symmetrical pattern. Interhemispheric interaction.
 - a) apple - watermelon (symmetrical drawing)
 - b) draw letters with both hands (symmetrical drawing)
 - c) necklace (symmetrical drawing with two hands)
6. An example of a finger warm-up on a sand tablet with elements of kinesiology:

*Autumn, autumn, (we run the edges of our palms along the sand)
Come! (we collect sand in two fists and slowly pour it onto the tablet)*

Autumn, autumn, (we run the edges of our palms along the sand)

Look! (touch with the fingertips of both hands, simulating drops)

The yellow leaves are spinning (we make circular movements with our index fingers on the sand)

The wind is blowing stronger and stronger, (we clean the sand with both hands into the sand pit)

The rain is knocking on our window. (we touch the fingertips of both hands, simulating drops).

In the proposed sand art therapy classes, work is carried out that prepares the ground for the subsequent correction of speech disorders.

Speech therapists know how difficult it is to work with an excitable, motor-disinhibited child or a lethargic and weakened child. Emotionally discharging, children gradually become more confident in their actions, more receptive, and they develop a positive image of their actions. Along with the development of tactile-kinesthetic sensitivity, motor and auditory memory develops.

The result of these classes as one of the resources for correctional work is: positive motivation to attend speech therapy classes, students feel successful, the classes bring a certain “magic” and unusualness.

“The origins of children’s abilities and talents are at their fingertips. From the fingers, figuratively speaking, come the finest threads - streams that feed the source of creative thought. In other words, the more skill in a child’s hand, the smarter the child is.” V.A. Sukhomlinsky.

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德國和匈牙利俄羅斯農業學生教育計畫的具體特點

SPECIFIC FEATURES OF EDUCATIONAL PROGRAMS FOR RUSSIAN AGRARIAN STUDENTS IN GERMANY AND HUNGARY

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抽象的。對於許多俄羅斯或外國農業學生和研究生來說，「看世界」並同時接受專業教育的巨大願望是一個有吸引力的機會。透過在國外進行數月的農業領域培訓或實習，實現這些目標絕對是可能的。反過來，透過培訓或實習獲得的經驗對於塑造職業朝正確方向發展並在農業領域獲得高薪工作非常重要。如今，農業科學專業學位不足以發展個人職業前景。未來專家高階培訓的重要途徑之一是針對學生和教授的國際流動計畫。本文介紹了俄羅斯學生在德國和匈牙利農業領域培訓和實習計畫的優勢和具體特徵。

關鍵字：教育計畫、俄羅斯學生、德國、匈牙利。

Abstract. *The great desire “to see the world”, and, at the same time, to get the professional education, is an attractive opportunity for many Russian or foreign agrarian students and postgraduates. To achieve these goals is definitely possible by being engaged in months of training or internship abroad in the field of agriculture. In turn, the experience gained through training or internship would be important for shaping the career to move in the right direction and to get a highly-paid job in agricultural sphere. Nowadays a degree professional in agricultural sciences is not enough for developing personal career outlook. One of the important ways for advanced training of future specialists is the international mobility programs for students and professors. This article deals with the advantages and specific features of training and internship programs in the field of agriculture for Russian students in Germany and Hungary.*

Keywords: *educational programs, Russian students, Germany, Hungary.*

Introduction. Currently, the number of foreign students in the Russian Federation is increasing. For example, according to Federal Agency for the Com-

monwealth of Independent States Affairs, Compatriots Living Abroad, and International Humanitarian Cooperation (Rossotrudnichestvo), the number of people applying to study in our country is several times higher than the number of quotas allocated by the state [1]. Thereby, it seems convincing that the successful adaptation of foreign students to the educational environment of the university would force and improve their education and life not only in Russia, but also for our citizens as foreign students abroad. The internationalization of higher education has been one of the main global trends in the development of higher education over the past two to three decades. During this time, significant changes have undergone both the content of this process and the forms and methods of its realization. The integration of Russian higher education into the global educational space requires a clear understanding of the prerequisites, essence, potential and impact of internationalization on the development of the educational sphere. Thus, it is essential to study the experience of European countries, as well as special universities in Europe, where this area of activity is given great attention as an important factor in improving the quality of higher education [2].

In the field of agriculture European countries tend to environmentally friendly agricultural policies, and organic farming. The reasons for the development of such production were laid in the 20-30s of the last century, and intensive development began in the 80-90s. At the moment, the industry is developing rapidly, and many countries of the European Union have developed national programs for the development of organic agriculture, which were primarily aimed at increasing the area and number of enterprises producing organic products. Within the framework of these programs, it is planned to pay annual subsidies to enterprises producing organic products, to inform the population about the benefits of natural nutrition and a healthy lifestyle, to help national associations of organic producers, to sponsor scientific researches [3].

Materials and methods. According to the opinion of the following researchers (F. Newman, L. Couturier, D. Scarry), higher education nowadays is becoming more global and international. So, practically in all European universities students and academic staff of various nationalities communicate [4]. Thereby, the main goals of the internationalization process are: to encourage innovation; implementation of the educational strategy of universities; improving teaching and competence; providing professional and financial support to international students; the development of strategic approaches to improve the teaching and learning of foreign students at the institutional level [5, 6].

At the moment, problems with conservation and enhancement of biodiversity, protection of plants, insects and the environment in general are important in the countries of the European Union. For the first time, the discussion about greening territories was organized in Germany about 25-30 years ago, where the measures

to prevent the aggravation of these situations were offered. In some countries, unfortunately, these problems are irrelevant, but in Europe, on the contrary, in the last 25-30 years this problem has been considered as one of the current interest [7].

This article analyzed the experience of foreign universities engaged in training and internship programs for the Russian students in the field of agriculture. For the analysis, universities in Germany and Hungary were selected, where the students from Penza State Agrarian University (Russia) study annually within the framework of international mobility programs.

It is also necessary to pay special attention to the fact that for this mobility, only educational programs, courses and practices were selected that involve teaching Russian students in a language that is not native to them (German in Germany and English in Hungary).

The comparative analysis was carried out in the following areas:

- focus of programs, courses, internships at the university for foreign students;
- curriculum and the plan of study (or work) for international students;
- key events held at the university for the adaptation of foreign students.

The analysis is also based on local documents on the adaptation of foreign students, provided on the websites of the universities in the above-named countries and at the personal request of the Penza State Agrarian University professors.

Results and discussions. Let us first turn to the analysis of educational programs organized in Germany for training and internships for foreigners, including the Russian students, in the agricultural field. For example, the German Federal Ministry of Food and Agriculture (German: Bundesministerium für Ernährung und Landwirtschaft, BMEL) promotes international exchange and offers internships in the agricultural sector to students from Central and Eastern Europe (Russian Federation, Ukraine, Belarus) and Central Asia (Kazakhstan).

Internship programs for foreign students in Germany are organized by the Association for Cooperation in the Field of Ecology, Agriculture and Rural Development in Eastern Europe e.V. (APOLLO e. V.), German training and production company Agrartechnik (DEULA - Nienburg), as well as the Association for Agriculture and Ecological Balance with Eastern Europe (LOGO e.V.). All programs cooperate with each other.

The non-profit association “Agriculture and Ecological Balance with Eastern Europe” (LOGO e.V.) has been organizing agricultural practice for students of agricultural universities from the Commonwealth of Independent States (CIS) countries in Germany for more than 10 years and helps to learn the basics of organic production. During the period of this practice, foreign (also Russian) students attend the workshops where specialists from various fields talk about the principles of ecological farming:

- The principle of ecology: Organic agriculture supports biological cycles and systems and works closely with them;
- The principle of health: Organic agriculture takes care of the soil, plants, animals, humans and our planet;
- The principle of care: Organic farming should be proactively and responsibly managed to protect the health and well-being of present and future generations and the environment.

Adapting to university curricula, LOGO offers internships from six to twelve months, starting in the spring or fall. Most of the students do internships at environmental enterprises. However, in a few specialized fields, such as fishing or equestrianism, an internship on a regular farm is also possible. LOGO e.V. tries to attract a great attention to supplying each student with a suitable company, the chosen place should match every student professionally. Former LOGO trainees who are working in Germany now, often supervise new trainees, so if any problems appear, they could quickly help newcomers to solve them and provide the trainee with the necessary support.

Trainees should keep a daily report book in German and their mother tongue. It is also necessary to attend specialized workshops. The workshops are held on the basics of organic agriculture, protection of biological crops, vocational training and provide information on renewable energy sources. Before leaving, each trainee receives his own Completion Certificate of Internship program. The certificate also includes information about how actively they participated in the workshops. The LOGO certificate is useful in later career choices in home countries and is recognized by their universities [8].

Since 1991, APOLLO e.V. has been carrying out, with the support of the German Federal Ministry of Food and Agriculture (BMEL), a four-month internship for young agribusiness professionals from the Russian Federation. With the support of the Ministry of Rural Development, Environment and Agriculture of the Federal State of Brandenburg (MLUL), funding for a similar program for students from Belarus and Ukraine was initiated in 1996.

Since then, about two thousand young specialists from Eastern Europe have completed internships at agricultural enterprises in Germany. The most qualified graduates have the opportunity to re-practice. The Association APOLLO e.V. provides support to the best trainees in the form of grants. In addition, the APOLLO e.V. Association supports the students in applying for scholarships for training [9].

Penza State Agrarian University (Russia) has been cooperating with Hochschule Neubrandenburg - University of Applied Sciences (Neubrandenburg, Germany) since 2000. The main areas of cooperation: mutual development of new courses, academic staff exchange, student exchange, joint projects in scientific research, publications in journals included in the international databases as Web of

Science and Scopus based on research results of scientists from both universities, participation in editorial board of the scientific journals published by educational institutions.

Now it is necessary to discuss the opportunities and specific features of education for the foreign students (from Russia also) in Hungary. The following Hungarian universities, where foreign (Russian) students are taught in English and where students of Penza State Agrarian University study annually within the framework of international mobility programs were taken for the analysis: the University of Szeged, the University of Pécs, the University of Debrecen, the University of Pannonia and others. The Hungarian universities are ready to admit for training agrarian students from the Russian universities both under double degree programs and within the framework of short-term courses, from several months to a year in duration. The current research is focused on the content of short-term educational programs and courses. These educational programs could be aimed at both on-campus training and internships at an enterprise, clinic or laboratory. But, as a rule, such programs equally cover both educational and practical spheres.

Thus, in the field of agriculture in Hungary, the University of Szeged offers foreign students training in the direction of Agroengineering (Bachelor's degree) [10], the University of Debrecen - in the direction of Technology of production and processing of agricultural products (Bachelor's and Master's degrees) [11], Technologies of rational land use in agriculture (Master's degree), Animal Science (Master's degree), Rural Development Technologies (Master's degree), the University of Public Service - Environmental Engineering (Bachelor's degree), the University of Sopron - Environmental Engineering (Master's degree) and others.

For example, the bachelor level curriculum within the Agricultural Engineering (Agroengineering) program aims to train agricultural engineers who are capable of: organizing production, management, supervisory and organizational work in agricultural companies; work in enterprises engaged in the processing and marketing of agricultural products; perform professional management tasks related to agriculture. This direction of training covers such basic theoretical areas as botany, zoology, mathematics, economics, international agriculture and workplace safety, creates the basis for professional development, including crop production, horticulture, plant growing, breeding livestock, animal husbandry, farm business management, marketing activities and etc.

Another undergraduate program in the direction of "Technology of production and processing of agricultural products" is aimed at training specialists who would be able to work, control and develop effective technologies for the food industry. Research includes the physical, chemical and biological foundations of engineering with a particular focus on quality and food safety problems. To get

knowledge about the operations and manufacturing processes, students also study economics, management, and analytics. The main goal of the program is to prepare experts who could fully provide services related to day-to-day operational tasks from engineering, biological and chemical fields to managerial duties, based on the knowledge gained. Major subjects usually include: botany, economic sciences, general and inorganic chemistry, agricultural history and EU knowledge, informatics, mathematics, thermodynamics, zoology, animal physiology, agricultural and food microbiology, analytical chemistry, basic equipment for the food industry, environmental management, environmental technology, biochemistry, technical fundamentals agricultural machinery, professional language skills, writing a grant application and others. Students also undergo professional practice in the food industry, in the field of evaluating raw materials and products, food analysis, inspection, quality assurance, or could have professional practice at food management departments in the specialized companies.

In turn, the master's degree in the direction of "Technology of production and processing of agricultural products" is designed to deepen the knowledge gained after completing the training as a bachelor but primarily concentrating on the research work and practical improving their knowledge at special enterprises. The field of food science is vast and the program reflects this diversity with an emphasis on raw material quality, processing technology, quality analysis and quality assurance. Main subjects usually include (this list is indicative and subject to change): measurements and experimental plans, consumer protection, food quality and safety, food marketing, food microbiology, management and communication, spectroscopic techniques, nutritional sciences, cell biology, microbiological aspects of food quality and safety, quality control, quality management, regulation of food production, quality and safety, food toxicology, quality management systems and audits in the food chain, management and economics of the food industry, radiology in the food industry, analytical and microbiological rapid methods, quality and safety risk analysis food products. Students are also often engaged in compulsory industrial practice.

There are many opportunities to win grants (scholarships) to study in Hungary for Russian students, both through participation in official programs based on agreements between Russia and Hungary, and through participation in selections under the Erasmus+ program or within the framework of other international inter-university agreements that are or will be signed between Russian and Hungarian universities.

Conclusion. Thus, it is important to sum up the results and make several conclusions regarding the specific features of the educational programs for Russian agrarian students in Germany and Hungary:

- bachelor's programs of the European universities have both a general theoretical and practical focus, in contrast to master's programs in Hungary and internship programs in Germany, where the emphasis is on the research and practical component of the educational process;

- in the curriculum, you it is obvious that the same number of hours are allocated for classroom lectures and workshops as for the practical extracurricular activities, which, in our opinion, immediately actualizes the knowledge gained in theory and allows it to be brought to a professional level through constant practical training;

- due to the scholarships (grants) or funds provided within the framework of interuniversity cooperation programs, a student or young specialist studying in Germany or Hungary has the opportunity not only to improve the quality of scientific work, but also to get acquainted with the social and economic systems, it is possible to apply in professional activities in future after graduation the university.

So, within the framework of this cooperation, the students participating in the exchange settle in a foreign country for a certain period, acting as a representative of their homeland and contributing to the development of contacts between the European countries (Germany or Hungary) and Russia.

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關於「俄語」學科一年級學生的獨立作業類型

ABOUT THE TYPES OF INDEPENDENT WORK WITH 1ST YEAR STUDENTS IN THE DISCIPLINE “RUSSIAN LANGUAGE”

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註解。在本文中，作者根據哈薩克語系非語言專業一年級學生在「俄語」學科的標準大綱（經哈薩克共和國教育部批准）的基礎上，探討了「俄語」學科的獨立作業類型。哈薩克共和國教育和科學部2018年10月31日第603號和作者的教科書「俄語」。C1 級（第一學期）。”作者以就讀大學所在的土耳其斯坦市為資料，描述如何與學生以專案作業的形式進行獨立作業，並提出了個人作業、小組作業和專案作業的形式。同時，作者在作品中將土耳其斯坦城的主題與《俄語標準大綱》中規定的實用話題聯繫起來，即更新了學生關於功能性言語風格的知識，鞏固了識別能力。並自主選擇各種風格的演講素材，並給學生了專案作業創意任務：以土耳其斯坦城市為主題，編寫自己的不同風格的文本。作者認為，學生以專案活動和小組作業的形式進行的獨立作業可以概括學生對標準課程中規定的演講風格和類型的了解，促進認知和創造能力、研究技能、批判性思維的發展。，以及在日常生活中的專業活動中運用所獲得的知識和技能。

關鍵字：文本、獨立、獨立工作、學生、專案工作、活動。

Annotation. *In this article, the author examines the types of independent work in the discipline “Russian Language” with 1st year students of non-linguistic specialties of the Kazakh department based on the Standard Program of the discipline “Russian Language”, approved by order of the Ministry of Education and Science of the Republic of Kazakhstan No. 603 dated October 31, 2018 and the author’s textbook “Russian” language. Level C1 (1st semester).” The author describes how independent work was carried out with students in the form of project work based on the material of the city of Turkestan, where the university where they study is located, and also presented the forms of individual, group and project work. At the same time, the author in his work connected the theme of the city of Turkestan with practical topics provided for in the Standard Program for the Russian Language, namely, he updated students’ knowledge about functional styles of speech, consolidated the ability to identify and independently select*

materials for various styles of speech, and also presented students with project work creative task: compiling your own texts of different styles on the theme of the city of Turkestan. According to the author, students' independent work in the form of project activities and group work generalizes students' knowledge of the styles and types of speech provided for in the standard program, promotes the development of cognitive and creative abilities, research skills, critical thinking, as well as the use of acquired knowledge and skills in professional activities, in everyday life.

Keywords: *text, independent, independent work, student, project work, activity.*

Independent work of students occupies a special place in the system of higher education. Let us turn to the definition of this concept. To do this, let us analyze how this concept is presented in the Dictionaries of the Russian language by S.I. Ozhegov, N.Y. Shvedova and D.N. Ushakova. We did not find the meaning of this concept in these dictionaries. However, they present the meanings of the words “self” and “self-sufficient”. So, what does the first part of the compound word “self” mean? In the Dictionary of the Russian Language by S.I. Ozhegov and N.Y. Shvedova, this word has three meanings, from which we will choose the third meaning, suitable for the disclosure of our term, namely an action performed on one's own, without anyone's help [1, p.742].

From the words “self” and “stand” comes the word independent, which in the same Dictionary is represented by three meanings, where the third meaning is defined as done by oneself without outside participation [1, 743], and in the Dictionary by D.N. Ushakova, the third meaning is also defined as solvable without the help of others [2].

Definitions of the concept of “independent work” are presented only in the New Dictionary of Azimov E. G., Shchukin A. N. According to them, independent work is a type of educational activity that is performed independently or under the direction of a teacher. The student can perform it either in the classroom or during extracurricular time, orally or in writing, individually or in a group [3, 268].

Thus, not all dictionaries provide the meaning of this concept, but it is absolutely true that it was formed from the complex part of the first word itself, the adjective independent, i.e. performed independently, without the participation of a teacher or by controlling him, can be performed both in the classroom and outside it. It should be noted that at the university this work is performed outside the classroom.

In this work, we will consider the fourth topic of independent work of students (hereinafter referred to as IWS): Select examples of texts of various speech styles, define functional styles in accordance with the sphere of communication and communicative goals, characterize their linguistic means [4, 59]. When performing

independent work on this IWS topic, students were given one independent work of an individual nature and three works in the form of project work.

A project is work aimed at solving a specific problem, achieving a pre-planned result in an optimal way [5].

Project activity of students is a form of joint educational, cognitive, creative or gaming activity of students, which has a didactic goal, agreed upon methods and techniques, methods of activity and ensures the achievement of a common planned result [6, 19].

The goal of this project activity is to generalize and expand knowledge about the functional varieties of language and types of speech based on texts about the city of Turkestan, the development of creative abilities and logical thinking; development of research skills arising from the completed stages of the project, formation of a personality capable of arguing and drawing conclusions.

The project work was in the nature of problem-search activity. The topic of the project was entitled as follows: "Speech styles in the Russian literary language (based on the lexical topic: "Turkestan through the eyes of students")." When choosing the topic of the project, I was guided by the Standard Program of the discipline "Russian Language", according to which in the first semester we study in detail all styles of speech separately, namely their characteristic features, linguistic features, features, genres and functions. At the same time, the generalization and systematization of the presented topics in classes for students' independent work contributes to the formation of students' communicative, cultural and professional competencies, taking into account the global informatization of the modern world, since the increase in information flows entails the need for a conscious approach to both the information itself and the field of its application, as well as mastering personal and key skills: independent construction of texts of various styles in compliance with all compositional, logical and linguistic norms and rules, recognition of their characteristic linguistic means, use of a certain style of speech depending on the communicative situation.

The goal of the project is to generalize, deepen and systematize students' knowledge of functional styles and types of speech when students perform independent work.

Groups of project participants: experts in the scientific style of speech; experts in journalistic style of speech; experts in conversational style of speech, experts in artistic style of speech; experts in formal business style of speech.

Project objectives:

1. the ability to find and determine the styles of the finished text;
2. the ability to compose texts of different styles;
3. the ability to perform stylistic analysis of the text;
4. ability to work with various sources of information, dictionaries, Internet

resources;

5. the ability to use a certain style of speech depending on the communicative situation;

6. improve public speaking skills, the ability to work in a team and independently.

In this regard, I thought through the project work in advance and included the following tasks for the IWS.

Tasks for IWS 1. Write a text about the city of Turkestan, using one of the functional speech styles. Justify your choice of speaking style.

Tasks for IWS 2. Compose a text about the city of Turkestan using different types of speech.

Tasks for IWS 3. Write a fairy tale about the city of Turkestan.

Tasks for IWS 4. Write a newspaper article about the city of Turkestan.

Project tasks:

- 1) study theoretical material on speech styles;
- 2) prepare your own text about our city using one of the speech styles;
- 3) explore the theme of the city of Turkestan in various genres of styles and types of speech.

The task for each micro-group is not only to characterize the style in question, but also to prove why knowledge of this style is important for us according to the following plan:

- the main function of the style;
- stylistic features of the composed text;
- linguistic features of style;
- speech genre.

As part of the work on the project, students in their micro-groups distributed functions in accordance with their capabilities and abilities: some selected material, others composed a text about the city of Turkestan, others researched and proved that the text belonged to a particular style of speech, others came up with a fairy tale about our city, fifth had to write a newspaper article about the city, others compiled the received material in the form of presentations, and the rest presented the material in class.

Main stages of practice-oriented project activities:

1. Immersion in the project (defining the topic and setting the goal and issues under consideration; discussing issues (identifying the problem); setting educational tasks and determining ways to solve them;

2. Organizational activities (formation of groups, discussion of organizational issues, distribution of responsibilities, deadlines);

3. Carrying out activities (work in groups, discussion, writing, preparing presentations and speeches);

4. Presentation of results (student presentations of projects, summing up, reflection, answers to questions).

Project result: public performance of groups in the audience.

This work was carried out in all groups. We present samples of completed work.

Tasks for IWS 1. Write a text about the city of Turkestan, using one of the functional speech styles.

Hello, dear grandmother!

This year I became a student and entered the International University of Tourism and Hospitality in the city of Turkestan on a grant. Turkestan is the spiritual center of our Kazakhstan; in the future, the authorities plan to make it the spiritual center of the entire Turkic world. I initially did not imagine Turkestan in the best light. Because I heard that it is a very old city, in which there are no modern buildings, beautiful architecture, or entertainment for young people. But Turkestan, as it became the regional center of the former South Kazakhstan region, literally in a short amount of time began to blossom and take on new colors. A huge amount of money is allocated from the state budget for the development of the city. Now Turkestan has an airport, beautiful parks, its own football stadium, a huge number of modern buildings, it began to be divided into old and new Turkestan. One of the prestigious hotels, Rixos, was also built here. Construction is underway everywhere; at the entrance to the city, the largest mosque in Kazakhstan is being built, accommodating up to five thousand parishioners. But the main attraction of Turkestan still remains the mausoleum of Khoja Ahmed Yasawi.

Dear grandmother, come to the city where I study and which I fell in love with. I am waiting for you!

Your granddaughter Aniel!
(Conversational style)

Tasks for IWS 3. Write a fairy tale about the city of Turkestan.

The history of this city began in the 6th century BC. Once upon a time there was a small city in the world, the number of inhabitants of which did not reach one hundred people, and no one knew about it.

The city was located on the Great Silk Road. And traders often passed there with their caravans. There were many thieves and murderers there, who were hunting for valuable, expensive goods.

One day a young merchant named Ahmed stopped in this city as it was already dark. Experienced thieves followed him and attacked his caravan, and they wanted to kill him and bury his body. Then Ahmed began to pray to God, trying to avoid death. He read prayers and begged to be saved from them. Thieves have done this to such people more than once and hoped for another loot. But Ahmed hoped in the will of God. Suddenly a strong wind blew that it was impossible to open your eyes. After some time, Ahmed, opening his eyes, saw them covered with sand up to their heads. And they have probably already left for another world. But Ahmed

was surprised that the wind did not touch him and his caravan. He thought that this was a sacred place where the prayers of desperate people would be heard. And along the way, he told everyone he met about this story. Then people began to come from different parts. The city grew every day, and a large mosque for pilgrims was built in it. Believers came to this city, and many remained to live there, calling the city the place where prayers would be heard. Only the prayers of people with pure intentions were fulfilled. And this city was called Turkestan. Thus, Turkestan became the spiritual heritage of that time, in the present time.

(art style)

Thus, in the process of performing independent work, students learn to construct speech statements, develop a culture of speech, formulate their own conclusions, substantiate and argue their opinions, adapt in the search for information, extracting the information they need, structure and generalize their knowledge, develop critical thinking, and also their creative and research abilities. According to M.A. Timofeeva, a student who can complete educational projects will be able to plan his activities in solving many problems in the future [7]. The use of project work, as well as the performance of independent work of a creative and exploratory nature, helps create conditions for students to independently acquire knowledge and skills in solving practical problems in various communicative situations.

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SCOTTISH ENGLISH AS A MEANS OF EXPRESSION OF REGIONAL IDENTITY IN MODERN SCOTLAND

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抽象的。本文檢視了蘇格蘭英語的特點，其目的是確定如何借助這種方言來表達蘇格蘭人的地域特徵。近年來，由於蘇格蘭民族黨的激進主義和英國脫歐，蘇格蘭的國家認同和地區認同問題變得越來越重要，這也引起了人們對語言的關注。給定的趨勢決定了本研究的相關性。區域認同的研究常常與社會學和政治面向連結在一起，而本文關注的是作為表達區域認同的手段的語言成分。此外，語言政策和對國家自我表達的關注通常與蘇格蘭蓋爾語相關，較少與蘇格蘭語相關，而我們的重點是蘇格蘭英語。本研究採用的方法包括語音分析法、字源分析法、語意分析法、比較法、描述法等，同時定量計數保證了本研究的相關性。我們透過《愛丁堡聚光燈》、《格拉斯哥現場》、《蘇格蘭記者報》、《西高地自由報》等蘇格蘭線上媒體的資料以及電視節目《Men in Kilts》、《Outlander》和《The Loch》以及蘇格蘭音樂家的播客來研究蘇格蘭英語的特點。蘇格蘭英語是英國英語人群表達地區認同的一種方式，透過語言各個層面的語言手段將蘇格蘭民族與其他民族區分開來。

關鍵字：身分、地區認同、民族認同、蘇格蘭英語、蘇格蘭人。

Abstract. *This paper examines the characteristics of Scottish English, and its aim is to determine how with the help of this dialect may be expressed regional identity of the Scots. The issue of national identity and regional identity in Scotland has become relevant in recent years due to the activism of the Scottish National Party and the Brexit, which has also drew attention to language. The given tendencies determine the relevance of this study. Research on regional identity is often linked to sociological and political aspects, whereas this paper pays attention to the linguistic component as a means of the expression of it. In addition, language policy and attention to national self-expression are often considered in relation to Scottish Gaelic, less often to Scots, whereas our focus is Scottish*

English. The methods used in this study include phonetic analysis, etymological analysis, semantic analysis, comparative method, descriptive method, also quantitative counting ensures the relevance of this study. We examine the features of Scottish English on the materials of such Scottish online media as Edinburgh Spotlight, Glasgow Live, Scotland Correspondent, West Highland Free Press, as well as TV projects Men in Kilts, Outlander and The Loch and podcasts of Scottish musicians. Scottish English is a means of expressing of regional identity among the English-speaking population of the UK, distinguishing the Scottish nation from the rest through linguistic means at each level of the language.

Keywords: *identity, regional identity, national identity, Scottish English, the Scots.*

Language is one of the most vivid means of the national self-expression, no matter what status it has within a state. In addition to the officially recognized English language, the United Kingdom is home to numerous territorial dialects and languages specific to its constituent countries.

Each of the nations of these countries has its own identity formed in the course of the historical and political development. However, after the unification into the UK in the 18th century, they became parts of one state, which led to the emergence of their dual identity: state (British) and national identity, belonging to the historical ethnos of the country that is part of the UK (English/Scottish/Welsh/Irish) [7: 143]. It is important to point out that fewer and fewer residents of these countries define themselves as British. According to the census in December 2022, the number of the Scots identifying themselves as only British is 9%, those who identify themselves more British than Scottish 5%, and those who define themselves as British and Scottish equally 26% [23] (consult the Table 1).

Table 1
National identity in Scotland 2012-2022. [23]

	11 Jan 2012	9 Dec 2013	28 Apr 2014	31 Aug 2016	5 Jun 2018	15 Dec 2020	28 Oct 2021	21 Dec 2022
Scottish not British	23%	27%	24%	28%	24%	33%	32%	33%
More Scottish than British	28%	27%	26%	28%	34%	20%	23%	22%
Equally Scottish and British	28%	27%	31%	29%	23%	26%	26%	26%
More British than Scottish	6%	4%	5%	4%	9%	6%	6%	5%
British not Scottish	8%	10%	9%	6%	5%	10%	9%	9%

The national identity of the Scots has been constructed since the first Scottish settlers established settlements in the west of the Scottish Highlands, and developed Scottish Gaelic as a means of expressing their ethnic independence. In the 14th century the wars for Scottish independence against Edward I of England led to escalated national consciousness and political independence for Scotland [6]. By that time, the language of the population had already been Scots, a language of the Germanic group, which was developing independently from English and strengthened the national consciousness of the people of Scotland (it should not be confused with Scottish Gaelic belonging to the Celtic languages),

According to the sociological dictionary by Osipov G.V., national identity is the feeling of belonging to a nation, i.e. an ethnic community united through the following factors: 1) common territory; 2) historical destiny; 3) literary language; 4) culture and traditions; 5) commodity-market relations and 6) state structure [5: 276]. As we can assume, in the medieval period, the Scottish nation possessed all the listed features, and its state was sovereign in the British Isles.

As it is known, England and Scotland were united under one crown when James I Stuart ascended to the throne [9: 53]. After the unification of England, Scotland and Wales into the United Kingdom the identity of the Scots became complex: national, state's (i.e. political) and regional at the same time.

This paper will focus on Scottish English, which has the status of a dialect throughout the United Kingdom [3:2], and how it functions as a means of expressing regional identity.

To begin with, we need to define what a region and regional identity are. Region is an ambiguous concept, the size of which varies in each case. A region can be an administrative unit or a particular settlement [7: 85]. In our case, the region is considered to be the whole territory of Scotland in relation to the UK. Identity within a region derives from ethnic identity, national identity, linguistic identity, cultural identity [1: 209]. For a better understanding, we should separate the concepts of ethnic, national and regional identity. Ethnic identity is based on belonging to an ethnic group and to its contrast with other groups on the following parameters: language, race, common origin and culture [5: 137]. National identity is based on the same criteria but economic and political parameters are added to them, uniting the ethnos into a nation, as was discussed above [5: 276]. Regional identity is formed on the basis of national identity; but at the same time, the representatives of regional identity identify themselves as a separate group within their region [3: 52]. In addition, regional identity has a means of expression: Scottish English (in this study).

Scottish English is a dialect of English, the result of a mixture of Standard English and Scots, that has differences at all levels of the language: phonetic, grammatical and lexical. Moreover, the Scottish government supports not only Scottish English, but also other minority languages such as Scots and Scottish Gaelic [20].

To begin with, we will analyze some phonetic features of Scottish English common for all regions of Scotland. Regional differences in local dialects were taken in account, and four main groups were taken as a basis: Northern dialects, South-Eastern dialects, dialect of Glasgow and dialect of Edinburgh.

Among consonants, the most common feature is the rhotic [r] that is pronounced in four positions in the word (consult the Table 2):

Table 2
The peculiarities in the pronunciation of [r] sound

After explosive and fricative consonants	After a long vowel, diphthong or [ə:] sound	In intervocalic position or between a vowel and a sonorant consonant	At the end of words
“It supposed to be <i>restricted</i> parking.” [21]; “This our podcast <i>introducing</i> our new <i>drummer</i> Graeme.” [19]	“Even who are in the band <...> have never made it perfectly, to sum up in a few <i>words</i> ...” [18] “As he steps back, the wooden flooring gives way and he falls into another <i>burial</i> pit.” [16]	“Its [of the song] <i>chorus</i> , its colour, it’s action, its subject it’s about loss and grief...” [13]; “It would be great and funny <i>experience</i> .” [19]	“We flew <i>over</i> the Seahawk about half and <i>hour</i> ago.” [21]; “And we’re gonna head out to catch some of that shellfish for our <i>dinner</i> tonight.” [16]

Another common feature is the replacement of [s] with [ʃ]: “I think, they had some kind of *chemistry* [ˈkemɪʃtrɪ] there, and I heard it off in the studio.” [13]; “There is never two days the *same* [ˈʃeɪm] on this job.” [16]; “it lets you focus on the music *unless* you [ənˈleɪʃ.ju] focus on the things you do and don’t need to be worrying about.” [19]. The reverse replacement of [ʃ] with [s] occurs in most of the analyzed dialects: “I need an advice, wee fiberglass *issue* [ˈɪsjuː].” [21]; “We were initially gonna film down near south *shore* [soː].” [13].

Also there are positional changes of consonants in Scottish English. One of them is the palatalization of explosive consonants: “And if it’s your passion, if it’s something you wanna do, keep on it, keep *pushing* [pjuʃ].” [13]; “Normally they would deny all *accusations* [ˌækˈuːzəʃənz] of witchcraft because the end doesn’t look good to them.” [16].

The most vivid and numerous deviations from Standard English occur in vowels. This is especially noticeable in diphthongs which are monophthongized. The first diphthong under consideration is [əu]. In most dialects, it is pronounced as a monophthong [ɔ]: “leave me *alone* [əˈlɔn]!” [21]; “we’re looking forward to playing in Glasgow again because we’ve not done that since *October* [ɔkˈtəbər]

2019.” [19]. The English diphthong [aɪ] has two variant in Scottish English: 1) monophthongization into [ɪ]: “you run on a flat about 30 seconds and everyone *incline* [ɪnˈkɪn] that way or incline that way...” [19]; 2) transition to diphthong [eɪ]: “I suppose, that bands are always *combined* [kəmˈbeɪnd].” [13].

Turning to monophthongs, there are two common cases worth mentioning. The first is the lack of opposition between [æ] and [ɑ:] in the closed syllable: “if you ever *travel* [ˈtrævəl] the world, no *matter* [ˈmɑʔə] what country you go to, I always seem to encounter *bagpipes* [ˈbɑgˌpaɪps] somewhere.” [16]; “either the phone is out of the range or the *battery*’s [ˈbɑʔəri] been removed.” [21]. The second case is the absence of [ə:], resulting in two main changes: 1) monophthongization into [e]: “The viscous materials inside the bag *turned* [ˈtɜrn(ə)d] out to be blood.” [21]; “when I *heard* [ˈhɜrd] the first song and a was initially a fan” [13]; 2) monophthongization into [ɔ(:)]¹: “nicely *worded* [ˈwɔ:rdɪd].” [19].

Let us consider the other linguistic changes. In Scottish English adjectives are often formed with the suffix “-y-” and its variants “-ie-/i-”: “And the old hag, the would apparently rule over the winter, and there would be another hag, sort of *summery* hag.” [16]. The adjective “summery” also exists in Standard English but it has a less broad meaning, e.g. in relation to clothing intended for summer. “Who am I to be too *choosy*?” [21]. The adjective “choosy” with the meaning “fastidious” is formed from the verb “to choose” with the help of this suffix. The suffix “-y-” can also be added to nouns: “Frank is waving the claymore and you are *piggy* in the middle.” [21]. “You saw me on the *telly*?” [21]. Such forms of words can have a diminutive meaning as well as keep the common meaning.

Compound pronouns should be also examined: “you run on a flat about 30 seconds and *everyone* incline that way or incline that way...” [19]. In the given context, it is observed the use of the pronoun “everyone” to denote an inanimate object instead of the standard pronoun “everything”. The root “-one-” is used more often in Scottish English for indefinite and negative pronouns.

There is a certain pronoun “youse” in Scottish English for the second person in plural: “Any of *youse* want to help?” [21].

The vocabulary of Scottish English differs from Standard English. One of the dialectisms is the well-known Scottish “wee”: “I saw your *wee* film on YouTube.” [21]. This adjective is of Germanic origin, formed from the noun “wæge” which denoted a measure of weight in Old English [17]. The noun can also be formed from this adjective: “Now that’s mainly tourists who hired a boat and wanted to tie down their *weans*.” [21]. The word “weans” is the result blending: “wee” and “ones”, which is the plural form of the Old English numeral “an”. This word is often used to refer to children.

Words of this category may also exist only within a particular dialect of Scottish English. For example, the word “riddy” (also “reddy/reddie”) is used in the

¹ Characteristic of western dialects.

dialect of Glasgow: “And yet it was also Glasgow’s corner of the broken hearted, with some regarding it as ‘*Riddy Corner*’ due to the fact that some of the faces of the folk waiting would be beelin’ from the embarrassment of their ‘date’ not turning up”. [12]. The adjective “riddy”, which is part of the proper name “Riddy Corner”, is an obsolete form of a word from English. The word is of Germanic origin and it has retained the Middle English spelling, whereas in Standard English the word got the form “ready”.

Let us turn to the examination of some borrowings. One of such words is the common adjective “bonny”: “the bones of Nessie were found on the *bonny bonny* banks of the loch” [21]. The word “bonny/-ie” has the meaning “beautiful, lovely”. The origin of the word is uncertain but it is assumed that it goes back to Old French word “bon” with the meaning “good” [17]. Another example of French borrowing is the adverb “braw”: “No, no, I’m *braw*.” [18] with the meaning “well”. This word is of Middle French origin (“brave”) with the meaning “splendid, valiant” [15: 93]. In Standard English, the French form has remained with the same spelling and the only meaning “brave”. On the contrary, in Scots the word “braw” has multiple meanings: “beautiful, attractive”, as well as “famous, respected” (also in an ironic context) or “pleasant, nice” (referring to the weather) [15]. The other word is common for proper names of churches, an obsolete word “kirk”: “Liberton Kirk has over 16,000 poppies on its exterior as it marks the Centenary of the Armistice at the end of the First World War” [11]. “Kirk” is a word of Germanic origin [17]. In the article, the word “kirk” is a part of the proper name “Liberton Kirk” and therefore the use of the English word “church” here would be incorrect.

A special group of lexemes is formed by the realia specific only for Scotland. These words play a crucial role for the uniqueness of the Scottish dialect and emphasize the commitment of the speakers to their nation. Realia include specific toponyms: “You are working *Loch Ness*” [21], “We are going to fly across Ben Lomond which is a *munro*.” [16]; “As the trail winds its way through beautiful countryside there are numerous picturesque villages, distilleries, castles, historic battle grounds and wild secluded *glens*...”. [14: 14]. The word “loch” from the presented example is of Celtic origin (a part of the name of the famous lake Loch Ness), a noun in the Scottish dialect, denotes any lake. The word “Munro” is a toponym referring to mountains above 3000 feet² high. The word originated from Sir Hugh Munro’s name, and now it is used by climbers in the country. “Glen” is one of the most characteristic toponyms for Scotland. It is used both in the nominative meaning “mountain valley” and as a part of proper names. The word is of Celtic origin (Gaelic: *gleann*) [15: 314] and is more common for the population of Scotland than the word “valley” in Standard English.

The lexemes given in the following examples should be considered as well: “The essence of the *ceilidh* going back into the mists of prehistory.” [16]. “Ceilidh”

² About 915 meters.

is a unique realia for Scotland, denoting a party with folk songs and dances. The lexeme itself was borrowed from the Irish language [20]. “I suppose every Scot feels that way about their *tartan* plaid.” [16]. One of the most well-known realia associated with Scotland are the kilt and tartan. The word “tartan” was borrowed from Old French [17], and it denoted the woolen fabric from which a kilt is made (although the word “kilt”, denoted a piece of clothes itself, is of Scandinavian origin [17]). “Three of Scotland’s oldest sporting and cultural bodies are coming together to offer a major set of prizes for an original musical competition, marking the absence of *shinty* from this summer’s sporting calendar.” [22]. “Shinty” is a word of Celtic origin and it was presumably formed from the specific cry “shin ye” made during the game, although in Scottish Gaelic the game has a different name “camanchd” [15]. Another realia of Scotland, especially its Northern regions, is the Iron Age fortification called by the word “broch”. In the TV series *Outlander*, it is mentioned as a part of Lallybroch castle: “Jenny told me about a small sum your father left. It’s ferreted away in a nook in the *broch*.” [18]. In the Old English period, the word “borg” changed its form to “burh”, and its modern form “burgh” is used in names of towns and cities e.g. Edinburgh (the meaning “town” can be also found in Scots). Moreover, the word “broch” has a homonym of Celtic origin borrowed from the Pictish language, but there it has another meaning, such as “ring” [10]. It is worth mentioning that brochs were built in the shape of a circle.

Having analyzed some peculiarities of Scottish English, we can conclude that at all linguistic levels we can notice the influence if Scots, from which the dialect originated. Scottish English as a dialect is a means of expression of regional identity for the Scots, as they are still in the same linguistic environment as the whole population of the UK, but at the same time, the dialect reflects cultural and historical peculiarities of the Scots.

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全球-區域世界秩序中的衝突：研究與預防的特點
**CONFLICTS IN THE GLOBAL-REGIONAL WORLD ORDER:
PECULIARITIES OF STUDY AND PREVENTION**

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註解。 文章探討了現代社會衝突的特徵。 作者重點研究演算法解決社會衝突的起源和選擇。 展示了結合全球和區域趨勢的解決現代衝突的方式。 作者分析了現代世界社會衝突日益嚴重的威脅所造成的問題。 事實證明，解決衝突的有效方法與世界大同的理念有關。

對現代世界社會衝突本質的研究，包括對人類文明特徵的威脅的分析。 當今世界，人們對生命價值的認知顯著增強。 自我保護的本能喚醒了人類的團結意識。 具體表現為試圖透過立法禁止某些可能引發社會衝突的社會行為。

關鍵字：衝突、全球-區域世界秩序、普世價值、共同演化發展、協同作用。

Annotation. *The article examines the features of conflicts in modern society. The author focuses on the algorithm for studying the origins and options for resolving social conflicts. The ways of resolving modern conflicts, which combine global and regional trends, are shown. The author analyzes the problems caused by the growing threats of social conflicts in the modern world. It is proved that effective ways of conflict resolution are associated with the concept of the unity of the world.*

The study of the essence of social conflicts in the modern world includes the analysis of threats characteristic of human civilization. In today's world, awareness of the value of human life has increased significantly. The instinct of self-preservation awakens a sense of human unity. In particular, it manifests itself

in attempts to legislatively prohibit certain social actions that can provoke social conflicts.

Keywords: *conflict, global-regional world order, universal values, co-evolutionary development, synergetics.*

The relevance of the article is due to the fact that the consideration of conflict situations reveals the systemic causes and dynamics of social conflict in the context of a change in the sociocultural paradigm, and also makes it possible to mitigate their consequences in the emerging global-regional world order. At this stage of social development, those research works that analyze issues related to social conflicts through the prism of the information revolution, which significantly accelerates communication processes, while expanding the field of potential conflicts, become of great importance.

To obtain the most complete picture when studying conflict, it is important to constantly update research methods, since the complexity of studying conflict situations in society is largely due to social dynamics. The development of integrative methods of theoretical and applied analysis of problems related to the causes, essence and consequences of social conflicts, to some extent compensates for the lack of scientific works on this topic. An interdisciplinary approach is also gaining great importance, which contributes to a significant expansion of the subject field of research. The role of an interdisciplinary approach in issues related to the study of the peculiarities of the course of social conflicts especially increases with the intensification of the latest information technologies both in theoretical works and at the level of social practice, therefore, in the future, such methodological developments can lay claim to an independent direction of philosophy.

All of these factors put forward not the first place the need to develop issues related to social conflict, formed on the basis of the study of problems of social security. During the Soviet period, the study of the origins and essence of social conflicts was closely determined by the level of security of the state, which dictated the need to reproduce a certain algorithm for the development of society. The advantages of such scientific developments are that they are aimed at the processes of education and development of individuals with the help of social institutions that acted as ideologically oriented and filled with appropriate theoretical apologetics. We have to admit that “historical features fundamentally influenced Russia, since it, as a geopolitical subject, could not be formed by analogy with other neighboring states, not only because of the vastness of its territory, but also due to established ideas about the role of the state in issues related to with security and foreign policy” [1, p. 206]. In this social space, the likelihood of social conflicts increased significantly at the turn of the century.

I.F. Kefeli, in his monograph “Asphatronics: Towards a Theory of Global Security,” analyzes in detail the danger of new threats that were a side effect of the

explosive development of the latest information technologies. Against this background, “modeling geopolitical dynamics based on game theory methods (in particular, the theory of cooperative games)” looks increasingly promising, as well as “the timeliness of including in the geopolitical discourse ideas about the global information field (space), which is the sphere of not only the military, but informational and psychological confrontation” [2, p. 80].

The likelihood of social conflicts is largely due to the information revolution, because global informatization, which penetrates more and more deeply into all spheres of life and activity of the population, makes it possible to control the consciousness of citizens. A special vector in the study of social conflict is associated with the emergence of such a phenomenon as virtual reality, since it began to displace traditional communications in society, giving rise to social conflicts of a new level. In this case, the basis of social conflicts is the space of a “virtual person” who lives in the network space on the basis of freedom and privacy. Virtual reality leads to the digital transformation of personality in modern space [3, p. 85].

One of the factors that creates social tension in society, which can develop into social conflict, is the attempt by subjects to impose the so-called ideology of globalism. “universal human values”. However, mondialist aspirations failed, despite geopolitical pressure, because many peoples sought to preserve their identity based on a historically established system of values. However, theorists were forced to revise traditional concepts of state development in order to prevent conflict, since many social systems of the world, for various reasons, found themselves in a deep crisis, although the reasons were different.

When studying conflicts, it is also important to take into account the fact of a significant expansion of the social space for its emergence in recent decades, which is explained by the not always effective work of the relevant state institutions during a specific historical period. When the disappeared forms of state arbitrariness in society were replaced by new forms of arbitrariness that sought to replace state functions, the legal situation in any country deteriorates significantly. Of particular danger is the fact that private individuals began to use the right at their own discretion to achieve their own goals [4, p. 63], and this created the ground for conflicts at various levels. Knowledge of the causes and essence of the conflict also presupposes an understanding of the fact that human rights are purely Western phenomena based on individualism, therefore the West has no right to impose its political values on other societies to which this is alien. With this approach, homogeneous civilizations, united “from above” by core states, act as specific guardians of the international order, helping each other to preserve the purity of their respective civilizations through mutual confrontation.

In the process of studying social conflict, an important place is occupied by the problem of freedom, which has always played a leading role in the legal doc-

uments of Western countries. Freedom, which has always occupied an important place in the Western axiological system and often acted as a criterion for the democracy of a social system, was also the cause of many conflicts. This was due to the egocentric aspirations of representatives of Western countries, who propagated their idea of “freedom,” which often contradicted the traditions and mentality of specific social organisms. Such trends have a noticeable impact on the future prospects for the development of both individual regional communities and all of humanity, since in such conditions the basis for potential conflicts is formed.

When studying the features of a modern conflict, it is necessary to pay attention to the dangerous trend associated with the fact that in certain circles attempts are being made to justify war as a way to resolve specific contradictions. Moreover, some scientists believe that “... new wars should be considered part of the dominant civilizational clash, and patron superpowers should be re-created on the basis of cultural community, not ideology” [5, p. 359-360].

The universalization of social space, which was undertaken at the end of the twentieth century, could not be fully realized, because such a negative integrity of the world is not a natural unity of people, and therefore cannot become an effective platform for preventing conflicts at various levels. History shows that such an alliance can be extremely short-lived due to the lack of guarantees that people who have created any alliance to resist a common threat can return to confrontation after victory. A logical and well-founded conclusion about the need to live in peace can only appear on the basis of common, clearly formulated creative interests that are fully realized by the various layers of the social organism. When the determining trend in people’s lives becomes the predominance of common goals over selfish interests, then human unity becomes a natural expression of the deep essence of human species existence, reducing to a minimum the conflicting existence of various social organisms. At the same time, the forced need for a temporary unification of people, manifested in the fight against social cataclysms, as a rule, can only manifest itself as a tactical step, and such a situation most often gives way to a former confrontation. “The shift in the center of gravity of world political and economic processes to the Asia-Pacific region (APR) and the “rise” of China, calling into question the future of American regional leadership, contributed to the intensification of Washington’s interest in this region at the end of the first decade of the 21st century.” [6, p. 22]. However, as history has shown, US interest in any region has always been accompanied by geopolitical conflicts. Naturally, there is hope that the current negative-conflict integrity of the world, which has been characteristic of recent decades, will push humanity towards the formation of real mechanisms for the true integrity of the world.

Studying the origins, essence and consequences of modern social conflicts is a primary task for teaching staff, because we are talking about collective and in-

dividual responsibility for the life of humanity as a whole and each person individually. New approaches to preventing social conflicts, and the theoretical justification for their prevention, are aimed at ensuring the co-evolution of nature and society, thus providing opportunities for the transition of humanity into the era of the noosphere.

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一般言語發展不全的學齡前兒童與家長的關係

RELATIONSHIPS BETWEEN PARENTS AND PRESCHOOL CHILDREN WITH GENERAL SPEECH UNDERDEVELOPMENT

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註解。 在文章中，我們重點介紹了家長與語言障礙學齡前兒童之間關係的特徵。 它呈現了對家庭養育方式的特殊性、父母對言語障礙兒童的態度以及孩子對家庭中成人的態度進行實證研究的結果。 分析了父母對教養方式測驗的反應。 對父母和孩子的畫作進行檢查和比較，並對畫中的每個細節進行描述。 透過與家長比較卡片的顏色和順序來分析孩子的選擇結果。 基於實驗，得出結論並提出解決該問題的途徑。

關鍵字：家庭、一般語言發展不全的兒童、心理和教學支持、發展特徵、關係。

Annotation. *In the article we highlight the features of the relationship between parents and preschool children with speech impairment. It presents the results of an empirical study of the peculiarities of the parenting style in the family, the attitude of parents towards a child with speech impairments, as well as the attitude of the child towards adults in the family. Parents' responses to the parenting style test are analyzed. The drawings of parents and children are examined and compared, and a description of each detail in the drawing is given. The results of the child's choice are analyzed when comparing the color and order of the card with the parent. Based on the experiment, conclusions and a way to solve this problem were reflected.*

Keywords: *family, child with general speech underdevelopment, psychological and pedagogical support, developmental features, relationships.*

Most parents strive for the harmonious development of their child. Scientists identify the main areas of development in a child: physical, intellectual, mental, social, emotional, speech. One of the noticeable and concerning areas of development for parents is speech. It is speech that is a clear indicator for mom and dad that the child has problems or disorders in individual development.

Speech disorders are very diverse, their diversity depends on the complexity of the anatomical and physiological mechanisms involved in the formation and course of the speech act; from the close interaction of the human body with the external environment; from the social conditioning of speech, both in relation to its form and content [8]. But the most common speech therapy findings in children are dysarthria (diagnosed by a neurologist) and general speech underdevelopment (GSD). Dysarthria is an articulation disorder in which the innervation of the muscles of the speech apparatus is impaired (paresis, spasms, hyperkinesis) [3]. GSD are various complex speech disorders in which the formation of all components of the speech system related to its sound and semantic (lexico-grammatical) side is impaired in children, with normal hearing and intelligence. These definitions are important for teachers and parents. During the consultation, the speech therapist teacher is obliged to explain to the family the features of these disorders so that the parents have an idea of the upcoming correctional work with the child. Teachers, in turn, begin to build a corrective individual educational route, after which positive results will be achieved for a child with a speech disorder. To achieve quick and positive results, not only children, but also their parents should be trained, because consolidation of a topic, skill, ability takes place at home under the supervision of adults.

Based on the above, overcoming GSD is most effective under conditions of psychological and pedagogical support. Scientist V.V. Tkacheva points out the need to study families with children with special needs of psychophysical development, and to develop a system of measures to provide them with psychological and pedagogical assistance [7]. Researcher Y.A. Belopolova considers another concept - this is psychological and pedagogical support. Psychological and pedagogical support acts as a unity of activities of all participants in the pedagogical process, focused on creating conditions for the harmonious development of a child throughout the entire preschool period of life while maximizing the preservation of personal freedom and the formation of responsibility. The main goal of support is to create and maintain a safe developmental environment in an educational institution that promotes the fullest development of the potential of each child [2].

At the moment, there is not enough research in the specialized psychological and pedagogical literature on families with a preschool child with special needs development disorders and their psychological and pedagogical support. Accordingly, it is necessary to consider the style of upbringing in the family, the attitude of parents towards a child with speech impairments, as well as the attitude of the child towards parents. After this study, conclusions should be drawn as to whether there is a need to develop a program for psychological and pedagogical support for families with preschool children with special needs development or whether this study is not relevant for this category of children.

The purpose of this study is to analyze relationships in families raising preschool children with general speech underdevelopment. 4 research methods were selected for the study:

- Questionnaire of parental relations (A.Y. Varga, V.V. Stolin) [6];
- Projective technique “My child is my flower” (I. Shevtsova) [5];
- Projective technique “Drawing a family” (V.K. Loseva) [4];
- Color Relationship Test (CRT) A.M. Etkind [1].

The experimental study was conducted on the basis of the Municipal Budgetary Institution “Center for Psychological, Pedagogical, Medical and Social Assistance No. 7 “Able Child” (MBI CPPMaSA No. 7 “Able Child”) in Krasnoyarsk. 20 families took part in the study. Of these, 38 parents (21 mothers and 17 fathers) and 20 preschool children have general speech underdevelopment. Total number of study participants: 58 people. The age of the parents ranges from 30 to 50 years. The age of children is from 6 to 7 years.

In the first method, “Parental Relationship Questionnaire,” parents were offered a test consisting of 61 questions. This technique is intended to determine the parenting style and attitude of the parent to the child in the family. The results of the questionnaire were measured on five scales: “Acceptance-rejection”, “Cooperation”, “Symbiosis”, “Authoritarian hypersocialization”, “Little loser”. Having analyzed all the parents’ answers, we can note that 47.7% of parents, which is almost half, have a negative attitude towards their own child. These responses from parents according to the “Acceptance-Rejection” indicator indicate that mom and dad accept their child, take into account his interests, but due to the characteristics of the child with ODD, they do not believe in him, evaluate his results low, often considering him a failure in life. Also, on the “Cooperation” scale, 72.5% of parents expressed a positive attitude towards the child. These results indicate that parents are interested in the child and his future. Adults try to be on an equal footing with the child and try to sympathize with him, but this does not always work. Further, on the “Symbiosis” scale, 77.1% of parents expressed a positive attitude towards the child on the scale. This means that parents constantly feel worried about their children. For such parents, children seem small and defenseless. Interesting results were obtained on the “Authoritarian hypersocialization” scale. 80.5% of parents showed a positive attitude towards a child with speech impairments. This, in turn, indicates that parents demand unconditional obedience and discipline from their children. Mom or dad can punish children for displaying self-will. Also, 89.3% of parents consider the child a “little loser” and treat him as an unintelligent creature. The interests, hobbies, thoughts and feelings of a child seem frivolous to such an adult, and he can ignore them.

In the second projective technique for parents, “My child is my flower,” the features of the parents’ relationship to the child were identified. Parents were of-

ferred colored pencils and a sheet of A-4 paper. Each parent had to draw a child in the form of a plant. Based on the results of the projective technique, we can say that the majority of parents (33.3%) drew their child in the form of a daisy. Such a flower in the picture is most often even with symmetrical petals. It can be assumed that this parent is a “rules person.” Another part of the parents (26.7%) drew the child in the form of a magic flower. Such flowers are characterized by bright petals or the use of all the colors of the rainbow on the flower itself (for example, “seven-flowered flower”). We believe that magical flowers are not so simple, because such beauty and magic are just an illusion for other people. There are parents who drew their child as a tree (30%). The trees were varied: oak, birch, poplar, willow, apple tree. Some trees had visible roots, which could mean a strong connection with parents or strong support from relatives. It can also be noted that there were trees with fruits (apple tree - apples, oak - acorns). The fruits can symbolize the parents’ desire to see results from their child. The tree plant itself can be characterized by high demands on the child. One mother (3.3%) drew her child as a lotus on a water lily. The most interesting thing is that the big lotus was not alone on the water; next to it floated the same one, only a small flower. There is only one single child in the family, so a small flower can mean either control or overprotection on the part of the mother. A large flower is interpreted as anxiety, a feeling of guilt towards the child. Perhaps the mother blames herself for not spending enough time with the child because of work or for not showing her love enough. Another parent (dad) drew the child as a dandelion with fluffy seeds scattering. Such a flower may indicate that the father considers his child not emotionally stable enough. Most likely, the child often gets upset if he loses in a game, does not know how to accept his mistakes, and often changes his mood. Other parents (6.7%) depicted theirs as a rose. Such a flower was drawn with bright colors and thorns on the stem. Thorns can mean problems in family relationships. Such a child may not obey his parents, and the parents themselves may be aggressive towards him. Accordingly, in such a family there are constantly conflicts, misunderstandings, and quarrels. There are also parents (6.7%) who drew their child as a cactus. The cactus plant itself is characterized by spines, so the child can be withdrawn, outcast, and a loner both in the family and in the company of peers. Some parents (6.7%) drew their child as a flower in a pot. The pot can act as protection for the flower, where it will be fed and watered. This may mean overprotection in the family or a symbiotic relationship between parents and child. In such relationships, family members are dependent on each other. I would also like to note that there were parents (fathers) who handed in blank sheets. This meant refusing the assignment. Unfortunately, if a parent refuses to complete a task, then most likely such families always have problems. Such parents accounted for 10%.

For children in the third projective method, “My Family,” a set of pencils and a sheet of A-4 paper were offered. The children had to draw their family. Let us note

the features of some of the children's drawings. 45% of children have all family members in their drawings. This suggests that all family members are important to the child. But 20% of children do not have a brother or sister, which may indicate negative feelings towards this family member (for example, jealousy). The remaining children (25% and 10%, respectively) have no father or mother. It can be assumed that the child forgot to draw his parent due to the fact that he does not have an emotional connection with him. Another option for the absence of a father or mother in the picture is that the family is at the stage of divorce. The presence of an author is also an important criterion. So, 95% of children have the author himself in their drawings. Only one child (5%) did not draw himself. It is possible that this child has difficulties in relationships with loved ones. The distance of the characters in the picture is associated with psychological distance. Whoever is closer to the child is closer psychologically. Thus, 50% of children note that they are close to their mother and/or father. In 25% of the children in the drawings, the author is close to his sister or brother. This suggests that they are emotionally connected and friendly, and can trust each other in difficult moments. Some children (15%) drew a picture of their grandparents next to them. The rest of the small part of the children drew another person next to them (their best friend, uncle, aunt). This may indicate that the child has negative experiences associated with the family or dissatisfaction with the family situation. The contact of the characters in the drawing is a significant aspect in the interpretation of the drawing, because it shows how close psychological contact the family members are. An equal number of children (40% each) drew touching and non-touching characters. If the characters stand apart from each other without holding hands, it means the child does not believe that there is psychological contact between them in the family. 20% of children have 2 or 3 characters drawn holding hands. The rest of the family members are separated from them. This means that the child is closer to this character, most often this is mom or dad. If we look at the faces of the characters in the drawing, we can note that an equal number of children (5% each) in the drawings of the characters have no eyes or eyes that are "dots" or "slits". We can assume that the child considers such characters to be psychologically closed people. The majority of children (30%) in the drawings of the characters do not have ears. The ears are the organ for receiving criticism or another person's opinion about oneself. This means that if the characters are drawn without ears, then family members do not hear each other and ignore everything around them. The remaining children were divided into 20%. One part of the children drew big eyes on some family members, which may indicate anxiety, concern, and a desire to help. The second part of the children drew characters with a large open mouth and some also had a mouth with teeth. This feature may indicate aggression or be a source of threat from this family member. The third part of the drawings was without any features, that is,

all parts of the face were drawn for all the characters. Features were also revealed in parts of the body. Thus, the majority of children (50%) did not draw a neck for the characters. The neck can act as the ability to control one's senses. Most often, parents of such children ask them to restrain themselves in emotions and experiences, because adults do not like the child's behavior. They don't accept it. 35% of children have missing fingers or shoes in their drawings. This may mean that the child feels weak and unable to act. The remaining children (15%) had characters in their drawings with large, outstretched arms. The child considers such characters to be strong and powerful. In addition to the characters, the child could draw various details that also matter. 30% of children experience sun, grass, and sometimes clouds. Such details may indicate a lack of attention, affection or, on the contrary, warmth and comfort in the family circle. One child (5%) drew a family under a rainbow, and another child (5%) in a house. It seems to us that this may mean that the child lacks protection and wants to hide. The remaining 60% of children drew a family without any details (the family is in the air). Such children are withdrawn, uncommunicative, and loners.

In the fourth method, "Color Relationship Test" (CRT), children were offered M. Luscher color cards (8 primary colors: gray, blue, green, red, yellow, purple, brown, and black). Using these cards, the characteristics of the child's relationships with the people around him were studied. The study took the form of a game, so the cards were made in the shape of train cars. The child is given the following task: arrange the carriages from the most beautiful, pleasant to the ugliest, unpleasant. For this purpose, the psychologist asks the subject to choose the most attractive one from the eight colors offered. Next, the subject is asked to populate the concepts (mom, dad, kindergarten teacher, friend, etc.) into those cars that seem to suit him. The majority of children (45%) are neutral towards their parents. We can assume that such children may have close people - sisters, brothers, grandmothers, grandfathers. Most likely, in such families, parents devote a lot of time to work rather than to their child. I would also like to note that most often such children associate their parents with blue, gray, and brown colors. Blue color is interpreted as "close, but not always", and there may be joint games and interests with parents. Gray color means emotionlessness, criticism and pickiness towards the child. Brown color can correspond to a parent who is demanding, often punishing, angry. Children more often associated this color with their dad. The following children show a negative attitude towards their parents (35%). They associated their parents only with dark colors: gray, black, brown, purple. The color black can mean aggressiveness, persistent conflict between parent and child, as well as punishment and threats. We can note that this is manifested in the child's drawing "My Family" and in the parent's refusal to draw his child as a plant. Purple is a dark color and can indicate ignoring a parent who is not an authority figure for

the child. The remaining children (20%) moved their parents into the very first trailers. These trailers were yellow, red and green. The child associates the color yellow with a significant person who shows affection and love, and also recognizes his authority. The color red represents a cheerful parent who is “actively interacting” with the child. The last green color speaks of “hope and support.” Such a parent creates a sense of security, calm and support for their child. It is also worth noting that there were children who “forgot” to take one of their parents with them on the color train. We can assume that the child is not emotionally connected to the parent; therefore, a psychologist needs to work with this family.

Our work consisted of analyzing relationships in families raising preschool children with general speech underdevelopment. The results of the study showed us that many parents are interested in their child and his future, but most do not believe in a child with GSD because of his characteristics. Because of this, the child may experience uncertainty, fear of mistakes, and unexpected reactions while performing a task. Also, most parents have predominant control over the actions and actions of the child. This feature of the relationship can suppress the child’s initiative, while depriving him of the opportunity to learn to take responsibility for his actions. Also, it should be noted that each parent has an idea of their child. In some parents’ eyes, he is a wonderful, obedient child who completes all tasks. For another parent, the child is someone with whom they are unhappy, they are not ready to accept his characteristics, hobbies, feelings. All parents do not see their child for real. It is for this reason that conflicts and misunderstandings with the child can arise in the family. Peculiarities are also highlighted in the results of the methods in children. The children’s drawings showed contradictions between what the parent and his child had drawn. Most often, the parent draws a beautiful plant in the form of his child, and the preschooler himself draws a family where he is far from his parents or is close to other family members (grandparents, brother or sister) who are close to him. This discrepancy suggests that such families require further comprehensive work with specialists.

As practice shows, the majority of parents do not have special pedagogical education or training in building positive emotional relationships. Positive emotional relationships include mutual trust, rational assessment, support, sympathy, and adequate demands. For this reason, the problem of relationships in families raising preschool children with GSD is relevant. The further goal of our research is the development of comprehensive psychological and pedagogical support for families raising preschool children with special needs development and its testing.

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高加索自然保護區杜松和小檉的共生族群狀況

**THE STATE OF COENOPOPULATIONS OF JUNIPERUS SABINA
AND BERBERIS VULGARIS IN THE CAUCASUS NATURE
RESERVE**

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註解。 本文提供了有關高加索自然保護區（俄羅斯）稀有子遺植物物種—杜松和小檉的一些新族群的研究結果的資訊。 獲得了有關新種群空間和個體發育結構的資訊； 關於植物的衛生狀況。 收集形態測量材料進行進一步研究。 對人口的福祉進行了評估。 已經對它們的存在可能受到威脅的原因做出了假設。

關鍵字: 杜松、小檉、群居、高加索自然保護區、個體發育光譜、活力、狀況。

Annotation. The paper provides information on the results of studying some cenopopulations of rare relict plant species of the Caucasus Nature Reserve (Russia) - *Juniperus sabina* and *Berberis vulgaris*. Information was obtained on the spatial and ontogenetic structures of cenopopulations; about the sanitary condition of plants. Morphometric material was collected for further research. The well-being of populations was assessed. An assumption has been made about the reasons for possible threats to their existence.

Keywords: *Juniperus sabina*, *Berberis vulgaris*, coenopopulation, Caucasian Nature Reserve, ontogenetic spectrum, vitality, condition.

The purpose of the work was to study the state of cenopopulations of rare relict shrub species of the Caucasus Nature Reserve - *Juniperus sabina* and *Berberis vulgaris*. For this, the following tasks were set: searching in nature for places where they grow; determination of the spatial and ontogenetic structures of cenopopulations; measurement of morphometric indicators for subsequent determination of vitality structures of cenopopulations; assessment and analysis of the condition.

Materials and research methods

In the Eastern and Lagonaksky departments of the reserve, single plants and relatively numerous coenopopulations of *Juniperus sabina* and *Berberis vulgaris* were examined. Spatial structure is understood as certain mutual placements of

individuals in a coenopopulation, taking into account their size and age composition. A GPS navigator was used to determine the spatial structure. Points were plotted on the map according to coordinates using GIS MapInfo tools (Erunova et al., 2004).

To assess the vitality state of coenopopulations, a technique developed by Y.A. Zlobin (Zlobin et al., 2013). The methodology for assessing the vitality composition is based on the differentiation of plants of the same ontogenetic state into vitality classes, distinguished according to certain morphometric indicators. As objects of vitality analysis, plants of the ontogenetic state that have the greatest influence on the self-maintenance of the coenopopulation are used. Most often, generative plants are used. As morphometric indicators, the characteristics that are most closely correlated with biomass (the length of the leaf blade, the diameter of the plant, the height of the plant, etc.) and the trait that reflects reproduction (the number of fruits, flowers, their sizes, etc.) are usually selected. When processing the data obtained, vitality spectra are compiled, reflecting the ratio of the shares of plants of the highest (a), intermediate (b) and lower (c) classes of vitality. Based on the ratio of individuals of different vitality classes, populations are divided into three types: prosperous, balanced and depressed. For this purpose, the quality index (vitality index) of the coenopopulation is used, calculated by the formula: $Q=1/2(a+b)$. When $Q>c$ the coenopopulation is prosperous, when $Q=c$ it is in equilibrium, and when $Q<c$ it is depressed (Mirkin, 2001). The criteria apply only to large populations containing many generative individuals. Subsequently, these data can be compared with other cenopopulations or with the same one at another point in time. In our case, the height, diameter of the plant, width of the largest leaf and size of flowers/fruits were chosen as morphometric indicators.

One of the signs of a stable state of a population is a complete ontogenetic spectrum, in which the numerical ratio of individuals of different ontogenetic groups, different ages and vitality indicate a stable flow of generations. Such a characteristic spectrum in populations of trees and shrubs should have a left-sided maximum: the number of young individuals is maximal; the number of old individuals is minimal. Moreover, in each ontogenetic group there should be individuals of all levels of vitality, and individuals of normal vitality should predominate in number (Methodological approaches..., 2010). The ontogenetic structure was determined using standard ontogenetic keys (Ontogenetic Atlas...1993; Zlobin, 2013). The sanitary condition was assessed on a six-point scale (Management..., 1993).

Results and discussions

Juniperus sabina is listed in the Red Book of the Krasnodar Territory. It is a relict, western Palaearctic mountain species, sporadically widespread, with a limited number of growing places. It is a shrub plant. The height reaches 1-1.5 m in

height with a diameter of 2-3 m. The crown is wide-spread. There are two types of needles: in young plants they are needle-shaped, bluish-green; in adult plants the needles are scaly. The cone berries are round or oval, black and blue with a bluish bloom, 5–7 mm in diameter. It grows mainly on rocks in the high- and mid-mountain zones (Red Book of the Krasnodar Territory, 2017). It is rare in the reserve, only in the Eastern and Lagonaksky departments.

In the Eastern department on the Small Balkan ridge, a small coenopopulation was examined *Juniperus sabina*. For the river basin Malaya Laba is the only currently known place of its growth. *Juniperus sabina* grows here on 17.5 km of the trail from the cordon of the Chernorechye nature reserve towards the Umpyr cordon. The coenopopulation is located on rocky ledges under the canopy of a rare (density 0.3) pine-oak-maple-rowan forest with a rare undergrowth of rose hips. There are 8 clumps of *Juniperus sabina* ranging in size from 2x2 m to 5x5 m. The juniper occupies a total area of 50x30 m. The number of stems in a clump varies from 38 to 184 pieces. The diameter at the root collar is 2-12 cm; the length of the shoots is 0.4-4.5 m. The average diameter of the stems is 5.5 cm. The average length of shoots is 2.4 m (Fig. 1).



Figure 1. *Juniperus sabina*, shoot, ridge Small Balkans

The average fruit diameter is 0.4 cm. The ontogenetic spectrum is complete, with a predominance of virginal and young generative individuals, which makes the population quite stable. The sanitary condition is satisfactory. No traces of the presence of insect pests were found. There is a slight yellowing of individual branches in old individuals.

In the Lagonaksky department, *Juniperus sabina* is found in several places. At this stage of research, *Juniperus sabina* was examined in the upper reaches of the

river Kurdzhips. On the left bank of its left source, the species is found relatively often along rocky ledges. Juniper forms relatively large clumps, covering large areas. It is located mainly in open spaces, less often along the edges of willow, rowan or pine forests. Berberis vulgaris often grows together with it. The species occurred at eight sites (Fig. 2).

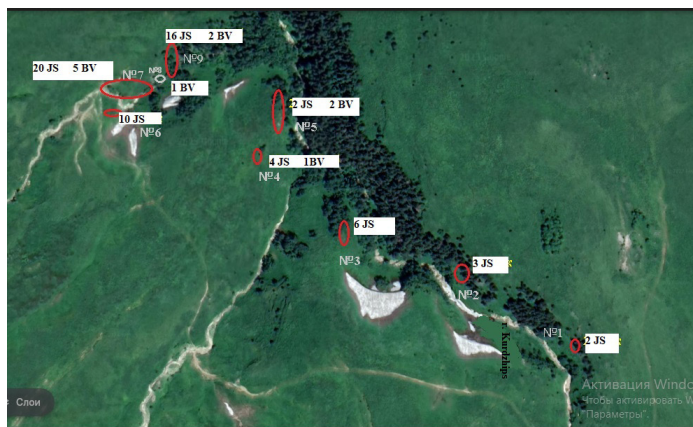


Figure 2. Places where *Juniperus sabina* and *Berberis vulgaris* grow, the upper reaches of the river. Kurdzhips

Information on the number of barberry bushes and juniper clumps in the upper reaches of the river Kurdzhips, as well as their sizes, are given in the table.

Table

*The number of bushes of *Berberis vulgaris* and clumps of *Juniperus sabina* examined in the upper reaches of the river Kurdzhips.*

Plot number	View	Quantity	Area under curtains m2
1	<i>Juniperus sabina</i>	2 curtains	10
2	<i>Juniperus sabina</i>	3 curtains	20
3	<i>Juniperus sabina</i>	6 curtains	thirty
4	<i>Juniperus sabina</i>	4 curtains	12
	<i>Berberis vulgaris</i>	1 bush	2
5	<i>Juniperus sabina</i>	12 curtains	74.4
	<i>Berberis vulgaris</i>	2 bushes	5
6	<i>Juniperus sabina</i>	10 curtains	18
7	<i>Berberis vulgaris</i>	5 bushes	10
	<i>Juniperus sabina</i>	20 curtains	338.25

8	Berberis vulgaris	1 bush	2
9	Juniperus sabina	16 curtains	180
	Berberis vulgaris	2 bushes	4

Juniper formed clumps that occupied relatively large areas of 10-30 m². Sometimes the area occupied by juniper reached 74-338 m² (Fig. 3). The height of the *Juniperus sabina* bushes did not exceed 60-70 cm. The number of stems in the clump reached 500 pieces and more. The diameters of the largest shoot in the bush varied from 1.5-2 cm to 3-4 cm, only occasionally specimens 5 cm in diameter were found. The average length of shoots in a bush is 1.1 m (from 0.4 to 2.5 m). The maximum shoots reached 3.5-4 m. A small number of fruiting specimens were noted in the coenopopulation (2 clumps). The average fruit size is 0.5x0.3 cm. The ontogenetic spectrum is dominated by young plants in the virginal and immature states. The sanitary condition of juniper plants is satisfactory - an average of 2.2 points. No diseases were noted.



Figure 3. Curtains of *Juniperus sabina*, upper reaches of the river Kurdzhips

Berberis vulgaris is listed in the Red Book of the Republic of Adygea. It is a shrubby deciduous plant. Relic. The fruits (berries) are oblong, fleshy, red, and edible (Red Book of the Republic of Adygea, 2012). It grows singly or in small groups and is rare in the reserve.

In the upper reaches of the river 12 bushes up to 2.5 m high (0.9-1.9) were observed. Mostly single specimens were encountered. Some grew directly from the juniper bush. The average diameter of barberry stems is 3.5 cm (2-5). The number

of stems in a bush is from 3 to 30 pieces. The leaves are small. The width of the largest leaf varied from 2.5 cm to 6.6 cm (4.8 cm). The vast majority of plants bore fruit. Fruiting is abundant. The number of fruits on one trunk sometimes reached 400-800 pieces (Fig. 4). The fruits are relatively large. Average fruit sizes: 0.7x0.3 cm (from 0.5x0.2 to 1.3x0.5 cm). The sanitary condition of plants is satisfactory - an average of 2 points.



Figure 4. Fruiting of *Berberis vulgaris*, upper reaches of the river Kurdzhips

Conclusions

Most of the studied cenopopulations are characterized by a mosaic structure of the location of individuals. It is expressed in the alternation of areas occupied and not occupied by individuals, as well as areas with higher and lower densities. The densest clumps of *Juniperus sabina* were located on the Lagonaksky plateau.

The local population of juniper in the upper reaches of the Kurdzhips of the Lagonaksky department is numerous, represented by unusually large clumps, incomplete, has a left-sided ontogenetic spectrum, and is prosperous.

The local population of *Berberis vulgaris* is small, incomplete, and has a right-sided spectrum. A threat to the existence of species in the Lagonaksky department of the reserve may be posed by a promising increase in recreational pressure.

The ontogenetic spectrum of the *Juniperus sabina* cenopopulation on the Small Balkan ridge in the Eastern section of the reserve is complete, with a predominance of young individuals. A threat to well-being can be posed by a small population size.

Due to the small sample at the initial stage of research and the small number of generative plants in the found coenopopulations, it was not possible to deter-

mine the vitality type of coenopopulations. In order to avoid distorting the results of the vital state of coenopopulations, it was decided to first cover as large a part of the species range as possible. It is logical to assume that subsequently, with an increase in the number of observations, the classes of vitalities in all respects will expand and the picture will become clearer. Initial morphometric information was collected that will be used in subsequent studies.

The sanitary condition of all plants in question is satisfactory.

It is planned to continue studying the geography of species and conduct further monitoring studies.

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慢性肝病患者的飲食評估與營養狀況影響相關的風險
**THE DIETARY EVALUATION IN CHRONIC LIVER DISEASE
PATIENTS REGARDING THE RISKS ASSOCIATED WITH
IMPACT ON NUTRITIONAL STATUS**

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Nutritional status is one of the many general characteristics that present the human body's physical state of. This issue has a very long historical background during centuries, but received a very special attention in different chronic diseases during the last decade [1]. Nutritional evaluation became an area of interest for medical scientific community all over the world due to an increase level of metabolic associated diseases [2]. The study of the nutritional status particularities in patients with diffuse chronic liver diseases has become the target of multiple researches around the world [3]. It is important to understand that there is no one single tool

existed for nutritional evaluation. In contrary the nutritional evaluation is a complex approach that involves a dietary assessment, anthropometric measurements, thorough clinical examination (the history of the disease and physical examination), different laboratory tests [4]. Food intake is of the main issue for humans as we start our lives and develop our bodies processing different nutrients during eating and digesting processes. So, it is logic that the nutritional status evaluation starts from the dietary peculiarities of evaluated person. In chronic liver patients there is a necessity to estimate if the patient is malnourished, normal nourished, or over nourished. The malnutrition (also known as hypoalimentation) is a form of nutrition in which the intake of nutrients is under supplied. The amount of nutrients necessary for normal functioning and wellbeing is insufficient leading to different changes in metabolism, causing some complications and worsening the clinical outcome and/or evolution of the main liver disease.

Among the tools, which allow the evaluation of the nutritional status, exist some questionnaires for assessing the diet peculiarities [5]. There are not so many of approved food questionnaires, intended for use in medical practice as well as for scientific purposes (FFQ, DH III, etc.), but also exists a variety of questionnaires, oriented towards the work of nutritionists. Usually, food questionnaire items are grouped into categories (type of food, food preferences, eating habits, frequency and volume of meals, etc.). Some questionnaires cover shorter periods of time (24 hours), others refer to eating habits over longer terms (days, weeks, months). It was observed that with the deepening of the details in the questions, the fatigue of respondents in completing the survey also increases. The more complicated the questionnaire, the more important the interviewer's intervention and control becomes. Participants must be instructed to complete the questionnaire, while the investigator will monitor the process and check up the correctness of the answers through follow-up questions.

The mode of the interview may differ (questions and answers completed in written form on paper or in electronic form). Electronic questionnaires usually present databases with information on food products energy characteristics. Each method of interviewing has its advantages and disadvantages.

Another important aspect is the satisfaction and interest, the motivation of the respondent to participate in the interview. It is known that some people do not want to fill in some complicated paper documents, especially when they first go to the gastroenterologist visit or when they have some disturbing symptoms and an unfavorable general condition. For these reasons, even if there are a lot of qualitative tools, developed in order to appreciate the particularities of individual nutrition, there is too little research that answers the basic questions related to nutrition in patients with compensated chronic liver pathology. To avoid the mentioned obstacles, short interviews can be used.

The 24-hour food questionnaires main characteristics.

Through these interviews, the information of the last 24 hours is obtained. Questions can be asked during the patient consultation either verbally or by paper [6], or information can be collected via telephone conversation [7] or through computerized devices. Through the personal discussion with the patient, information can be obtained about the type of preferred and used products, their quantity and the method of preparation. The extensive detailed answers give the possibility of adequate caloric calculation and quality assessment for each individual meal. This type of interview can take 20-60 minutes, with individual variations. Mobile computer programs, intended for auto-completion, are becoming more and more requested [8, 9, 10, 11].

The AMPM (Automated Multiple-Pass Method) developed in the USA, could serve as an example of a 24-hour protocol questionnaire, which was used in the National Health and Nutrition Examination Survey (NHANES) [12, 13]. The AMPM is a 5-steps, 5-levels method. At the first (screening) step, the respondent lists (without the examiner) all the food and drinks consumed; at step II, there are listed all products, that are usually overlooked (9 categories of products); step III contains information about the time and conditions in which they are consumed; step IV gathers information via some additional questions about the volume of portions, and the interval between meals; the fifth step focuses on the products, that were not previously mentioned in the research protocol [12, 13]. To facilitate the process of completing the AMPM protocol, a Food Model Booklet was developed [14]. Duration of completion is about 35-45 minutes per protocol.

The food frequency questionnaires main characteristics.

Questionnaires for assessing the frequency of meals (FFQ) are tools that allow the collection of information about the list of products that correspond to eating habits; understanding the associations between dietary pattern and health status. With FFQ tool, the consumption of certain products or nutrients, characteristic for a certain group of people (research group) can be measured [15]. The FFQs contain a limited list (from 80 to 120) of foods and beverages with multiple choice answers regarding the frequency of their consumption over a certain period. The volume of meals can be specified separately, for each of the dishes or drinks. Interaction with the respondent can be facilitated through drawings. An additional interview is allowed (if necessary) after self-completion of the questionnaire. FFQs usually do not collect information on how meals are prepared, and their value on the amount of each item is inferior in precision to 24-hour questionnaires, interviews, or food diaries. In addition, FFQs must be validated and approved on a case-by-case basis for purposes in the country where they are intended to be used. Examples of meal frequency questionnaires are: Block Questionnaires [16], Harvard University Food Frequency Questionnaires or Willett Questionnaires [17],

Fred Hutchinson Cancer Research Center Food Frequency Questionnaire [18, 19], NCI's Diet History Questionnaire [20]. The last of this list was developed for the determination of cognitive peculiarities [21] and is intended for different ethnic groups (African Americans, Hispanics, etc.) in the USA. The time required to complete these questionnaires is around 30-60 minutes.

The Food Agenda/Diary main characteristics.

The food diary provides detailed information about all foods, nutritional supplements and beverages consumed during a certain period of time (days, weeks, months). The agenda can be completed in free form and can contain as many elements as necessary. It is usually recommended that the respondent record each food, supplement, or beverage as soon as it is consumed (in real time). Completing the agenda may require at least 15 min per day. It is possible to create a standard form intended for completion, with the provision of instructions in written or verbal form. The information about the meals can contain not only the time, the volume, the composition of the meals, but also the place where they were consumed as well as the method of preparation (boiled, baked, fried, etc.). The portion size can be estimated by comparative models, figures or other visual materials, or by measuring the exact volume/weight. The additional instruction can be used in order to increase the quality of agenda [22, 23]. Usually, the food diary is an open system, which allows to add some missing information, although recently some closed diaries have also been developed [24, 25, 26].

The disadvantage of food diaries is the complexity. It has been observed that with the increase in the filling time (during the week) the veracity of the entered information decreases [27]. There is also the „ricochet” effect of food diaries, especially in the group of overweight respondents, who tend to write down in the diary a smaller amount of products than in reality, tending to minimise consuming of fat products [28, 29].

Short methods of food assessment main characteristics.

Short methods have a screening role and can be used where a detailed assessment of the diet, quantitative aspects of the consumed products or meals is not required. Screening tools can detect the consumption of certain products or components of meals (for example, salt) in a special group of patients (for example, liver cirrhosis, kidney disease). The advantage of questionnaires about separate food components is that they can stimulate the interest of the respondents, (for example SSQ is a valid instrument for screening for high dietary salt intake in the Autosomal Dominant Polycystic Kidney Disease population) [30], which leads to the improvement of food education. Also, these questionnaires can be used to monitor the effects of educational programs.

The method also has disadvantages, especially when the research includes a certain groups of patients. As an example can serve the consumption of beverages

with a high glycemic index in patients with metabolic syndrome. In this case, the results cannot be extrapolated to another group of patients without metabolic syndrome. It is suggested that screening questions be selected with caution [31].

The choice of any of the methods of questioning the particularities of food as a component of the nutritional status will depend on the individual needs, on the proposed goals. At the current stage, there is no ideal tool, which is why it is proposed to combine 2 methods to have precise results.

The aim: Development and application of the tool for evaluating the peculiarities of nutrition, aspects of the quantity and frequency of consumption of certain food products, eating habits, the use of special diets that have an impact on nutritional status of chronic liver patients.

Material an methods. The target group for applying the questionnaire where patients with chronic liver pathologies at pre-hospital and hospital level. All patients where evaluated using special elaborated questionnair.

Structure and content of the questionnaire „Evaluation of diet, food composition and special diet variants in chronic hepatic patients regarding risks associated with impact on nutritional status”:

The instrument consists of 4 compartments: sociodemographic data (8 items); knowledge about the diet of liver patients (7 items); information about the composition of food (19 items); Additional data (4 items). The actual investigation of a person takes on average 20-30 min. and is planned to be done only once. The questionnaires where applied to the specific group of patients under the same conditions as a paper test.

Expertise and validation of the questionnaire included the following stages:

1. Analysis of bibliographic sources in the field of study.
2. Study and analysis of existing questionnaires in the field addressed, at national and international level.
3. Elaboration and adaptation of items on blocks.
4. Obtaining the positive opinion of the Ethics Committee of the State University of Medicine and Pharmacy „Nicolae Testemițanu” no. 10, from 28.12.2020.
5. The primary testing of the tool was performed on 73 patients with various chronic liver diseases in gastroenterology/hepatology unit of Central Republican Hospital, Chisinau, Republic of Moldova.
6. Analysis of respondents’ proposals regarding some items, which from their point of view were difficult or confusing. Reformulation and adjustment of these items.
7. Modifying, adjusting, removing, adding items and answer options.
8. Obtaining of Copyright and related rights on the questionnaire [32].

9. Obtaining innovation certificate for using the novel elaborated certificate on the national level [33].

10. Obtaining the implementation certificates [34, 35]

Research objectives achieved:

1. Evaluation of the diet of chronic liver patients in terms of quantity, volume and frequency of meals.

2. Estimation of the composition of the diet in terms of the amount of meat products, dairy products, eggs, flour products, sweets, fruits and vegetables, fats of animal or vegetable origin, fish in patients with chronic liver pathology.

3. Emphasizing the use of special protein-based diets, with or without green vegetables, boiled/prepared vegetables, protein and fat, carbohydrates, keto diet, vegetarian diet in pathologies with various chronic liver diseases.

Conclusions

1. The activity resulted in development of the tool „Evaluation of diet, food composition and special diet variants in chronic hepatic patients regarding risks associated with impact on nutritional status”.

2. It presents a complex instrument, elaborated and validated at the national level, intended for patients with chronic liver pathologies and can be used both at national and international level for scientific and practical needs.

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安寧醫療幫助發展歷史中的一些事實

SOME FACTS FROM THE HISTORY OF PALLIATIVE MEDICAL HELP DEVELOPMENT

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註解。 現代安寧療護始於19世紀的法國。 它已傳播到許多歐洲國家和美國。 安寧醫學的歷史與珍妮·卡尼爾（法國）、瑪麗亞·艾肯黑德（愛爾蘭）、霍華德·巴雷特（英國）、塞西莉亞·桑德斯（英國）、羅斯瑪麗和維克多·佐爾扎（美國）等名字密切相關。 他們是自願積極的工作者，創造了這種艱苦但必要的工作的整個概念。 在俄羅斯，安寧療護幫助的發起人是心理治療師 Andrei Gnezdilov（列寧格勒），他克服重重障礙，為癌症患者創建了第一家臨終關懷醫院，並於 1990 年實現了自己的目標。

關鍵字：安寧療護、發展、歷史、傑出人物、哲學、護理專家、安寧療護。

Annotation. *The modern palliative medical help begins its development in the 19th century in France. It has spread to many European countries and the USA. The history of palliative medicine is closely connected with such names as Jeanne Garnier (France), Maria Aikenhead (Ireland), Howard Barrett (England), Cecilia Sanders (England), Rosemary and Victor Zorza (USA). They were voluntary active workers who created the whole philosophy of such hard but necessary work. In Russia the initiator of palliative medical help was psychotherapist Andrei Gnezdilov (Leningrad) who created the first hospice for cancer patients overcoming a lot of obstacles but achieved his goal in 1990.*

Keywords: *Palliative help, development, history, outstanding names, philosophy, specialists of care, hospice.*

The term “palliative” comes from the Latin “pallium” - covering, covum, cover, mask, cloak. Etymology of this term indicates that palliative care eliminates (“masks”) the manifestations of an incurable disease, thereby creating a kind of

protection (“covering with a cloak”) for patients who are no longer may be helped by special treatment.

The word “hospice” comes from the Old French “hospice”, which in its turn was formed from the Latin words “hospes” (guest) and “hospitium” (hospitality). The first mention of hospices are found in the Eastern Mediterranean, and already in the 4th century AD this idea also reached the Latin World. The Roman matron Fabiola, a disciple of St. Jerome, opened the first hospice for the sick and pilgrims, in which the ideas were: to “feed the hungry, to give drinks to the thirsty, to receive the stranger, to cloth the naked, to visit the sick or prisoner.” In the Middle Ages, the term “hospice” was used to refer to the place of refuge for pilgrims. From the English language the word spread to other European languages in the 19th century.

From the mid-19th century, the term “hospice” began to be associated with the care of dying patients. In 1842, 24-year-old Jeanne Garnier, after the loss of her husband and two children, organized the Calvary shelter in Lyon (France) for women suffering from incurable diseases. It was the opening of this hospice that was the basis for the development of the modern palliative movement in France. Since 1971, a palliative medicine center named after Madame Garnier, the Jeanne Garnier Medical House, has been actively operating in Paris.

In 1879, in Dublin (Ireland), the Order of the Sisters of Charity, founded by Maria Aikenhead, opened St. Margaret’s Hospice (renamed to St. Margaret’s Hospice of Scotland in 1950). Maria Aikenhead devoted her entire life to serve the poor, sick and dying, improving the work of the community and expanding the scope of charitable activities. It has become the basis for the Roman Catholic Church to consider the question of her canonization.

In 1893, St Luke’s Home for the Dying Poor was opened in London East End, treating patients with tuberculosis, cancer and heart diseases. The average length of stay was no more than 2 months. It was the first institution created by medical staff for terminal patients. Its founder, physician Howard Barrett, described unique stories about his patients in annual reports. These documents contained few statistics and a lot facts about the character and courage of dying patients:

“We do not want to tell about our patients as simple “cases from our practice.” We realize that everyone of them is a whole world with own characteristics, own sorrows and joys, fears and hopes, own life story, which is interesting and important for the patient himself and the small circle of his relatives. Not seldom we are devoted to this story too” [1].

These so-called living reports are still necessary for palliative care specialists because they provide them a complete picture of the spirit and philosophy of hospice care.

It was at St. Luke's Home (since 1921 - St. Luke's Hospital) that Cecilia Sanders, the founder of the modern hospice movement, worked for a long time. This woman has had a long way from a volunteer nurse and social worker to a doctor. She devoted her professional and personal life to help patients with advanced progressive diseases, studying their psychology and sufferings.

Cecilia Sanders for the first time spoke about the problem of the terrible gap in satisfying the needs of dying patients and their families and gave the answer how to fulfill it. Her focus has always been on the individual and single needs of every patient and his relatives.

This period (1940-1950s) was marked by the emergence of a number of important drugs, including psychotropic substances, antidepressants and non-steroidal anti-inflammatory drugs. By this time, progress had been made in understanding the nature of cancer pain and the role of opioids in pain management.

With the direct participation of Cecilia Sanders at St. Luke's Hospital in the late 1930s or early 1940s (exact records have not been preserved), a new form of work was introduced through trial and error in the form of establishing a regular regimen for taking the narcotic analgetic morphine (every 4 hours but not as needed). At that time, it was a significant breakthrough in the symptomatic treatment of pain in incurable patients and made it possible to relieve the dying persons from physical pain. It was Cecilia Sanders who introduced the concept of "total pain," which includes physical, emotional, social and mental ones.

Through the efforts of Cecilia Sanders, St. Christopher's Hospice was established in 1967 - the first modern hospice including an inpatient and mobile services. It was simultaneously a hospital, a scientific and educational institution. The research work was conducted here and future specialists in palliative medicine were trained. When creating the hospice, Cecilia Sanders took into account all the things, paying special attention to the surrounding landscape. She believed that against the backdrop of death, every bush and every blade of grass can turn into something endowed with meaning and importance for the patient. St Christopher's Hospice has become a model for a new generation of hospices.

Cecilia Sanders formulated three main principles of palliative care:

- attention to all the patient's symptoms, not just pain;
- the need to reduce the patient's mental suffering;
- creating safe and comfortable environment [3].

She actively spread her ideas and received support all over the world: the hospice movement quickly spread to Europe and America. Health professionals from all continents studied at St. Christopher's Hospice and applied their new-found knowledge and experience to their own countries. A hospice was opened in Krakow (Poland) in 1972, and in Montreal (Canada) in 1975.

The initiators of the public hospice movement in the United States were Rosemary and Victor Zorza. The book “The Path to Death. To live to the End,” which they wrote after their 25-year-old daughter Jane Zorza died because of cancer in 1975, created a sensation. Jane died in a hospice in England, and her parents, grateful to its creators, in their almost documentary story, showed both the high purpose of this institution and what qualities everyone working there should have. They described how their daughter received medical care and moral support as she was terminally ill and expected the death. She lived only a few months and proved that when dying, it is not necessary to experience the horror that our imagination depicts. Her death is a kind of victory in a battle won against pain and fear. This book highlights the main things that should distinguish the work of a health worker. Human pain cannot be healed without condolences and empathy. Humanity and love for humanity must be taught in the same way as anatomy, therapy, pharmacology... Jane’s story, told by her parents, became part of the history of medicine, the history of the moral development of mankind [2].

Hospices are not only medical, but also, to a greater extent, humanitarian institutions; the idea of these institutions comes out from a high level of civilization, humaneness of social morals and ideas.

In Russia, such labor-intensive work on creating hospices was carried out by the Leningrad psychotherapist Andrei Gnezdilov. He fought to create them with the public and with officials. Thanks to the board of trustees, which included Ms-tislav Rostropovich, Patriarch Alexy II, Dmitry Likhachev, Eduard Shevardnadze and others, with the support of the British-Soviet Hospice Society, co-chaired by Margaret Thatcher, he was able to achieve his goal. In 1990, the first hospice for cancer patients was created in the Lakhtinsky district of St. Petersburg. This is a medical and social institution that provides care at home, in outpatient clinics, hospitals and oncology centers. About 300 patients pass through its hospital per year, and visiting nurses provide home care to about 400 patients.

As a psychotherapist Gnezdilov helps patients and their relatives to survive the stress that arises as a response to fear, the fear of death. At the end of life, a person’s values change, and he finds himself in the closed circle of his mistakes and experiences. The hospice provider’s job is to help the person to be free from these bonds. In Russia this task is performed with honor. Having visited the Lakhta hospice, the English nurses said: “We are better in relieving pain, but you are better in relieving the suffering of the patient.”

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吸電子煙對現代健康構成全球性威脅
**SMOKING ELECTRONIC CIGARETTES IS A GLOBAL DANGER
TO MODERN HEALTH**

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註解。 電子煙和電子煙含有超細顆粒，會導致急性肺損傷和纖維化過程。診斷的困難在於缺乏特徵性症狀。 治療方法正在研究中，並已減少到放棄有害裝置和使用全身性糖皮質激素。

關鍵字：電子煙； 全球威脅； 裝置； 特徵性症狀； 治療方法。

Annotation. *Electronic cigarettes and vapes contain ultrafine particles that cause both acute lung injuries and fibrotic processes. Difficulties in diagnosis lie in the absence of pathognomonic symptoms. Therapeutic approaches are being studied and have been reduced to the abandonment of harmful devices and the use of systemic glucocorticosteroids.*

Keywords: *electronic cigarettes; global threat; device; pathognomonic symptoms; therapeutic approaches.*

Lung damage associated with smoking electronic cigarettes (EC) and vaping (EVALI) is a global health threat.

Recent studies have shown that among patients with EVALI is predominantly male (65%) compared to female (35%) [2].

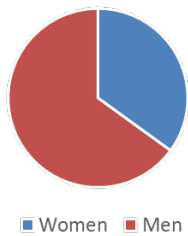


Figure 1. Sex ratio.

It was also demonstrated that among patients with EVALI by age, a large number of patients (35%) are 18-24 years old; then a group of patients 25-34 years old, accounting for 25%; the age groups 13-17 years old and 45-64 years old accounted for 15% each; patients aged 35-44 years account for 14%, and persons over 65 years old in 6% of cases are confirmed by EVALI [2].

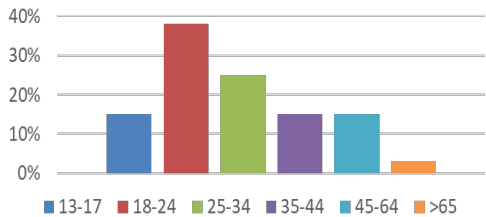


Figure 2. Age ratio.

The majority of patients (52%) who had a fatal outcome from vaping-related illness suffered from metabolic disorders (obesity, diabetes). Patients with EVALI also have multiple chronic conditions such as epilepsy, chronic obstructive pulmonary disease (COPD), cardiovascular diseases (hypertension), and mental illness. Additionally, among EVALI patients, there are also heavy smokers [4].

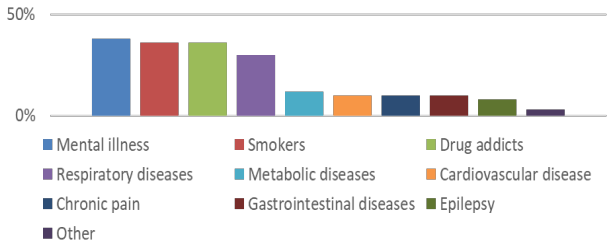


Figure 3. Premorbid background.

Literary data indicate that patients with EVALI had 3 main groups of symptoms: respiratory, gastrointestinal and constitutional [4].

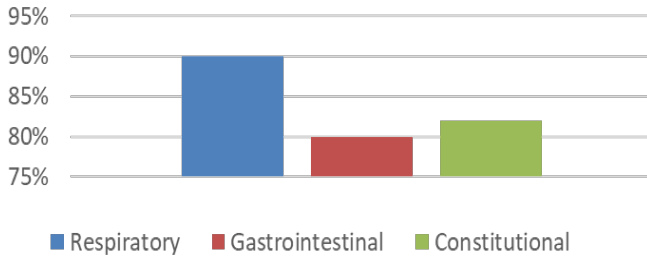


Figure 4. Main groups of symptoms.

The electronic cigarette device may seem complicated. However, all vapes contain the same components [1].

1. Atomizer

An atomizer (evaporator) is a steam generator, one of the main elements of an ES. It consists of a spiral, inside or outside of which there is a wick made of cotton wool or silica.

The main role in the operation of the atomizer is given to the evaporation element - a spiral made of refractory metal. When the user presses a button on the device, the electrical circuit is completed. The current from the battery goes to the coil, which instantly heats up due to its high resistance. The liquid that is soaked into the cotton wool around the evaporator heats up and evaporates. The result is steam (Fig. 5).

2. Battery

It is the main part of any ES. The main task of the battery is to provide electricity to the heating element, which turns the smoking liquid into vapor. They differ in capacity: it can be 6000 mAh, but most often users prefer batteries with a capacity of 600 to 1000 mAh, the latter's charge lasts for a long time [1].

3. Cartridge

This is a sealed container with vaping liquid and padding polyester inside. There are disposable and refillable containers. In addition, liquid containers are divided into clearomizers and cartomizers.

Clearomizer is a transparent container for liquid, through the walls of which the vaper controls the level of the smoking mixture. In addition, the user has the possibility to replace the atomizer.

Cartomizer today is obsolete and is being phased out of production and use.

4. Additional elements

The microprocessor manages the electronic cigarette and controls the operation of all modules. Thus, the microprocessor controls the operation modes of the gadget (voltage and power) and keeps the battery charge level under control.

ES is filled with a special liquid, which is produced in bottles with a volume of 10 to 120 ml, containing 16 mg of nicotine per 1 ml; An important point is the fact that using just 1 ml of liquid is equivalent to smoking 10 regular cigarettes. Thus, if a vaper used 1 bottle of 10 ml, then this is equivalent to smoking 100 cigarettes (5 packs of regular cigarettes).

Smoking 1 cigarette leads to an increase in nicotine content in the blood to 15–18 ng/ml. It is worth noting that there are no standards for the production of e-liquid. Thus, one electronic cigarette (or rather liquid) may have one composition, while another may have another, which is strikingly different. As a result of a study of various electronic cigarettes and liquids, toxic (polycyclic aromatic hydrocarbons, glycerin, formaldehyde, acetaldehyde, phenols, nitrosamines, acetone, propylene glycol) and carcinogenic chemicals (nitric oxide, polonium-210, acrolein, hydrocyanic acid, carbon monoxide).

The main components of electronic cigarettes are propylene glycol and glycerin. Of particular danger are propylene glycol vapors, which have an irritating effect on the respiratory tract and mucous membranes of the eyes. Scientists obtained experimental data in animal experiments simulating the smoking process. A week later, the lungs of the rats were swollen, areas of atelectasis and emphysema were detected, and the following changes were detected in the bronchi: plethora, edema and hyper secretion of mucus, single leukocytes [3].

In 2019, doctors identified an outbreak of respiratory disease in patients who used electronic cigarettes and vapes. This disease is called e-cigarette or vaping-related lung injury. Clinically, EVALI manifests as an acute bacterial or viral infection, with 95% of patients having respiratory symptoms, 77% having gastrointestinal symptoms, and 85% having constitutional symptoms [6,7].

Table 1.
Clinical manifestations in patients with EVALI

Symptoms	Number of patients, %
Are common	
Chills	60%
Fatigue, malaise	47%
Headache	94%
Fever	33%
Tachycardia (more than 100 beats per minute)	93%
Respiratory	
Dyspnea	85%
Cough	85%
Hemoptysis	8%
Chest pain	52%

Tachypnea (more than 20 breathing movements per minute)	43%
Peripheral blood oxygen saturation (SpO2) \geq 95%	42%
89-94%	33%
\leq 88%	25%
Gastrointestinal	
Nausea	66%
Vomit	61%
Diarrhea	44%
Abdominal pain	34%

To diagnose lung damage associated with smoking e-cigarettes and vaping, special attention should be paid to obtaining an anamnesis. Compliance between the doctor and the patient is very important, which allows you to establish the method and duration of ES use, the frequency of puffs and concomitant use of drugs or tobacco, etc. [11].

To the list of laboratory tests if a patient is suspected EVALI includes, in addition to the general clinical minimum, tests for bacterial, viral and fungal infections, HIV, COVID-19 and opportunistic infections [13].

A complete blood count is characterized by a high erythrocyte sedimentation rate (ESR) and leukocytosis [14]. A biochemical blood test reveals the presence of C-reactive protein above the reference values.

One of the informative methods for verifying the diagnosis is chest x-ray. Changes on a chest x-ray are detected in 83%patients, and when using X-ray computed tomography – in 100% of cases [14]. Classic radiological patterns in EVALI are bilateral infiltrative shadows, which are most often localized in the lower lobes of the lungs (Fig. 3).

The diagnostic algorithm for EVALI necessarily includes high-resolution computed tomography of the chest organs, which reveals bilateral ground-glass changes (Fig. 2) and/or areas of consolidation localized in sub pleural areas.

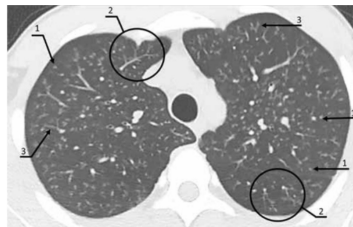


Figure 5. Computed tomography of the chest of a 17-year-old patient.

1- Centrilobular compactions with a diameter of up to 2 mm, of medium intensity, like ground glass; 2- symptom of “tree in the buds” in the cortical parts of both lungs; 3-Y-shaped seals along the leaves of the visceral pleura [15].

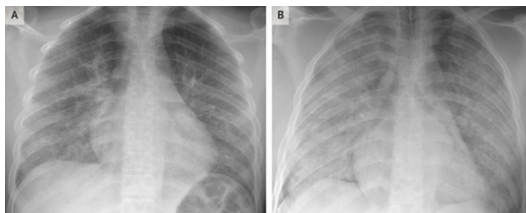


Figure 6. Radiographs of the chest cavity in a 17-year-old patient with suspected EVALI. A – upon admission, the anterior projection shows darkening in the middle and lower parts of the lungs. B – R-gram 12 hours after hospitalization, an increase in diffuse darkening of the lungs in the middle and lower parts is visible.

A special role in the diagnosis of the disease is given to fibrobronchoscopy with analysis of bronchioloalveolar lavage, which allows one to exclude diseases of bacterial, fungal and viral etiology. The most specific histological examination of BAL fluid for EVALI is the detection of lipid-laden macrophages [eleven].

Currently, the following diagnostic criteria for EVALI can be distinguished:

- use of electronic devices for at least 3 months;
- ground glass pattern or consolidation on chest CT;
- exclusion of bacterial, viral, fungal infections;
- exclusion of cancer and autoimmune diseases.

Treatment of EVALI is based on eliminating the damaging effects of etiological factors and providing maintenance therapy.

Patients without hypoxemia (SpO₂ above 95%) can be left for outpatient treatment, provided they completely stop using ES. If signs of acute respiratory failure (SpO₂ below 95%) appear, hospitalization is recommended, sometimes in the intensive care unit.

Maintenance therapy consists of oxygen therapy through nasal cannulas when SpO₂ is below 92%, if necessary, non-invasive ventilation, sometimes even invasive ventilation is required [16].

The use of glucocorticosteroids (GCS) is recommended in the treatment of EVALI. The regimen of GCS use and duration are considered individually [16]. If a bacterial or viral infection is confirmed, it is recommended to refrain from taking GCS, as the course of the disease may worsen.

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組織奧倫堡地區冬季道路安全
**ORGANIZATION OF ROAD SAFETY IN WINTER IN THE
ORENBURG REGION**

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註解。 本文討論冬季高速公路的交通特性。 考慮了導致車輪與塗層表面附著力惡化的因素。 文章介紹了高速公路冬季養護期間確保車輛在高速公路上安全、不間斷通行的措施。

關鍵字：公路；安全；冬季交通特性；阻礙通行缺陷；國家「安全優質公路」工程。

Annotation. *This article discusses the features of traffic on highways in winter. The factors that worsen the adhesion of the car wheels to the surface of the coating are considered. The article describes measures to ensure safe and uninterrupted movement of vehicles on highways during winter maintenance of highways.*

Keywords: *highways, safety, features of traffic in winter, defects that impede movement, the National project “Safe high-quality roads”.*

The winter period makes its own adjustments to the operation of road surfaces. Snowfall, frost, rutting, winds and ice, which in the Urals are replaced by rain and thaws in the off-season, increase the amount of damage to the road surface. In the autumn-winter period of the year there are often sharp temperature fluctuations with precipitation in the form of rain or snow, so the roadway in most cases is wet or the road is icy.

The deposition of snow and the formation of ice on highways leads to a deterioration in the adhesion of the car's wheels to the pavement surface, which is why traffic accidents occur on local, regional and federal roads every year. Their number, the severity of the consequences of accidents and the safety of movement depend on the quality of road preparation for the winter period. Work begins well in advance, and not with the first snowfall. In the 2023 season, sections of highways were updated. As part of the national project “Safe Quality Roads”, work

was carried out to repair sections. Traffic light facilities have also been modernized, which also affects road safety at any time of the year.

Effective winter road maintenance includes measures to ensure the safe and uninterrupted movement of vehicles on roads. This includes clearing snow, protecting roads from snow drifts, preventing and eliminating ice dams and winter slipperiness. To do this, snow is removed from roadways, bus stops, and pedestrian areas. The road maintenance of the city and region is always closely included in the winter maintenance of roads.

When snow falls, the main volume of road workers is fighting winter slipperiness to ensure safe and uninterrupted movement on our municipal and regional roads.

During adverse weather conditions, motorists may encounter several types of road defects on the roads that make driving difficult. Typical defects that occur during the winter period: ice crust, loose snow after a snowstorm, snow roll, melted snow in the form of slurry, a snow bank, faulty snow protection that could save from skidding, snow deposits on road signs that complicate the perception of information. Road services are also struggling with these problems.

When preparing roads for the cold season, special attention was paid to the preparation of contractors. Special base equipment and materials by the beginning of the winter period should be 80% of the total. Today, to prevent snow and ice on the region's highways, road equipment is ready for use, including combined road machines, graders, loaders, and tractors. Anti-icing materials will be spread across the entire road network. Also, video cameras are installed on federal highways, weather stations and variable information displays operate to inform road users about deteriorating weather conditions.

To date, more than two thousand road traffic accidents (RTAs) have been registered on the region's roads. An increase was registered in almost the number of injured in these road accidents with injuries of varying severity. At the same time, there is a decrease in the number of deaths compared to the same period last year.

Often, traffic accidents on regional roads occur due to drivers violating the speed limit; accordingly, the severity of such traffic accidents is also the highest. The main types of accidents are collisions with pedestrians, collisions, and run-offs, in which people are injured or killed.

Traffic inspectors attribute the decrease in accidents with serious consequences to the fact that repair work is being carried out on some roads. These measures affect road safety.

Particular attention is paid to organizing road safety in places where roads are being repaired, since here the number of road accidents remains quite high, in which people die. Although, it is worth noting that this figure is lower than last year. In some of these accidents, violations of road safety regulations at road work sites were identified.

A relatively large amount of snow has fallen in the region this year and, according to forecasters, it will either melt or freeze. And these are the weather conditions under which driving a car is more dangerous than driving on dry asphalt.

In areas where road services cannot cope with the work, the State Traffic Inspectorate restricts traffic, resulting in traffic jams. Drivers should not be nervous and should be understanding, because such measures are taken to prevent road accidents. Relatively many drivers do not obey the speed limit even in bad weather.

In unfavorable weather conditions, it is imperative to adhere to the speed limit, turn on low beams or fog lights, use a seat belt, drive at a safe distance from other cars, and avoid dangerous maneuvers. These are general recommendations that also apply when driving in good weather. But there are tips that tell you what to do in specific cases.

After and during rain, the road becomes slippery due to dust and chemicals that mix with water. The layer is almost invisible, but reduces the grip between the tires and the road. It is necessary to slow down and avoid sudden maneuvers.

It is also necessary to avoid puddles after melting snow and rain. There may be stones, an open sewer hatch, a hole, or dirt underwater. If it is impossible to go around the puddle, then you need to slow down and carefully overcome the dangerous area. If you had to slow down critically, you should turn on the hazard signal to warn other road users.

When visibility is poor, you need to stand out on the road and remain visible to other drivers. To do this, it is recommended to turn on the low beam, side lights or fog lights. The same rule applies to pedestrians. In winter, daylight hours are reduced, so in the dark it is necessary to use reflective elements. The braking distance increases in bad weather, and if the driver does not notice the pedestrian or notices it late, then he has less chance of stopping quickly than on dry asphalt.

Fog creates an optical illusion that the distance to the object is greater. You must drive slowly and increase your distance from other vehicles.

On wet roads, you should stay away from buses and trucks, because they often fly dirt onto the windshield - this impairs visibility.

While driving, you must take safety precautions if there is loose snow on the roadway. Taking into account the peculiarities of driving a car during this period of the year, the driver is obliged [1]:

- drive a technically sound and tidy car, paying special attention to the serviceability of the brake system, steering and lighting;
- choose the speed of movement, especially on a slippery road, taking into account road conditions, traffic intensity, visibility in the direction of travel, and terrain;
- increase the distance and lateral interval in relation to other vehicles [2];
- perform all actions smoothly, without sudden movements;
- when pedestrians appear on the roadway, do not give sharp sound and light signals, since a pedestrian, in a hurry to get off the road, can make a sudden movement, slip and fall in front of a walking car;

- be careful when passing public transport stops and intersections, which become especially slippery due to the constant braking of cars. When passing bus stops organized in small settlements on highways, exercise extreme caution;

- remember that in the autumn-winter period the daylight hours are shorter, so it becomes necessary to use low or high beam headlights;

- strictly follow the traffic rules, wear a seat belt, do not dazzle oncoming drivers with high beam headlights, switch the headlights from high to low beam in a timely manner;

- when driving the car in snow and rain, you must remember that visibility is reduced, since the windshield wipers clean only part of the front glass;

- when going uphill, choose a gear so that you don't have to switch before the climb is completely completed;

- while driving, follow the work and rest schedule.

- monitor the traction of the car's wheels with the road. If the ABS light comes on on the dashboard, it means you should reduce your speed;

- keep a greater distance than in good weather, because the braking distance of the car increases and its control becomes unpredictable;

- do not make sudden maneuvers or overtake. On a snowy road, you need to stick to the knurled part of it. You need to beware of the snowy edge; it is formed on both sides).

Wind is also an unfavorable factor for road traffic. It makes steering difficult. During strong winds, you should not be distracted from driving the vehicle; you should hold the steering wheel with both hands and drive at the permitted speed in your lane without changing lanes. It is undesirable to park under tall and old trees, which can fall and damage the car.

The implementation of the Federal Project "Road Safety" and the National Project "Safe Quality Roads" is aimed at ensuring that driving is safe.

Driving safety on slippery roads depends largely on the drivers themselves. Experience and skill, attentiveness and discipline are a completely reliable guarantee of accident-free traffic on roads during the autumn-winter season.

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抗球蟲藥與生物刺激劑合併使用對患有自發性球蟲病的肉雞生產力的影響
**THE EFFECT OF AN ANTICOCCIDIUM DRUG IN COMBINATION
WITH A BIOGENIC STIMULANT ON THE PRODUCTIVITY OF
BROILER CHICKENS WITH SPONTANEOUS COCCIDIOSIS**

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抽象的。採用地板雞舍技術的肉雞球蟲病在該國的家禽養殖場普遍存在。本研究的目的是研究殺球菌劑地克珠利與生物興奮劑ASD合併使用對肉雞活重增加的影響。採用地板雞舍技術，對 80 隻 9 至 38 天齡的雞進行研究，研究了施用不同劑量的生物刺激劑 ASD 後肉雞體重增加的動態，並與莫斯科家禽養殖場條件下的對照進行比較不利於球蟲病發生的地區。選擇用於實驗的雞隻被分成四個相似的組，每組 20 隻。第1-3組的實驗雞被給予藥物ASD第2部分，劑型 (DF)劑量為10； 9-11點每1公升飲用水20、30毫升連續72小時； 生命 15-17 天和 23-25 天。第4組的雞不給予藥物； 他們充當對照。雞體重增加數據的分析顯示，第一組雞的總體重增加為 1962 克，第二組和第三組分別增加 2163 克和 2194 克，對照組為 1812 克。以百分比計算，第1-3組的生產力提高了8.3； 與對照組相比分別為19.4%和21.1%。

第二階段，對300 隻9 至38 日齡的雞進行了地克珠利和ASD 聯合給藥對肉雞球蟲病的有效性測試，這些雞飼養在莫斯科地區一家貧困家禽養殖場的地板上，這些雞被分成兩部分。分成三組。根據以下方案，給第1組的雞服用地克珠利，劑量為每1公升飲用水2毫升，持續48小時： 9-10點； 16-17 和 24-25 天齡，根據前面提到的方案，與藥物 ASD 一起，劑量為每 1 公升飲用水 20 毫升，持續 72 小時。第2組的雞隻以每1公升飲用水0.4克的劑量服用氨丙啉，並依所示劑量和時間表服用藥物ASD，持續48小時。對照組的雞則沒有接受藥物。測試結果表明，

根據上述方案，地克珠利與水和 ASD 聯合施用，採用地板技術飼養肉雞，可提供高擴展效率（EE – 91.3%）和集約效率（IE – 95.6%）。

關鍵字：肉雞，球蟲病，藥物地克珠利，ASD，對生產力的影響，效率。

Abstract. *Coccidiosis of broiler chickens with floor housing technology is widespread in poultry farms in the country. The purpose of this study was to study the effect of the combined use of the coccidiocide diclazuril and the biogenic stimulant ASD on the increase in live weight of broiler chickens. On 80 chickens from 9 to 38 days of age using floor-based housing technology, the dynamics of weight gain in broilers was studied after administration of different doses of the biogenic stimulant ASD in comparison with the control in conditions of a poultry farm in the Moscow region unfavorable for coccidiosis. The chickens selected for the experiment were divided into four similar groups of 20 each. Experimental chickens of groups 1-3 were prescribed the drug ASD 2nd fraction at a dosage form (DF) dose of 10; 20 and 30 ml per 1 liter of drinking water for 72 hours continuously at 9-11; 15-17 and 23-25 days of life. Chickens of group 4 were not given the drug; they served as control. Analysis of data on the increase in body weight of chickens showed that in chickens of the first group the total increase was 1962 g, and in the second and third groups 2163 and 2194 g, respectively, in the control group - 1812. In percentage terms, the productivity of groups 1-3 was greater by 8.3; 19.4 and 21.1% compared to the control group.*

At the second stage, testing the effectiveness of the joint administration of diclazuril and ASD for coccidiosis in broilers was carried out on 300 chickens from 9 to 38 days of age, kept on floors in a disadvantaged poultry farm in the Moscow region, which were divided into three groups. Chickens of group 1 were prescribed diclazuril at a dose of 2 ml per 1 liter of drinking water for 48 hours according to the following scheme: at 9-10; 16-17 and 24-25 days of age, together with the drug ASD at a dose of 20 ml per 1 liter of drinking water for 72 hours according to the previously noted scheme. Chickens of group 2 were prescribed amprolium at a dose of 0.4 g per 1 liter of drinking water for 48 hours together with the drug ASD in the indicated dose and schedule. Chickens in the control group did not receive the drug. The test results showed that the combined administration of diclazuril with water and ASD according to the noted scheme provides high extends effectiveness (EE - 91.3%) and intensive efficiency (IE - 95.6%) with floor technology for keeping broilers.

Keywords: broilers, coccidiosis, drugs Diclazuril, ASD, effect on productivity, efficiency.

Introduction. The poultry industry in the Russian Federation has significant prospects for the development of domestic poultry meat production. Among the problems that have a negative impact on the development of the industry, vari-

ous diseases and, above all, coccidiosis of broiler chickens should be noted. The urgency of the problem is due to the wide distribution of coccidiosis in poultry farms and the great biological potential of coccidia, which can accumulate in large quantities in poultry houses within a short time. Coccidiosis is dangerous not only in itself, but also due to its association with other diseases, which poses a great threat to poultry farming. Even with the subclinical form of coccidiosis, in combination with inadequate feeding, viral and bacterial infections, mycotoxins in feed and other unfavorable circumstances, it causes significant economic losses to production [1-3].

To combat avian coccidiosis, a large number of drugs are used, among which it is necessary to note various antibiotics, alkaloids isolated from plants, derivatives of various chemical groups and others prescribed to inhibit the vital activity or destroy the endogenous stages of coccidia [4, 5]. The fight against coccidiosis will be successful if a set of measures is carried out against the endogenous and exogenous stages of development of the parasite, as well as the use of pathogenetic therapy. The objective of our research was to study the effect of diclazuril in combination with the biogenic stimulant ASD on the productivity of broiler chickens with spontaneous coccidiosis.

Materials and methods. The study of the dynamics of weight gain in broilers after the administration of different doses of the biogenic stimulant ASD in comparison with the control was carried out in a poultry farm in the Moscow region that was unaffected by coccidiosis on 80 chickens from 9 to 38 days of age using floor-based housing technology. It should be said that all chickens in this poultry house received amprolium with feed as a preventive course from the first day of life throughout the entire growing period, which was excluded from the diet 5 days before slaughter. The chickens selected for the experiment were divided into four similar groups of 20 each. Chickens of the first group were prescribed the drug ASD 2nd fraction at a dosage form (DF) dose of 10 ml per 1 liter of drinking water on days 9-11 of life, then on days 15-17 and 23-25 continuously for 72 hours. Chickens of the second and third groups were prescribed the drug ASD in doses of DF 20 and 30 ml per 1 liter of drinking water, respectively, at the previously noted dates. Chickens of the fourth group did not receive the drug and served as controls. During the experiment, all chickens were kept in similar conditions on the floor in groups that were isolated with a metal mesh, and they were fed according to zoot-technical standards. The general condition of the chickens was assessed based on the results of daily clinical examinations (temperature, pulse, respiration), control weighings before giving different doses of the ASD drug and before submitting them for slaughter, as well as data from blood tests.

A test of the effectiveness of the joint administration of diclazuril and ASD for coccidiosis in broilers was carried out in a previously noted poultry farm in

the Moscow region, which was unfavorable for coccidiosis, on 300 chickens from 9 to 38 days of age using floor housing technology. The chickens selected for the experiment were divided into three groups with a population of 100, 100 and 100, respectively, which were kept in isolation. Chickens of the first group were prescribed diclazuril at a dose of 2 ml per 1 liter of drinking water for 48 hours according to the following scheme: at 9-10; 16-17 and 24-25 days of age, together with the drug ASD at a dose of 20 ml per 1 liter of drinking water for 72 hours. Chickens of the second group were prescribed amprolium at a dose of 0.4 g per 1 liter of drinking water for 48 hours together with the drug ASD in the previously noted dose and schedule. The chickens of the third control group did not receive any drugs. During the experiment, the chickens were kept in similar conditions on the floor, in groups and fed according to zootechnical standards. The general condition of the chickens was assessed based on the results of daily clinical observations. The extent and intensity of coccidiosis infestation were determined based on the results of coproscopic studies of chicken droppings samples: 9; 16; 24 and 30 days.

Research results. When testing different doses of the biogenic stimulant, the general condition of the chickens that received different doses of the ASD drug and the control ones did not change during the period of giving the drug and after it. The intake of food and water, the condition of the feather cover did not change during the entire experiment. In all cases, no death of chicks was observed.

From the analysis of data on body weight gain, it can be seen that in chickens of the first group the total weight gain was 1962 g, and in the second and third groups it was 2163 and 2194 g, respectively. In the control group, the total weight gain during the experimental period was 1812. Statistical analysis of data on the total body weight gain of broiler chickens receiving different doses of ASD showed their significant differences from chickens in the control group ($p < 0.05$). It should be noted that in terms of overall body weight gain, the best indicators were in chickens of the third and second groups, which received ASD at a dose of 30 and 20 ml per 1 liter of drinking water. Since these data did not have a significant difference ($p > 0.05$), the optimal dose was taken to be 20 ml of the drug per 1 liter of drinking water according to the previously noted scheme.

The study of changes in the morphological parameters of the blood of chickens before and after the administration of the marked doses of the ASD drug was carried out on the above-mentioned groups of chickens. Blood from chickens of the experimental and control groups was taken from the axillary vein three days before and 1, 3, 5 and 7 days after the administration of doses. The erythrocyte sedimentation rate (ESR) (mm/hour), hemoglobin content (g/l), total number of erythrocytes (1012/l), leukocytes (109/l), platelets (thousands/ml), leukogram according to the standard for blood were determined birds method.

The research results showed the absence of statistically significant changes in hematological parameters, with the exception of a temporary increase in the number of red blood cells and hemoglobin (by 10-15%) until the 7th day after the last prescription.

When testing the effectiveness of the joint administration of diclazuril and ASD for coccidiosis in broilers, the research results showed that on the 9th day from birth in chickens of group 1, EI was 7%, with AI - 2.5 thousand oocysts, in group 2 EI - 5%, AI - 2.6 thousand oocysts and in group 3 EI - 7%, II - 2.7 thousand oocysts. On day 16, the indicators were as follows: group 1 EI - 8%, II - 1.6 thousand oocysts, group 2 EI - 15%, II - 3.3 thousand oocysts and group 3 EI - 45%, II - 10, 6 thousand oocysts. On day 24, the infection rates were: group 1 EI-11%, II-2.1 thousand oocysts, group 2 EI-28%, II-6.2 thousand oocysts and group 3 EI-83.3%, II- 27.3 thousand oocysts. On day 30, the infection rates were as follows: group 1 EI-8%, II-1.76 thousand oocysts, group 2 EI-31%, II-5.8 thousand oocysts and group 3 EI-92%, II-38 ,1 thousand oocysts.

The effectiveness of the joint administration of diclazuril with ASD and amprolium with ASD during the study at different times was as follows: on day 16, group 1 EE-82.2%, IE-84.9%, group 2 EE-66.7%, IE-68, 9%. On day 24, group 1 EE - 86.8%, IE - 92.3%, group 2 EE - 66.3%, IE - 77.3%. On day 30, group 1 EE - 91.3%, IE - 95.6%, group 2 EE - 66.3%, IE - 84.8%. The results of the test showed that the combined administration of diclazuril with water and ASD according to the noted scheme provides high extensive and intensive effectiveness against coccidiosis of broilers using floor technology for keeping them.

Conclusion. The study showed that when diclazuril is administered together with water and a biogenic stimulant, ASD according to the noted scheme provides high intensity efficiency - 95.6% in case of spontaneous coccidiosis of broiler chickens using floor-based housing technology. In chickens of the experimental groups, productivity was 8.3-21.1% higher compared to the control group.

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關於雞傳染性支氣管炎病程的問題

ON THE ISSUE OF THE COURSE OF INFECTIOUS BRONCHITIS IN CHICKENS

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註解。 本文論述了禽類疾病—雞傳染性支氣管炎的病因、發病機制，敘述了此病病程的臨床、病理解剖及病理組織學特徵。

在我國，儘管禽類呼吸道疾病防治體系十分發達，但傳染性支氣管炎並非不重要，佔所有呼吸道疾病的22.1%。 傳染性支氣管炎造成的經濟損失主要是產蛋量下降，種蛋無法使用。 高達20–40%的患有傳染性支氣管炎的雞隻因發育不良而被撲殺。

雞傳染性支氣管炎（IBC）是一種高度傳染性的疾病，其特徵是幼齡動物的呼吸器官受損，成年個體的生殖器官受損，也有腎病腎炎。 產蛋量長期下降，甚至可能完全停止。 養殖場檢測出傳染性支氣管炎後，對附近養雞場造成一年的危險。 家禽死亡率達70%。

關鍵字：呼吸道感染、支氣管炎、氣管炎、腎臟病腎炎、卵子缺陷。

Annotation. *The article discusses the disease of birds- Infectious bronchitis of chickens, its etiology, pathogenesis, describes the clinical, pathoanatomic and pathohistological features of the course of this disease.*

In our country, despite the fact that there is a developed system for combating respiratory diseases of birds, infectious bronchitis is not unimportant, which accounts for 22.1% of all respiratory diseases. The economic damage from infectious bronchitis mainly consists of a decrease in egg production, breeding eggs cannot be used. Up to 20-40% of chickens who had infectious bronchitis are culled due to underdevelopment.

Infectious bronchitis of chickens (IBC) is a highly contagious disease, which is characterized by damage to the respiratory organs in young animals, and in adult individuals of reproductive organs, and also nephrosis-nephritis. Egg production decreases for a long period, may stop altogether. After the detection of infectious bronchitis in the farm, it poses a danger to nearby poultry farms for a year. The mortality rate of poultry reaches 70%.

Keywords: Respiratory infection, bronchitis, tracheitis, nephroso-nephritis, egg defect.

Introduction.

The virus that causes infectious bronchitis was first isolated in 1931 by American scientists Schalk and Hafn. The disease was discovered in Russia in 1946. In 2008, the chicken infectious bronchitis viruses (IBV), as well as coronaviruses of turkeys, ducks, geese, pheasants and penguins, due to the similarity of genomes (up to 90%) were combined into one species - **avian coronavirus**. Currently, IBV is common in all countries with developed poultry farming and is found on all continents, but the most serious outbreaks of the disease are observed in Argentina, Canada, Japan, Italy, Australia, France, Holland, and Germany.

Chickens up to 30 days of age are susceptible to the virus, among which death accounts for 40% to 60% of the number of cases. Under natural conditions, the main source of infection is sick and recovered birds (which are virus carriers for up to 49 and even up to 105 days). Isolation of the virus occurs through discharge from the nose and eyes, with droppings, and with the semen of roosters within 2 weeks after their infection. In this case, the virus is released into the external environment within 35 days. The virus spreads aerogenously and transovarially.

The degree of spread of infection is influenced by the concentration of the bird, its age, and microclimate and feeding conditions; the pathogen can be transmitted through the infected external environment and household items. In addition, humans are susceptible to infectious bronchitis of birds and can be an active carrier of the pathogen during the period of recovery.

Goal and tasks:

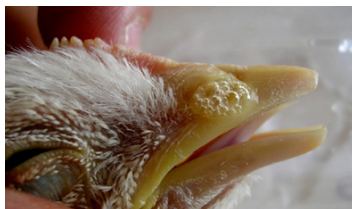
To identify the characteristics of the course of infection in birds on a private farm and to determine pathomorphological and pathohistological changes in the organs of dead birds.

IBK -(Bronchitis infectiosa) – The causative agent of the disease is an RNA-containing, complex virus belonging to the Coronaviridae family. The supercapsid has villi resembling a “solar corona”. The size of virions is 65-135 nm. It has hemagglutinating activity against chicken erythrocytes and causes the synthesis in the body of virus-neutralizing antihemagglutinating and precipitating antibodies, which can be transmitted transovarially, protecting chickens from infection in the first 15 days of life.

It carries out its reproduction in the cytoplasm of cell cultures of chicken fibroblasts and REC, in which the “dwarfism effect” is noted.

The virus persists in poultry houses for up to 50 days and in litter for 90 days. Virus inactivation at 56°C occurs in 10 minutes. It is resistant to acidic environments and sensitive to alkaline environments. Traditional disinfectant solutions quickly cause inactivation

This is a viral disease and is very difficult to treat. The infection spreads very quickly throughout the entire population, affecting not only young birds, but also adult birds. Clinical symptoms will differ at different ages. Infection mainly occurs due to non-compliance with hygiene rules in the chicken coop and violations of sanitary standards when purchasing incubation material. Most often, the virus affects chickens under 20 days of age. In young animals, the respiratory symptom mainly progresses: the mucous membranes of the respiratory tract swell; there is abundant mucus secretion, sometimes conjunctivitis, bronchospasm, mucous discharge from the nasal openings. And also in infected young animals, the virus weakens the body, leads to low digestibility of feed, and as a result, poor body weight gain.



In laying hens and breeding birds, the main losses are due to impaired and reduced egg production, which is not restored throughout the life of the hen. In addition, egg defects are observed with the disease. And when using eggs from a sick bird for hatching, there is a possibility of chickens with signs of the virus. There are three clinical syndromes: respiratory, nephrosis-nephritis and reproductive.



Egg deformation

Materials and methods.

To analyze pathological changes in the body of birds, we examined dead birds (21 birds) with clinical and subclinical signs of the disease from a private farm. The bird (chicken) was of different ages and genders. The entire bird was necropsied. During the autopsy of the bird, pathological material was taken (pieces of the liver, lungs, trachea, heart, kidneys, intestines, pancreas, ovary, oviduct and spleen) for histological examination. Histological examination included fixation in 10% neutral buffered formalin solution and paraffin transfer. Sections were stained with hematoxylin and eosin. Photographs of histological preparations were taken using a Leica microscope.

Pathological changes.

An external examination of the corpses of birds with respiratory syndrome (10 birds), mainly in young birds up to 6 weeks of age, revealed changes in the respiratory system: mucous-serous discharge from the nasal openings, sometimes rhinitis and conjunctivitis. Increased vascular permeability leads to swelling of the mucous membrane of the trachea and bronchi, which leads to exudation and cellular infiltration, metabolic disturbances in the affected cells and their lysis. The mucous membranes of the nasal cavity, trachea and large bronchi are swollen, covered with thick mucus with hemorrhages. An accumulation of foamy, transparent or cloudy liquid was found in the air sacs. The walls of the air sacs are thickened in half of the birds with focal opacities, and in two cases diffuse opacities. Fibrin films were found on the air sacs in three-week-old birds. The lungs are sleepless, slightly increased in volume, light red or dark red in color. The cut surface is moist and smooth. When pressed with a finger, a cloudy foamy liquid is released from the lungs. Small foci of atelectasis are found in the apices of the lungs. In the trachea of two out of ten birds, caseous-mucous contents of white-yellow color were found.

In birds with nephrosis-nephritis syndrome (there were 7 birds), respiratory organ damage was not observed in all of them. The kidneys and ureters were mainly affected, with urate deposition. During life, depression and diarrhea were also noted with an admixture of urates. At autopsy, slight enlargement or swelling of the kidneys was observed. The kidneys had a variegated color and doughy consistency; the ureters were distended and filled with a white-gray mass.

Damage to the reproductive organs (the so-called reproductive syndrome) was recorded in 4 birds for 7 months. age, it was asymptomatic and with minor damage to the respiratory system. (congestive hyperemia of the vessels of the lungs, accumulation of mucus in the trachea.) In these birds, upon autopsy, a decrease in the size of the ovary is observed; it had a dense consistency (atrophy of the egg follicles is in progress). And also in two heads the ovary is deformed, with hemorrhages, and covered with corpus luteum. Cysts were found in the oviduct of 3 of

the examined birds, especially in the anterior part. The posterior part of the oviduct is atrophied. In one head there are constrictions, in two there are bottle-shaped extensions of the oviduct. The liver is hyperemic, its capsule is tense, the edges of the liver are blunted. The spleen is slightly enlarged and heavily filled with blood.

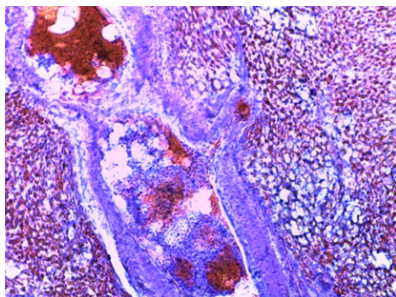
In case of bronchitis complications with conditionally pathogenic microflora, the macroscopic changes in the air sacs and upper respiratory tract are similar to respiratory mycoplasmosis.

Chickens that have had infectious bronchitis pass on antibodies in their eggs. Chickens hatched from such eggs have passive immunity, which can be detected within 2-3 weeks of their life.

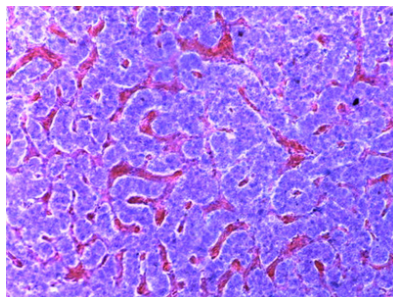
A preliminary diagnosis in farm conditions can be made on the basis of epizootic, clinical and pathological data, and in case of complicated and mixed infection (which happens more often), when clinical manifestations are not always clearly expressed, a complex of laboratory tests (virological, serological, histological and bioassay) is necessary.

Pathohistological changes.

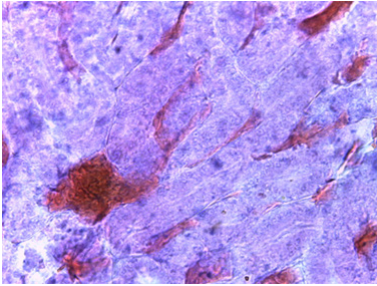
The histological picture in birds with respiratory syndrome is characterized by congestive hyperemia of the microvasculature of the lungs and liver and changes in the lungs and bronchi. Dystrophic changes in the liver. When it is complicated by an infection, perihepatitis develops, and in the intestines - hyperplastic duodenitis and desquamative colitis.



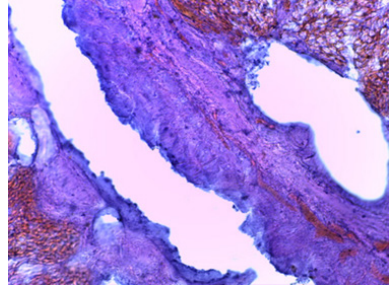
Congestive hyperemia of the microvasculature of the lung. Hematoxylin and eosin staining. Increased X200.



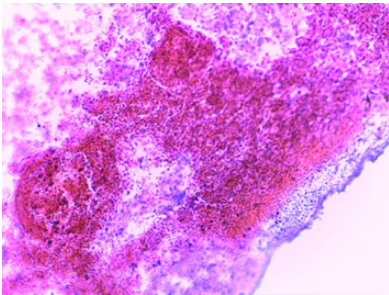
Congestive hyperemia of the microvasculature of the liver. Hematoxylin and eosin staining. Increased X200.



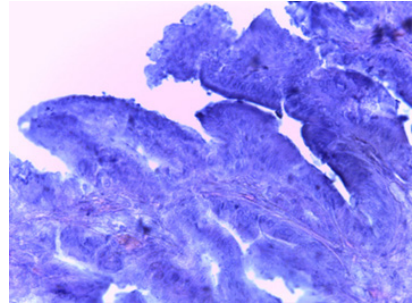
Congestive hyperemia of the microvasculature of the kidneys. Intravascular hemolysis of erythrocytes. Hematoxylin and eosin staining. Increased X400



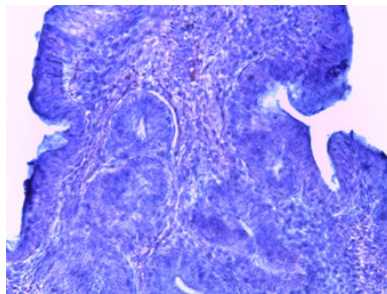
Productive diphtheritic bronchitis. Hematoxylin and eosin staining. Increased X400



Massive subcapsular hemorrhages in the liver and perihepatitis. Hematoxylin and eosin staining. Increased X200.

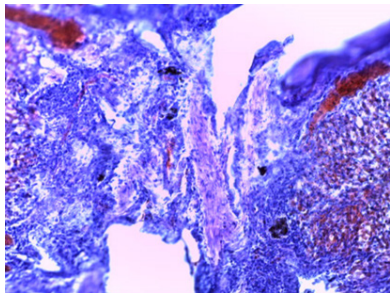


Hyperplastic catarrhal duodenitis. Hematoxylin and eosin staining. Increased X200.

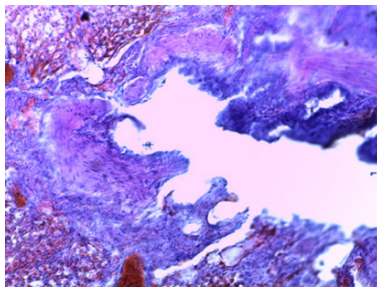


Desquamative catarrhal colitis. Hematoxylin and eosin staining. Increased X400.

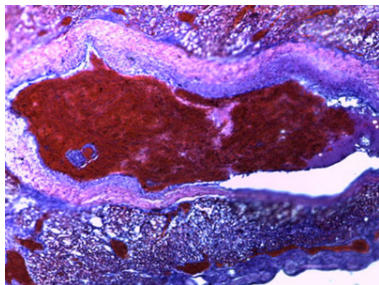
In nephrosis-nephritis syndrome, we observed, in addition to damage to the respiratory system, in the form of pneumonia, productive bronchitis, and pulmonary vascular thrombosis, damage to the liver and kidneys. In the liver there is necrotic hepatitis, in the kidneys, in addition to dystrophic changes, there is an inflammatory process in the form of glomerulitis.



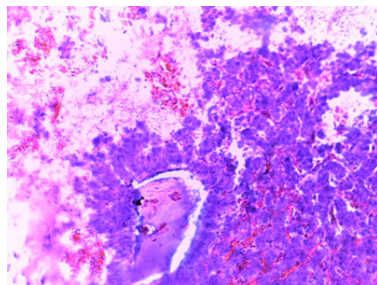
Pneumonia focus Stained with hematoxylin and eosin Increased X200



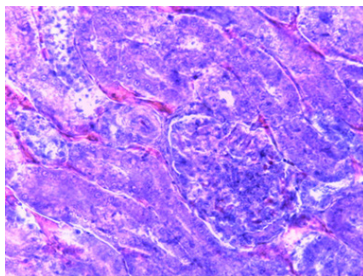
Productive bronchitis. Staining with hematoxylin and eosin Magnitude 200



Pulmonary vascular thrombosis. Staining with hematoxylin and eosin Uvel.X400

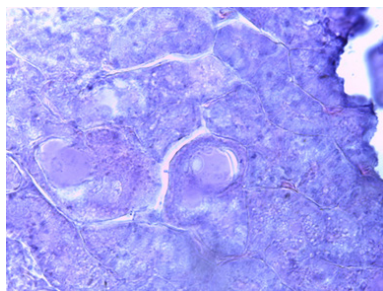


Liver. Focal necrotizing hepatitis. Hematoxylin and eosin staining Uvel.X200

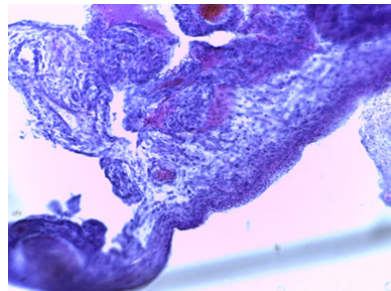


Kidney. Glomerulonephritis Stained with hematoxylin and eosin Increased X400

In Reproductive Syndrome, along with damage to the respiratory system, the organs of the reproductive system - the ovary and oviducts - are affected. They develop a polycystic process and in some it is productive.

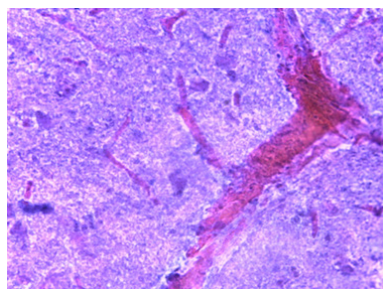


Oviduct. Epithelium of the oviduct. Polycystic disease. Staining with hematoxylin and eosin Uvel.X400.



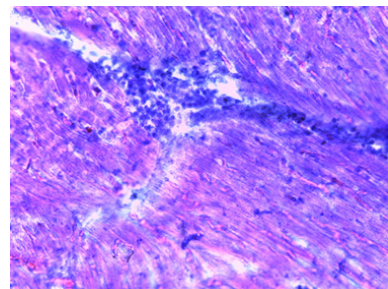
Ovary. Productive ovarianitis. Staining with hematoxylin and eosin Uvel.X400.

Simultaneously with changes in the respiratory, digestive, excretory and reproductive systems, changes in the heart in the form of myocarditis were observed in all birds and, as a sign of intoxication of the body, vascular hemolysis of red blood cells was observed inside all organs and the brain.



Brain. Congestive hyperemia and intravascular hemolysis of erythrocytes.

Staining with hematoxylin and eosin Uvel.X400



Myocarditis. Staining with hematoxylin and eosin Uvel.X400.

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在俄羅斯濕潤亞熱帶地區種植美味獼猴桃（獼猴桃）
**PLACEMENT OF THE ACTINIDIA DELICIOSA (KIWI) CULTURE
IN THE HUMID SUBTROPICS OF RUSSIA**

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註解。 在俄羅斯濕潤的亞熱帶地區種植美味獼猴桃是基於對植物環境系統中農業氣候條件對作物產量影響的評估。 已經確定了在抗凍性方面限制美味獼猴桃可能種植面積的因素，以及限制其生產力的土壤特性。 對俄羅斯聯邦濕潤亞熱帶地區主要土壤類型的土壤覆蓋和性質的研究結果以及根據土壤剖面的平衡密度和厚度標準對農業用地進行的評估的結果構成了其適宜性的基礎。 *A. deliciosa* 的培養物。 其品種的農業生態特徵以生態可塑性和潛在產量指標來表徵。

關鍵字：美味獼猴桃； 農業氣候條件； 土壤； 適應性品種； 限制因素。

Annotation. *The placement of the Actinidia deliciosa culture in the humid subtropics of Russia is based on an assessment of the influence of agroclimatic conditions on the crop yield in the plant-environment system. Factors have been identified that limit the area of possible cultivation of Actinidia deliciosa in terms of frost resistance, as well as soil properties that limit its productivity. The results of studying the soil cover and properties of the main types of soils in the humid subtropical zone of the Russian Federation and the assessment of agricultural lands according to the criterion of equilibrium density and thickness of the soil profile formed the basis of their suitability for the culture of A. deliciosa. The agroecological characteristics of its varieties are represented by indicators of ecological plasticity and potential yield.*

Keywords: *actinidia deliciosa; agroclimatic conditions; soil; adaptive varieties; limiting factors.*

The zoning of the *A. deliciosa* culture in the humid subtropical zone is based on adaptive-differentiated (agroecological) and landscape approaches. Agroecological zoning is based on the integrated use of the adaptive potential of *A. deliciosa* varieties, natural resources of the territory and chemical and technogenic factors to increase the productive potential of the crop. Methods for managing the productivity of varieties require studying and modeling the relationship between varieties and their cultivation conditions.

A.A. Zhuchenko (2009) [1] in his work on the adaptive strategy of Russian agriculture concludes that “the most effective use of natural resources can be ensured only on the basis of the adaptive placement of cultivated species and varieties in natural-economic zones and regions, i.e. more in-depth specialization of crop production.” This thesis is especially relevant for the subtropical regions of the country.

Currently, the assessment of agroclimatic conditions for crop cultivation is based on the following: analysis of the influence of weather conditions on crop development and yield; development on its basis of a quantitative model in the “weather – crop” system; determining the possible range of the crop in the humid subtropics; by identifying zones within it according to the degree of favorable climate for crop formation.

Research methods

The variety study of the crop was carried out in accordance with the “Program and methodology for the study of variety of fruit, berry and nut crops” (Orel, 1999) [2]. The ecological plasticity of *A. deliciosa* cultivars was assessed according to Eberhart and Russell (1966) [3].

The weather conditions data for all weather stations and weather points in the city of Sochi were analyzed. Average long-term indicators according to climate reference books of the USSR were also taken into account.

Modeling of relationships in the plant-environment system was carried out using multiple correlation and regression analysis using the Statistica 6 program. Experimental data was also processed using the “Field Experiment Methodology” (Dospheov, 1985) [4].

To determine the gradation of a crop’s adaptability to environmental factors that constantly change during the growing season and for each group of varieties according to the ripening period, the minimum, average daily and maximum air temperatures, its relative humidity, and the amount of precipitation for the main phenological phases of development of actinidia plants were determined.

The properties of alluvial soils of the state farms “Russia”, “Voskhod”, the Adler experimental station of VIR, Lazarevsky GSU, the agricultural firm “Kudeps-ta”, as well as brown forest soils in Solokh-Aul and Krasnaya Polyana were studied.

Research results

The territory of the humid subtropical zone of the Russian Federation is limited by the Caucasus Range with an altitude of 1500 to 3000 m above sea level over a distance of 145 km.

The distance from the sea to the Main Caucasus Range is from 40 to 60 km, which determines the presence of coastal-marine terraced, low-mountain, mid-mountain and high-mountain landscapes. As a result, the territory of the Russian subtropics is characterized by some latitudinal and significant altitudinal zonality. Peculiarities of meso- and microclimate have a significant impact on the productivity of the cultivated species, depending on the varietal diversity.

Based on vertical zonality, the humid subtropics of the Russian Federation are divided into landscape classes: foothills (altitude up to 200 m), low mountains (200-600 m), middle mountains (600-1800 m) and high mountains (above 1800 m) (Pinkovsky et al. ., 2011) [5].

The type of landscape is determined by the mineralogical composition of the parent and underlying rocks and, depending on them, soil and plant cover. Soddy-carbonate and brown forest slightly unsaturated soils were formed on carbonate rocks (limestones and marls). On silicate rocks, soils are represented by typical brown soils with an acidic reaction. The role of orography in the distribution of thermal resources owls is significant (Table 1).

Table 1.
Average air temperature on slopes of various heights

Indicators	Height in m					
	0-100	100-200	200-300	300-400	400-500	500-600
Air temperature, °C January	5,6	5,1	4,9	4,1	2,8	1,6
July	22,7	22,3	21,9	20,9	20,4	20,3
Sum of temperatures, °C	3820	3820	3690	3320	2940	2940

Studies have shown that the vertical gradient of the timing of the transition of air temperatures through 5°, 10° and 15° in the spring is adequate to the speed of cessation of the growing season from top to bottom. The greater the gradient, the slower the onset or cessation of vegetation in altitudinal zones. The gradient of temperature transition through 5°C is 4 days, through 10°C and 15°C – 3 days. In spring and summer, temperature transitions over 10 °C indicate that the atmospheric field becomes relatively stable and uniform.

The low-mountain (200 – 600 m above sea level) zone occupies most of the territory of the humid subtropics of the Russian Federation. Located on the southwestern slopes of the Black Sea chain of the Caucasus Mountains.

If in the foothills the annual temperature varies from 12°C to 14.1°C, then in the low-mountain landscape it ranges from 12.3 to 12.7°C. The average monthly air temperature in October is 14-15°C, and in November - 9-10°C.

From this time on, the winter growing season begins here, its duration is up to 5 months. Heat supply is close to the vegetation minimum, air temperature is 3-6 °C. There is also no stable cold period here, but short-term absolute minimum temperatures (-10...-14 °C), and sometimes up to 17-18 below zero create stressful situations for subtropical crops.

Relief significantly affects the amount of precipitation and moisture supply of the territory. In the foothill landscape (0-200 m above sea level), an average of 1377-1632 mm of precipitation falls, in mountainous areas 1700-2321 mm. The least amount of precipitation falls from June to September, of a torrential nature, with an intensity of 6.8 mm/min. The foothill zone is characterized by a high frequency of rainless periods of 10 - 20 days. The average annual relative humidity is 74%, dropping to 67-68% in August-October.

The exposure of the slope affects not only temperature conditions, but also moisture availability, especially in the spring-summer period (Besedina, 2004) [6]. The reserves of productive moisture on the southern slope are 34-70 mm less than on the northern slope, while in winter on both slopes the moisture reserves were 195-197 mm.

The subtropical origin of the plant *A. deliciosa* determines its cultivation in regions whose thermal resources total from 3678 to 4258 °C active temperatures (> 10 °C).

According to long-term studies (Besedina, Tutberidze, 2014, 2015) [7, 8], for the growth and development of actinidia, a sum of active temperatures (>10°C) from 4175 to 4510°C is required, depending on the timing of fruit ripening, according to L.Ya. Aiba (2005) [9], from 4065 to 4240 °C depending on the variety. Japanese scientists (Kamota et al, 1989) [10] argued that if the sum of effective temperatures (>15 °C) exceeds 2000 °C, the yield can be more than 20 t/ha, and if the sum is below 1500 °C, the yield is significantly reduced. The sum of effective temperatures on the Black Sea coast varies from 2092 to 3364 °C.

Probability of occurrence of various sums of active temperatures in Sochi (>10 °C) as a percentage of the total number of years of observations. In 80% of years, the sum of active temperatures varies from 2780 in Krasnaya Polyana to 4090°C in Sochi. Consequently, in mountainous conditions, the supply of heat to subtropical crops is significantly reduced, especially in the winter - spring period, when sharp fluctuations in positive and negative temperatures are observed.

It has been established that temperatures of - 15...- 16 °C are detrimental for the *A. deliciosa* plant. The graph of the absolute minimum air temperatures on the coast of the city of Sochi showed that extreme minimum temperatures for actinidia

plants do not appear here (Tutberidze et al., 2011) [11]. The nature of winter hardiness of *A. deliciosa* for individual components is presented in Table. 2.

Table 2.

The nature of frost resistance of A. deliciosa according to researchers in the humid subtropics

Component number	Frost danger period	Temperature indicator, °C	Nature of damage	Sources
1	Winter period (December - February)	- 15...-18	death of seedlings	Kamota, F. et al. (1989) [10]
		- 15	without damage	Gwichia, Gabisonia (1990) [12]
		- 14 - 16	partial death of the bark	Goliadze (1989) [13]
		- 16... - 17	without damage	Tarasenko (1999) [14]
		-16 ... - 18	-/-	Aiba (2001) []
		-17,5	without damage	Chanukvadze (1989) [15]
2	Later spring frosts	-20...-24	the above-ground part freezes out, but is restored from the root	Tutberidze, Besedina (2014) [7]
		-1...-2	all young shoots	Gwichia, Gabisonia die (1990) [12]
		-2...-3	harvest missing	Goliadze (1991) [13]
		-1,8 ...-5	15-16% of the harvest in late varieties remains	2004, 2014 in Russian subtropics

The frost resistance of *A. deliciosa* plants in the humid subtropics of Russia depends on the phases of their development, but the critical factor, most likely, should be considered late spring frosts (late March - early April), which repeated 10 years later (2004, 2014). But in New Zealand, frosts occur every 10 years.

For optimal placement of *A. deliciosa* varieties, it is necessary to establish areas where frost danger may occur in winter, affecting the regularity of fruiting of the crop.

The absolute minimum temperature in the humid subtropics of Russia is from -13 to -22 °C and is typical for the winter months, however, negative temperatures can be in March from -11 to -17 °C.

Considering that these probabilities of occurrence of negative temperatures in the humid subtropics are limited, the frequency of annual absolute minimum temperatures in the foothills and low mountains of the humid subtropics of Russia

was presented in the form of nomograms (in Fig. 1). Table data 18 indicate the probability of the occurrence of absolute temperature minimums in Sochi.

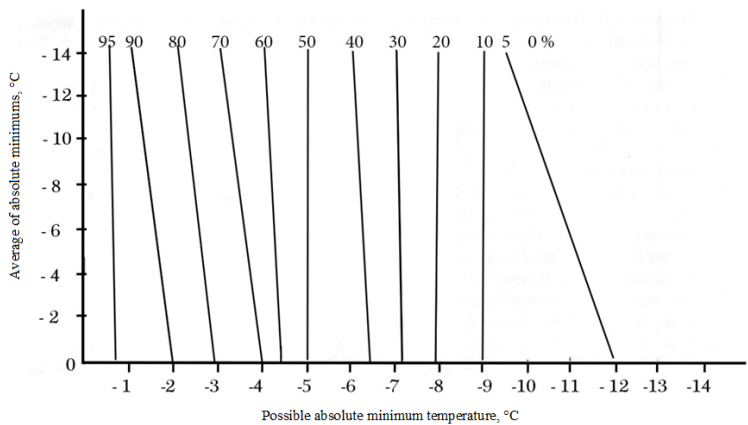


Figure 1. Nomogram for calculating the frequency of annual absolute air temperature in the foothills of the humid subtropics of Russia.

Using the nomogram, a calculation was made of the probability of the occurrence of the absolute minimum critical air temperature for *A. deliciosa* in the foothills of the humid subtropics. When planning the planting of its plantings, you can be guided by the frost danger of the crop in a particular area and its recurrence.

Long-term studies have shown that in the humid subtropics of Russia, *A. deliciosa* begins to vegetate in March, blooms in May–June, and ripens in October–November, depending on the timing of fruit ripening. Leaf fall begins on December 15th and ends in late varieties on December 18th – 28th. The criteria for assessing the adaptive potential of actinidia varieties are potential productivity and ecological plasticity, presented by the data in Table. 3

Table 3.
Criteria for the adaptive potential of A. deliciosa varieties in the humid subtropics of Russia

Fruit ripening dates	Varieties	Average long-term yield, kg/bush	Coefficient of variation, %	Potential		Ecological plasticity, bi
				yield, kg/bush	productivity, c/ha	
Early	Allison	23,4	39	32,9	148,0	0,84
	Abbott	21,0	51	31,7	142,6	0,85

Medium	Monti	36,2	43	52,3	235,4	1,42
	Bruno	31,6	57	45,3	203,8	1,53
Late	Hayward	24,7	44	35,2	158,4	0,93
	Hayward K	21,4	40	29,8	134,1	0,74
	Hayward K8	22,7	44	32,2	144,9	0,84
	Hayward K10	24,9	45	36,5	164,3	1,03
	Hayward K12	23,0	46	33,6	151,2	0,74
	Hayward K16	23,0	41	32,2	144,9	0,81
	Hayward K17	23,2	48	31,5	141,7	0,73
	Kivaldi	26,7	46	38,6	173,7	1,05

An assessment of the adaptability of *A. deliciosa* varieties in the external environment of humid subtropics over a 14-year period showed differences in varieties in yield and in response to changes in weather conditions

Conclusions

- Successful cultivation of *A. deliciosa* is possible in the foothills (up to 200 m above sea level) and low mountains (200-600 m above sea level) of the humid subtropics of Russia.

- The suitability of land for growing actinidia is limited mainly by soil conditions, the composition of which is characterized by an equilibrium density exceeding 1.3 g/cm³.

- The unsuitability of land for actinidia is due to the presence of gley processes, the low thickness of the soil profile, as well as high skeletal content in river valleys. This category of land is very limited.

The climatic conditions of the winter period in Sochi, in the valleys of the Psezuapse, Shakhe and Matessta rivers also limit the suitability of land for *A. deliciosa*. The degree of exposure to frost can be reduced by growing more frost-resistant varieties that are less responsive to changes in weather conditions.

Territories limited by the sum of two factors in the humid subtropics of Russia are few in number and are located in remote places.

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THE INFLUENCE OF MECHANICAL EXPOSURE ON THE ENZYMATE GROUP OF NATURAL HONEY

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抽象的。 本文介绍了机械搅打和一些天然蜂蜜混合模式对蔗糖酶和淀粉酶数主要酶活性影响的研究结果。

蔗糖酶活性值的指标最清楚地显示了机械搅打蜂蜜对其酵素组成的影响。将酵素含量高、低的蜂蜜样本以1: 1和1: 2的比例混合时，有利于获得酵素指标平均值的蜂蜜，更容易出现含量高的样本。

根据所得出的结果，需要指出的是，为了最完整的品质控制和品质控制，建议在国家标准理化指标清单中引入蔗糖酶活性检查天然蜂蜜质量的阶段。自然性。

关键词：天然蜂蜜，机械作用，混合，储存，蔗糖酶活性，淀粉酶值。

Abstract. *The article presents the results of a study of the effect of mechanical whipping and some modes of blending of natural honey on the activity of the main enzymes of invertase and diastase number.*

The indicator of the value of the activity of the enzyme invertase most clearly shows the effect of mechanical whipping of honey on its enzymatic composition. When blending honey samples with high and low enzyme content in a ratio of 1: 1 and 1: 2, it helps to obtain honey with an average value of enzyme indicators, more prone to a sample with a high content.

Based on the results obtained, it should be noted that it is advisable to introduce the stage of examination of the quality of natural honey by the activity of the invertase enzyme in the list of physicochemical indicators of the state standard for the most complete quality control and naturalness.

Keywords: *natural honey, mechanical action, blending, storage, invertase enzyme activity, diastase number.*

Introduction

Russia is one of the largest producers of honey in the world, and provides about 4% of the world's total production. In the list leading world producers of honey, Russia is in the top ten, with an average production volume of about 55-60 thousand tons per year (Arno T.S et al., 2016).

Violation of the basic principles of using technological methods its processing, leads to changes in the properties of the product, is accompanied by the loss initial qualities and, as a result, non-conformity of requirements normative documentation GOST 19792 - 2017 "Natural honey. Technical conditions "and Technical Regulations (TR) TS 021/2011" On food safety products "(Burmistrova L. A., et al., 2017).

Crystallization is influenced in various ways:

- the crystals are mechanically crushed and evenly distributed over the mass of honey;
- introducing into the mass of liquid honey a seed from fine-grained "starting honey";
- in some cases, sorbic acid and pectin are added to liquid honey to prevent crystallization.

Recently, honey of a creamy consistency has become widespread, which is often called "cream honey".

This product was invented in Canada by a professor of beekeeping at the Ontario Agricultural College I. J. Dice and patented in the USA in 1935. Cream honey is produced by grinding honey crystals in various ways to a size of no more than 0.04 mm (Bogdanov S., 2017).

The process of making cream honey is as follows: the honey is heated to dissolve the crystals; filtered, freeing from pollen and foreign particles; then it is cooled and a small amount of creamy honey is added as a "seed" for the crystallization process, in an amount of 10% of the total mass of the honey being prepared.

One of the main disadvantages of this honey is instability when the temperature rises. Studies of the Federal State Budgetary Scientific Institution "Federal Research Center of Beekeeping" have shown that after several months of storage at temperatures above 20 ° C, a liquid layer is formed on the surface of honey modified to a creamy consistency with a humidity of more than 18% (Burmistrova L.A., 2017).

Also, consumers are often offered cream honey, which resembles condensed milk, with an airy texture and more pronounced flavors - "broken honey". This type of honey is also produced industrially. With the spread of the technology of making cream honey, another wave of falsification appears.

Such products do not corresponds the requirements of the state standard GOST 19792 - 2017 "Natural honey. Technical conditions "and TR TS 021/2011, primarily in terms of sensor indicators.

According to VIII TR TS 021/2011 - honey and other beekeeping products with altered organoleptic properties and physicochemical indicators are not allowed for circulation.

Employees of the Federal State Budgetary Scientific Institution “Federal Research Center of Beekeeping” have experimentally established that cream-honey is not identical in composition to the natural honey from which it is prepared. It was found that in cream honey, the indicators and the mass fraction of reducing sugars and the mass fraction of sucrose decrease, as well as the activity of enzymes decreases (Ivashevskaya E.B. and Lebedev V.I., 2017).

Blended honey must correspond the requirements of the regulatory standard. For this type of mechanical processing, one should select types of honey that have opposite organoleptic and physicochemical characteristics: light color with dark color, low diastase number with a high, weak aroma with a strong, low sucrose content with high and others.

The ratio of blended honeys by volume or mass should be selected individually for each batch available on the farm. Honey, given in proportions, is poured into honey storage tanks, thoroughly mixed with a stirrer with simultaneous heating to 40 ° C, defended and packed in small containers.

In accordance with GOST 25629-2014 “Beekeeping. Terms and definitions »blending (from French coupage) - mixing different types of honey by sources to improve its presentation, color, aroma and taste.

Thus, the aim of the study was to study the effect of mechanical processing and blending of honey on the activity of the enzyme invertase and diastase.

Based on the goal, the following tasks were set:

- 1) Studying of harvested honey samples for compliance with the main physical and chemical indicators;
- 2) Determination of invertase activity and diastase number in honey after mechanical processing;
- 3) Determination of invertase activity and diastase number in blended honeys;
- 4) Carrying out the processing of the obtained data on the impact of the main technological processing modes on the prototypes of natural honey.

Materials and methods

Research was carried out in the laboratory of the Federal State Budgetary Scientific Institution “Federal Research Center of Beekeeping” Determination of physicochemical parameters of harvested honey samples was carried out in accordance with GOST 19792-2017 Natural honey. Technical conditions. The activity of the enzyme invertase and the diastase number of honey were determined according to GOST 34232-2017 Honey. Methods for determining the activity of sucrose, diastase number, insoluble matter.

Honey samples were mechanically whipped using a planetary mixer GAS-TRORAG QF-3470, designed to perform a wide range of whipping and mixing

operations in catering units and production workshops of low and medium productivity. Power 0.65 kW, rotation speed 3750 rpm.

Experimental honey samples after processing were placed in transparent 200 ml jars in three replicates. Investigated immediately after whipping, after 30 and after 60 days of storage at a temperature of 14-15 ° C.

For blending honey, samples with high and low enzyme content were taken. Blending was carried out in proportions 1: 1 and 1: 2. Blended honey was placed in glass transparent jars of 200 ml, examined one day after preparation.

Results and Discussion

The results of determining the compliance of the test samples with the state standard are presented in Table 1.

Table 1

The results of the study of harvested honey samples by the main physical and chemical parameters according to 19792-2017 Natural honey. Technical conditions

Sample name	humidity (%)	mass fraction of reducing sugars (%)	mass fraction of sucrose (%)	diastase number (Gothe u)	qualitative reaction to OMF
Samples of honey for mechanical processing					
1	16,1	76,3	2,7	12,5	otp.
2	16,3	73,4	3,6	16,1	otp.
3	17,7	75,1	4,5	10,0	otp.
4	15,8	73,6	4,1	8,1	otp.
5	18,5	76,1	4,3	17,0	otp.
Samples for making blended honey					
1	17,3	75,8	3,1	9,0	otp.
2	15,3	74,2	4,2	16,4	otp.
3	18,7	76,1	3,8	8,5	otp.
4	14,8	73,8	2,8	15,8	otp.

Based on the data in the table, we can conclude that all the prepared samples met the norms and requirements of the state standard for natural honey in all basic physical and chemical indicators.

The results of determining the degree of influence of mechanical treatment on the activity of invertase and diastase number are presented in tables 2 and 3.

Table 2
Influence of mechanical action on the activity of the enzyme invertase, (M±m)

Sample name	control		After processing		Control in a month.		experiment in a month		Control in a 3 months.		experiment in a 3 months	
	invertase activity (U / g)	invertase activity (U / g)	invertase activity (U / g)	% from initial.*	invertase activity (U / g)	% from initial	invertase activity (U / g)	% from initial	invertase activity (U / g)	% from initial	invertase activity (U / g)	% from initial
1	25,5±0,07	24,3±0,07	4,7		23,7±0,07	7,1	21,4±0,29	16,1	22,2±0,13	12,9	11,6±0,35	54,5
2	22,3±0,13	22,1±0,12	1,0		23,1±0,03	+3,6	19,4±0,29	13,0	21,4±0,07	4,1	9,9±0,12	55,6
3	21,3±0,01	17,5±0,12	17,8		22,9±0,01	+7,5	17,4±0,07	18,3	20,9±0,12	1,9	9,6±0,07	54,9
4	44,8±0,35	43,9±0,13	2,01		42,4±0,33	5,3	41,1±0,23	8,3	21,6±0,07	51,8	19,2±0,18	57,1
5	33,7±0,07	21,7±0,12	35,6		30,7±0,15	8,9	19,2±0,13	43,1	25,3±0,07	24,9	7,0±0,24	79,2
* - decrease in invertase activity as a percentage of the initial value of the indicator												

Table 3
Influence of mechanical action on the diastase number of natural honey, (M ± m)

Sample name	control		After processing		Control in a month.		experiment in a month		Control in a 3 months.		experiment in a 3 months	
	diastase number (U Gothe)	diastase number (U Gothe)	diastase number (U Gothe)	% from initial.*	diastase number (U Gothe)	% from initial.*	diastase number (U Gothe)	% from initial.*	diastase number (U Gothe)	% from initial.*	diastase number (U Gothe)	% from initial.*
1	12,5±0,07	12,0±0,36	4,2		12,1±0,16	3,3	11,7±0,07	6,8	11,7±0,35	6,8	10,1±0,33	23,8
2	16,1±0,12	15,9±0,33	1,3		16,0±0,23	0,6	15,5±0,23	3,9	15,8±0,28	1,9	14,9±0,36	8,1
3	10,0±0,33	9,9±0,12	1,0		9,9±0,33	1,0	9,7±0,12	3,1	9,5±0,23	5,3	8,1±0,28	23,5
4	8,1±0,12	7,8±0,35	3,9		8,0±0,12	1,3	7,5±0,33	8,0	7,5±0,33	8,0	6,9±0,35	17,4
5	17,0±0,23	16,5±0,26	3,2		17,1±0,07	+1,3	16,3±0,33	4,3	16,3±0,38	4,3	16,0±0,35	6,3
* - decrease in diastase activity as a percentage of the initial value of the indicator												

Based on the data obtained in Table 2, it can be noted that the activity of the honey invertase enzyme after mechanical processing slows down. The decrease in activity in percentage terms in all test specimens after treatment averaged $12.2 \pm 6.57\%$ (fluctuation limits 1 - 17.8%). The decrease in the values of the activity indicator in the control samples after a month was $7.1 \pm 1.03\%$ (fluctuations range +7.5 - 8.9%). The difference between the control and experimental samples after a month did not exceed 9.0 units / g.

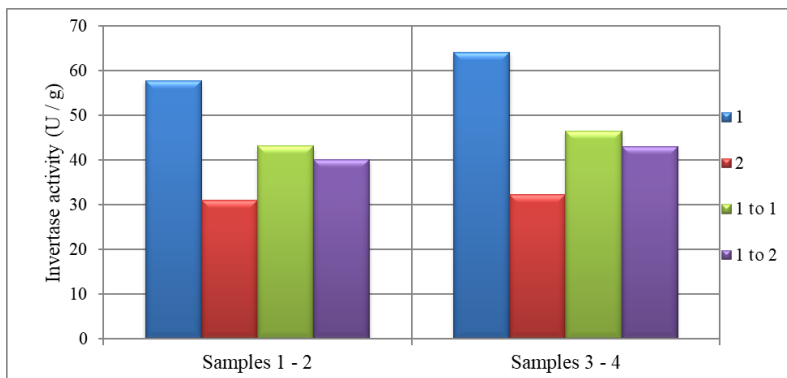
The activity of the control samples after 3 months on average decreased by $19.1 \pm 9.12\%$ (fluctuations range 1.9 - 24.9%). Whereas in the experimental samples, the decrease in activity after 3 months averaged $60.3 \pm 4.76\%$ (fluctuations range 54.5 - 79.2%). The difference between the control and experimental samples did not exceed 26.7 units / g.

In accordance with table 3, we can conclude that the diastase number of honey after mechanical processing also decreases. The decrease in the diastase number in percentage terms in all test specimens after treatment averaged $2.7 \pm 0.66\%$ (fluctuation range 1.01 - 4.2%). The decrease in the values of the indicator in the control samples after a month was $1.8 \pm 0.55\%$ (the range of fluctuations is +1.3 - 0.6%). The difference between the control and experimental samples after a month did not exceed 0.4 units / Gothe.

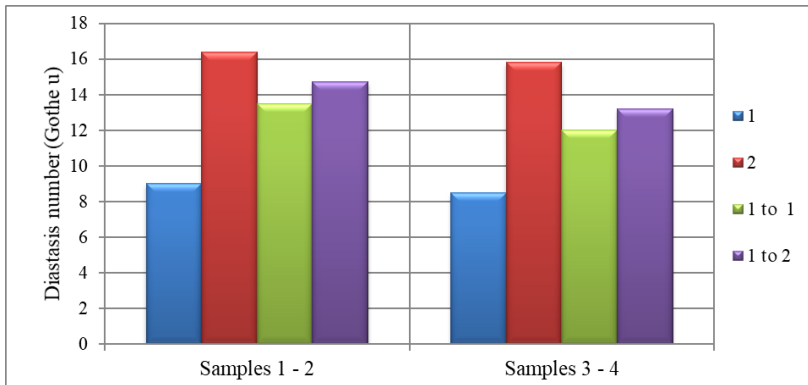
The activity of the control samples after 3 months decreased on average by $5.3 \pm 1.05\%$ (fluctuations range 0.8-1.9%). Whereas in the experimental samples, the decrease in activity after 3 months averaged $15.8 \pm 3.71\%$ (fluctuations range 6.3 - 23.8%). The difference between the control and experimental samples did not exceed 1.6 units / Gothe.

It should also be noted that the invertase enzyme reacts more sensitively to mechanical action than the indicator of the diastase number of honey.

The results of a study of the effect of blending on the activity of the enzyme invertase and the diastase number of natural honey are presented in Figures 1 and 2.



Based on the data presented in Figure 1, it can be noted that the invertase enzyme activity indicator sensitively reacts to the blending of honey samples with low and high enzyme activity. It should also be noted that when mixing honeys with high and low activity in a 1: 1 ratio, the finished sample has averaged values between the original samples. When honeys with high and low invertase enzyme activity are mixed in a 1: 2 ratio, the blended sample has this enzyme activity more prone to the sample with a high invertase content.



Analyzing the presented indicators in Figure 2, it can be noted that the diastase number indicator also sensitively reacts to the blending of honey samples with low and high diastase content. It should also be noted that when blending honeys with high and low content of this enzyme in a 1: 1 ratio, the resulting honey has average values between the original samples. When mixing honeys with high and low activity of the diastase enzyme in a ratio of 1: 2, blended honey has an indicator value more prone to a sample with a high content of this enzyme.

Conclusions

Based on the results of the research carried out, preliminary conclusions can be drawn.

The invertase enzyme activity index most clearly shows the effect of mechanical whipping of honey on its enzymatic composition. So when storing honey after mechanical action for 3 months, it contributes to reduce the activity of invertase by $60.3 \pm 4.76\%$ (fluctuations range 54.5 - 79.2%). The difference between the control and experimental samples did not exceed 26.7 units / g. Whereas the indicator of the value of the diastasis number 3 months after mechanical treatment decreased only by $15.8 \pm 3.71\%$ (the range of fluctuations is 6.3 - 23.8%). The difference between the control and experimental samples did not exceed 1.6 units / Gothe.

When blending honey samples with high and low enzyme content in a ratio of 1: 1 and 1: 2, it helps to obtain honey with an average value of enzyme indicators, more prone to a sample with a high content.

Based on the results obtained, it should be noted that it is advisable to introduce the stage of examination of the quality of natural honey by the activity of the invertase enzyme in the list of physicochemical indicators of the state standard for the most complete quality control and naturalness.

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