



# 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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**STRATEGIES FOR THE PARTICIPATION OF NATIONAL  
BANKING STRUCTURES IN CROSS-BORDER ECONOMIC  
COOPERATION IN THE CONDITIONS OF REORIENTATION OF  
FOREIGN ECONOMIC RELATIONS**

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抽象的。 本文致力於研究國際領域國家銀行結構策略的形成問題。 作者確定了金融機構跨境互動現有運作模式的主要趨勢，並確定了最有前景的發展領域。 作者發展了一個經濟模型，用於國家銀行結構在對外經濟活動領域選擇戰略決策。 該模型在綜合分析外部和內部因素的基礎上，假設了策略發展方案的可變性，並假設了四種主要情境：外貿結算和資本流動領域傳統金融結構互動管道的重新定位；國際業務領域的合作和聯盟的建立；基於最新數位化成果實施的生態系統方法，可以為對外經濟活動的參與者提供全方位的銀行和非金融服務；金融、企業、國家和國際機構之間經濟互動的一體化模式，包括在上合組織、金磚國家和歐亞經濟聯盟等協會框架內。 透過開發獨特、靈活的經濟指標體系可以評估其有效性和潛力，從而確保適應和轉變模型的能力。 作為跨境結算的工具，作者提出了一種使用數位金融資產的機制，透過國家企業和銀行結構的互動來保證數位金融資產的發行和流通。

**關鍵字：**對外經濟關係轉型、跨國互動策略、策略選擇的經濟模式、對外貿易結算、國際金融流動。

**Abstract.** *The article is devoted to the study of the issue of formation of strategies of national banking structures in the international sphere. The authors identified key trends within the existing models of functioning of cross-border interaction of financial institutions, and identified the most promising areas of development. The authors have developed an economic model for choosing strategic decisions by national banking structures in the field of foreign economic activity. The model assumes the variability of strategic development alternatives, based on*

*a comprehensive analysis of external and internal factors, and assumes four main scenarios: reorientation of traditional channels of interaction of financial structures in the field of foreign trade settlements and capital flows; cooperation and creation of alliances in the field of international business; an ecosystem approach based on the implementation of the latest digitalization achievements that can provide participants in foreign economic activity with a full range of banking and non-financial services; an integration model of economic interaction between financial, corporate, state and international institutions, including within the framework of associations such as the SCO, BRICS, and EAEU. The ability to adapt and transform the model can be ensured by the development of a unique flexible system of economic indicators that allows assessing its effectiveness and potential. As a tool for cross-border settlements, the authors proposed a mechanism for using digital financial assets, the issuance and circulation of which is ensured by the interaction of national corporate and banking structures.*

**Keywords:** *transformation of foreign economic relations, cross-border interaction strategies, economic model for choosing a strategy, foreign trade settlements, international financial flows.*

Adaptation of strategies for cross-border interaction of national banking institutions to global transformation processes and the associated reorientation of international economic relations of the Russian Federation is key to ensuring national foreign economic growth. Unprecedented sanctions restrictions imposed against Russian corporate and financial structures, which complicated the conduct of foreign trade settlements, closed access to international capital markets, limited Russian imports and exports, necessitated the search by the financial sector for strategic solutions capable of creating an uninterrupted and secure system of international transactions, providing access to new foreign financing markets, promote the implementation of external investment projects.

The globalization of the world financial system and the concentration of a significant share of international transactions in the largest transnational banks has led to an asymmetry in the currency structure and directions of financial flows. Trends towards dedollarization, regionalization, and the use of national currencies are gaining increasing importance. According to the SWIFT payment system, the share of the Chinese yuan in international payments increased from 1.97% in October 2020 to 3.6% in October 2023 [10]. The Bank of Russia also sees as a priority the increase in the use of the ruble and national currencies in cross-border transactions [8].

Realization of the potential in the field of financial development, the indicators of which currently lag significantly behind world leaders [9], in terms of the volume of the stock market, the size of assets of the banking sector, and the role

of non-bank financial institutions, will provide a significant impetus to national economic growth. Development is possible both within the framework of a bank-oriented model, aimed at the development of traditional lending, and a market-oriented one, giving priority to capital markets [1]. The Chinese model, in which the strategies of banking structures are closely related to government priorities of economic policy, may be of significant interest [2].

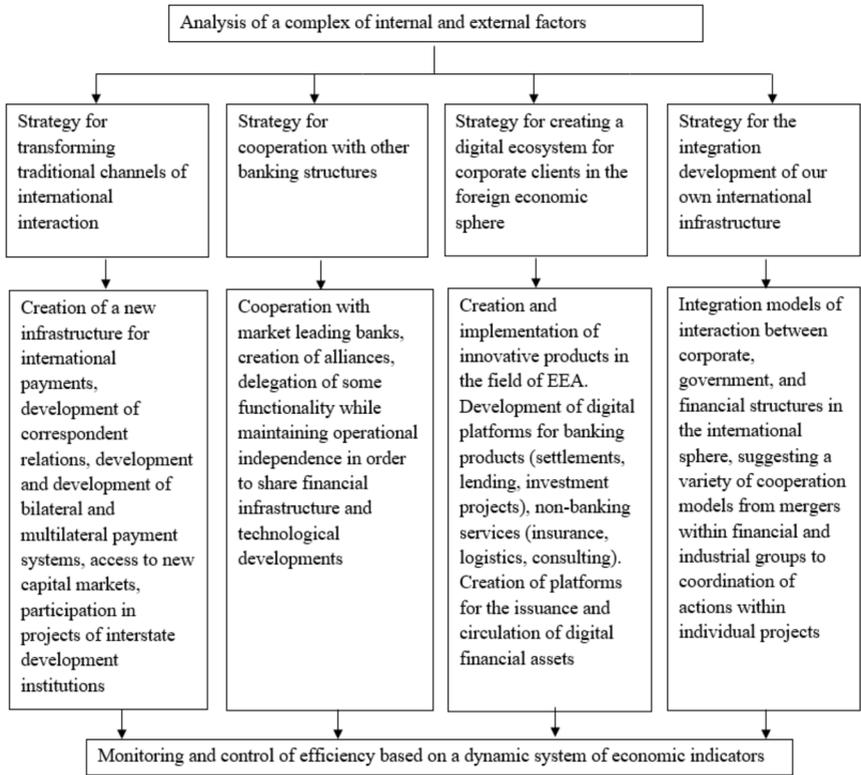
Current trends necessitate a regional transformation of international banking strategies, a reorientation from the traditional financial centers of the USA and Europe to the countries of the Asian region. An important component of effective cross-border interaction will be the development of interaction within regional integration associations such as the EAEU, BRICS, SCO, including in terms of cooperation between national corporate structures within the framework of projects of international regional financial organizations, interstate development institutions, such as the EAEU International Investment Bank, New BRICS Development Bank. Modern studies indicate the greatest export potential for Russian non-resource exports in the markets of China, India, and Turkey, Egypt, Vietnam [3].

When developing a model for choosing a strategy for cross-border interaction, the bank must analyze a complex of internal and external factors influencing its implementation, determine the current and potential interest of participants in foreign economic activity in their products, adequately assess the availability of its own resources - financial, technological and infrastructural, and ensure an acceptable level of profitability of the being sold projects.

The model's ability to transform and adapt to changing conditions of the external and internal environment is ensured by the development of a flexible system of economic indicators for assessing its effectiveness, based on an individual approach and the application of the latest technological advances.

A diagram of the model for choosing a strategy for the participation of national banking structures in cross-border interaction is presented in Fig. 1.

Fig. 1 Model for choosing a strategy for the participation of national banking structures in cross-border interaction.



Source: compiled by the authors.

The strategy for transforming traditional channels of international interaction between financial institutions is designed to ensure the uninterrupted and efficient functioning of the system of foreign economic relations in the context of their re-orientation. It is aimed at developing a system of correspondent relations, creating bilateral and multilateral payment systems based on national currencies, implementing international investment projects, entering new foreign capital markets, which can become a serious source of attracting investment into the Russian economy. The strategy involves close cooperation within the framework of interstate integration associations such as the SCO, BRICS, EAEU, both in the direction of building a common payment infrastructure and implementing joint investment projects in the field of industrial production, energy, transport and infrastructure, and the service sector. Active participation in international economic interaction can have a significant synergistic effect on the development of the national econo-

my [4]. Cooperation in the investment sphere can solve the problems of increasing logistics connectivity, efficient and safe investment of resources obtained from exports, expanding access to advanced technological achievements and competencies, and critical import positions.

A strategy of cooperation with other banking structures may become a priority for small banks that do not have a strong position in international business. In this case, delegation of some powers while maintaining operational independence will allow access to advanced technological solutions, modern financial infrastructure, and minimize operating costs.

The strategy for creating a digital ecosystem for corporate clients participating in foreign economic activity involves the provision of a wide range of financial and non-financial services. The success of Russian banks in implementing strategic models based on the ecosystem approach in the domestic market, especially in the retail business [5], suggests the prospects of scaling to international activity. According to the authors, the direction of creating digital platforms for banking services has great potential. An example is the unified digital platform for trade finance within the EAEU [6]. Integration of the ecosystem with leading national and foreign partners will provide clients with a full range of solutions in the field of international activities, including the field of non-banking services, such as insurance, logistics, legal support of contracts, selection of counterparties, consulting. The implementation of a digital ecosystem strategy can be gradual, within the framework of industry regional or product specialization, depending on the competitive advantages in a particular area.

The strategy for the integration development of its own international infrastructure is based on a wide choice of options for the integration interaction of government, corporate and financial structures in the national, regional and international aspects. The choice of forms and directions of partnership depends on the size of the potential synergistic effect achieved by consolidating financial capital, expanding technological capabilities, and increasing the number of clients. The degree of integration can vary from mergers within financial and industrial groups to coordination of individual aspects of activities within the framework of joint projects.

According to the authors, the use of digital financial assets (DFAs) can become a fundamentally new tool for ensuring the movement of international financial flows. A number of modern studies assign an important role to the use of central bank digital currencies as a means of cross-border payments, which will have a positive impact on national technological development. The greatest interest in this area is the pilot project of the Bank of China to introduce the digital yuan [7]. The Bank of Russia also considers it a priority to develop the concept of a digital ruble, providing for its use in international payments [8].

In addition to digital currencies of central banks, according to the authors, one of the most promising instruments for the movement of international financial flows can be digital financial assets issued by Russian corporate and banking structures. The underlying assets of this type of DFA can be export goods that have a high share of Russian producers in international trade turnover, such as oil, gas, metals, certain types of agricultural products, and fertilizers. The strategic task of financial institutions in this case will be the creation of platforms for the issuance and secondary circulation of financial instruments. The security of such DFAs, guarantees from financial institutions, transparency of transactions, and the impossibility of introducing restrictive measures can make them a promising tool for organizing the movement of cross-border financial flows. DFAs can act not only as a means of payment, but also as a way to attract investment. Scaling the use of digital tools will contribute to the internationalization of their markets, involving an increasing number of foreign partners in the turnover. Expanding the use of DFA in various areas of international economic interaction will help the formation of new industry and regional standards that can strengthen the position of Russian banking and corporate structures in the global market.

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DOI 10.34660/INF.2023.77.11.078

確保巴地頭頓工業園區工人生活品質所面臨的問題

**PROBLEMS POSED TO ENSURE THE QUALITY OF LIFE OF  
WORKERS IN THE INDUSTRIAL PARKS OF BA RIA – VUNG TAU**

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概括。發展工業區，自然會吸引大量外地勞動力到這些地區生活和工作。工業領域的勞動者是直接為社會生產物質產品的群體，但又是弱勢群體，在住房、工會福利建設等方面面臨困難。巴地頭頓市屬於越南南部經濟重要的四邊形，吸引了大量外省勞動力來這裡工作。本文將深入分析巴地頭頓省工業區的勞動力、住房政策以及工業區工人文化體育建設和類型的發展政策。結果表明，為工業區工人提供住房支持的項目建立了充分的法律框架，確保了適當的支持，並鼓勵企業參與工人住房的開發；文化區、工業區文化館基礎建設啟動。但目前大部分工業區並沒有規劃員工住宅，只是在工業區週邊安排員工住房出租；文化館和運動區系統無法滿足工業區工人的需求。以此為基礎，提出對住房政策、發展文化體育建設和類型的政策進行必要的修改，以提供住房並照顧工業區工人的精神生活。

關鍵字：工人、工業區、巴地頭頓、住房、文化機構。

**Summary.** *Developing industrial zones naturally leads to attracting a large amount of work force from other regions to live and work in those areas. The workers in industrials areas are those who directly produce material goods for society, but are highly vulnerable, facing difficulties in housing and trade union welfare constructions. Ba Ria – Vung Tau belongs to the economically important quadrangle in Southern Vietnam and has attracted a large amount of work force from other provinces to come and work there. This article will provide an in-depth analysis into the work force in the industrial zones in the province of Ba Ria – Vung Tau, housing policies, and the policies to develop cultural and athletic*

*constructions and types for the workers in industrial zones. The result shows that the projects that provide housing support to the workers in industrial zones has created a sufficient legal framework, ensured proper support and encouraged businesses to take part in developing housing for the workers; and infrastructure for the cultural areas and cultural houses in industrial zones has been started. However, the majority of the current industrial zones do not have planned housing for the workers, but only arrange housing for workers to rent in the surrounding areas of the industrial zones; and the system of cultural houses and athletic areas fail to provide for the needs of the workers in industrial zones. Drawing from these, there will, thus, be suggestions for necessary changes in housing policies, in the policies to develop cultural and athletic constructions and types to provide housing and take care of the mental life of workers in industrial zones.*

**Keywords:** *workers, industrial zones, Ba Ria – Vung Tau, housing, cultural institution.*

### **1. Posing the problems:**

The seventh general assembly of the delegates of the party of Ba Ria – Vung Tau Province, of the 2020 – 2025 term, asserted to “*continue to develop Ba Ria – Vung Tau into a province that is highly developed in economy, seaports, tourism, and highly technologically developed agriculture. Striving to be one of the provinces with the highest GRDP per person in the country by 2025.*” The industrial zones of the province were and are taking an important role in economical and social development, contributing to changing the economical and workforce structures in a modern direction; industry has had a big upheaval, and occupy the biggest percentage in the economy of the province. Along with the development of the province, the industrial zones increased in number and developed in scale, attracting, and creating employment for not just the local people but also for people outside of the province. Until 2020, in the province, there had been 17 industrial zones that were set up, occupying a total of 9,053 hectares, among which 13 industrial zones are still working (People’s Committee of Ba Ria – Vung Tau), attracting an increasing number of workers from outside of the province to work in industrial zones, which reached 76 thousand people, 47,0% of the workforce of the industrial zones in the year 2022 (Management Board of the Industrial Zone project of Ba Ria – Vung Tau, 2023).

The local government, Management Board of the Industrial zone Project and the businesses in industrial zones always take an interest in the life of the working people. Many of the policies of the Party and the legal policies of the Government related to the issue were enforced and put into practice, bringing many practical results. However, in truth, the housing, cultural institution, welfare constructions, schools, etc. for the workers in industrial zones haven’t been

adequately funded; the workers still face difficulties in having access to housing, living quality, education, entertainment and other welfare issues. This requires other policies to ensure the quality of life of workers in industrial zones of Ba Ria – Vung Tau, and to ensure the continual development of the province.

## **2. Theoretical basis:**

UNIDO uses the concept of “industrial zones” to refer to the industrial tools and policies specific to each location. Nations cannot create business environment or build advantageous infrastructure nationwide at the same time due to the limitations in resources and the capability to realize it. Thus, governments set up a “special territory” that is equipped with the infrastructure necessary to create an advantageous environment for manufacturing and business by removing important limitations that are impediment to investments. The industrial zones are designed to attract investments, create employment, and promote export by surmounting limitations that are impeding industrialization, such as the accessibility of infrastructure, technological and financial deficiency, and also the high manufacturing and transactional costs due to lacking infrastructure and the weakness of the system outside of industrial zones.

In Vietnam, industrial zones are areas with defined borders, specializing in producing industrial goods and carry out service for agricultural production, and were founded depending on conditions, sequences, and procedures stipulated by Decree 82/2018/ND-CP. Industrial zones comprise different types, including: export processing zone, supporting industrial zone, eco-industrial park (thereafter, the term industrial zone will be used to refer to all of these, besides cases where there are specifically assigned regulations for each type).

The development of competing industrial zones is a tool to promote the development of Inclusive and Sustainable Industrial Development, especially in developing countries and changing economies. This mission is center to achieving Objective 9 of Agenda 2030 about Sustainable Development: “Building infrastructure has the ability to restore, promote inclusive and sustainable industrialization along with promoting innovation.” In the past 4 decades, UNIDO aided member nations and related parties in delineating, developing, and managing industrial zones worldwide such as in China, Ethiopia, Iraq, Viet Nam,... (UNIDO, 2021).

Developing industrial zones is based on some principles, the majority of which involves the allocation of specific infrastructure in chosen areas in order to lower the costs relating to building infrastructure and increasing the ability to attract new investors of a nation, as well as removing the social and ecological impacts created by industrial production (Jarmila Vidová, 2010).

Research (Jarmila Vidová, 2010; Pham Thi Kien, 2021; Le Thi Le, 2019) points out that the rapid development of industrial zones will lead to the quick increase in workforce working in industrial zones. Besides advantages such as an

increase in workers’ professional proficiency, methods, disciplines, incomes, etc., there are also problems such as housing, educational opportunities, mental life, entertainments of the workers not being guaranteed. This problem requires attention from business owners as well as state management agency; the need to improve the life of workers is of the highest urgency.

**3. The labour reality of industrial zones and the life of workers in industrial zones in Ba Ria – Vung Tau**

**3.1. A quick overlook of labour in industrial zones in Ba Ria – Vung Tau**

In the province, there are 17 industrials areas that are included in the plan for industrial zones until the year 2020 with the total area being 9,052.66 hectares, out of which: 13 out of 17 industrial zones invested in infrastructure for fencing and attracted manufacturing and service projects, among which, 06 industrial zones already completed their infrastructure systems and 7 industrial zones continue working on it; 05 industrial zones finished with compensations, cleared out the land 100% and 8 industrial zones still have a part of the land that has not yet been cleared out. There are 02 out of 17 industrial zones that were founded but have not yet invested in building infrastructure, which are Long Son petroleum industrial zone and Long Huong industrial zone. 02 were recently added to planning in 2020 and are not founded: HD industrial zone belonging to the HD industry – city – service zone and My Xuan B1 – Expanded Conac industrial zone (People’s committee of Ba Ria – Vung Tau Province, 2023).

*Table 1  
Workers working in industrial areas of Ba Ria – Vung Tau Province,  
2016-2022*

	2016	2017	2018	2019	2020	2021	2022
Local workers (person)	25.506	26.714	25.581	27.451	33.497	34.35	37.131
Workers from outside of the province (person)	27.632	28.824	32.557	33.687	30.921	33.268	38.587
Foreign workers (person)	933	955	951	1.375	1.475	1.530	1.620
% of workers from outside of the province among workers	52,0	51,9	56,0	55,1	48,0	49,2	51,0

*Source: Management Board of the industrial zones of Ba Ria – Vung Tau, (2017-2023).*

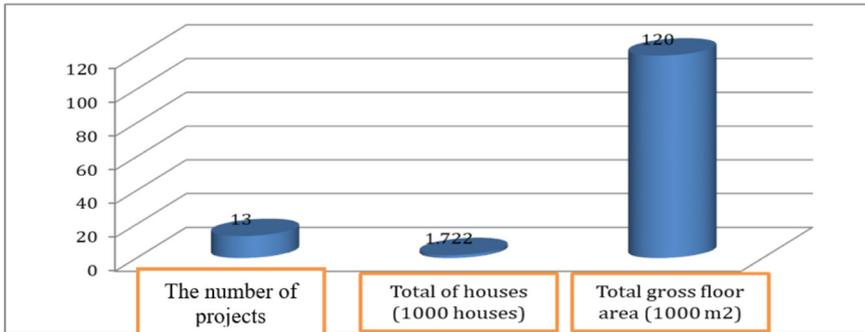
Table 1 shows that Vietnamese workers working in industrial areas in Ba Ria – Vung Tau went up quickly, increased by almost 1.4 times during the entire period from 53,138 people in 2016 to 75,718 people in 2022. Among this, workers from outside of the province correlatively increased from 27,632 people in 2016 to 38,587 people in 2022, with a yearly increase of 1,300 workers on average,

occupying 50% of the total of workers working in industrial zones. Compared to other provinces in the economic quadrangle of southeastern Vietnam, the number of Vietnamese workers working in the industrial zones of Ba Ria – Vung Tau is quite small, not equaling 1/8 of Dong Nai (614,158 workers, Dong Nai Management Board of Industrial Zones, 2023), 1/6 that of Binh Duong (485,670 workers in 2021, Binh Duong Labour and Social Welfare Service, 2021), and only ¼ that of Ho Chi Minh City (281,000 workers, Vietnam Government Portal – Page Ho Chi Minh City, 2022); but almost ½ that of Hanoi (164,800 in 2022, Hanoi Industrial and Export Processing Zones, 2022). This province is one of the top 10 provinces in attracting domestic and foreign investors. Because of this, there is a great demand for workers, whereas, the local workers fail to meet that demand, thus, leading to a large number of workers from outside of the province to come to live and work there. The issue of housing, the issue of cultural and mental life of workers in industrial areas, the education issue of their children requires attention.

### **3.2. The life of workers in industrial zones of Ba Ria – Vung Tau**

#### **3.2.1. About the housing of workers working in industrial zones**

In order to provide housing support to workers in industrial zones, Ba Ria – Vung Tau province enforced housing support policies for factory workers in industrial zones, created sufficient legal framework, ensured support and encouraged businesses to take part in the development of housing for factory workers such as exemption of land usage fee, decreasing tax on value added, decreasing business income tax, investing in infrastructure in and outside of the project, lending out low-cost loan, etc... ; For example, worker housing projects invested by companies such as: Power Generation Joint Stock Corporation 3, Phu My Nitrogen Fertilizer Factory Joint-stock Company, Posco SS Vina Company,... are working effectively. The province included quota for housing development in the 5-year and yearly economic and social development plan to reserve resources to carry out inspections and supervision as laid out in the Resolution 36/2014/NQ-HĐND on 18/12/2014 of People’s Assembly of the province about the province’s Housing Developmental Program until the year 2020 and laid out a path until the year 2030; Decision 04/2016/QĐ-UBND on 21/01/2016 of the province’s People’s Assembly approved the housing development plan until the year 2020 and laid out a path until the year 2030; Decision number 3612/QĐ-UBND on 27/12/2019 of the province’s People’s Assembly approved the housing development plan in the province in the year 2020 and the during 2021-2025 period,... The result is that 13 worker housing projects in industrial zones were completed with 1,722 houses being put into use with the total gross floor area being approximately 120 thousands meters square (Chart. 1).



**Chart 1.** Housing for the workers working in industrial zones in Ba Ria – Vung Tau Province until 2022

Source: Ba Ria – Vung Tau Department of Construction (2023).

Ba Ria – Vung tau is one of the regions making a great effort in completing worker housing projects but has only partly met the demand of workers. Factory workers have to rent rooms of inhabitants, which create many security, order, cultural and social issues, leading to complications in management. The reasons are:

(i) The already enforced preferential policies for investors of factory worker housing projects are not attractive enough (regarding the previously set profit of the entire projects, in the case of renting, the profit does not exceed 15% of the investment costs), therefore, this does not attract, and encourage investors;

(ii) Compensation and clearing out the land are still slow, cleared-out land has not been given to investors to carry out the project, such as the 14.5-hectare Phu My New Urban Resident Area of Factory Workers Project;

(iii) Real estate businesses do not take much interest in investing in building housing to rent out to factory workers because of the low profits, the too long capital recovery time, and the complicated management and operation;

(iv) A few of the businesses are working in industrial zones without land and lack fund so rarely take part in building housing for their own factory workers; the businesses only assist with housing fees for the factory workers and let the workers search out rentable houses on their own so do not ensure housing conditions for factory workers, one such example is Dong Xuyen industrial zone;

(v) Some of the housing areas of factory workers were built by business and fulfill all the conditions according to regulations, but the occupation percentage is only about 21% as the factory workers are not used to obeying rules regarding the time, or living far away as the majority of the currently working industrial zones do not have planned housing for the factory workers but only have planned housing in the industrial zones' surrounding areas.

### 3.2.2. About the education condition of the children of factory workers

Ba Ria – Vung Tau is one of the 05 provinces/cities (Ha Noi, Hai Phong, Ba Ria – Vung Tau, Vinh Phuc, Da Nang) that regulate the financial support for children and teachers of private pre-schools in areas with industrial zones higher than the minimal amount as regulated in Decree Number 105/2020/NĐ-CP on 08/9/2020 of the Government about the regulating pre-school educational development policy, Decree Number 05/2021/NQ-HĐND about regulating the financial support for children, teachers, private pre-school educational establishments in areas with industrial zones in Ba Ria – Vung Tau. According to it, children are assisted with 240,000 dong/month compared with the minimal amount (160,000 dong); 800,00 compared with 450,000 dong.

This helps factory workers to have more financial resource to decide to entrust their children in pre-school establishments outside of public ones where quality and safety conditions are ensured. Pre-school educational establishments have the fund to invest in facilities, and additional educational equipments to ensure the conditions are met. Pre-school teachers' incomes are increased so that they can securely work, thus, contributing to increasing the educational quality of pre-school in areas with industrial zones, and fulfilling the need for childcare of factory workers.

However, in industrial zones, the kindergarten and schooling system is still limited, in many cases, workers' children are still not entrusted to preschools. Surrounding public preschools in industrial zones are overcrowded. Because of this, the majority of factory workers have to entrust their children to private pre-schools, kindergartens, and nursery classes that have not been granted permission with many risks and high school fees. Night classes for skill professional advancement and language skills for workers in industrial zones are still heavily lacking, failing to provide for the workers' need for education and cultural enjoyment (Ba Ria – Vung Tau People's Assembly, 2022).

### 3.2.3. About the mental life of workers

In order to provide workers working in industrial zones with entertainment areas, the province started programs, projects such as investing in cultural institutions to serve the mental life of workers. The province's People's Assembly approved, built projects and started building labour cultural areas, cultural houses in and near industrial zones for workers, especially in Phu My Town, Vung Tau City, in town's centers for the service of workers living and working at the area.

The province has also provided support and created favorable conditions for the businesses to use the land, and had a tax exemption and reduction policy so that businesses will build cultural houses and athletic areas for workers. Some powerful businesses in industrial zones also took the initiative in investing in cultural, athletic institutions to provide entertaining and athletic activities for workers, many businesses already have their own cultural, athletic centers such as Vietnam Posco Company, etc (Ba Ria – Vung Tau People's Assembly, 2022).

Cultural, athletic institutions in industrial zones, export processing zones are given special attention by all levels of the province’s authorities, cultural and athletic branch, and the province’s Labour Union. Some industrial zones already have cultural, athletic institutions that are currently operating; for example, Dong Xuyen industrial zones has one small soccer field, tennis field; Phu My 1 industrial zone has 02 small soccer fields, 03 volleyball fields, 03 badminton fields, and 04 ping pong fields, etc. The aforementioned institutions were built from funding invested by private individuals or built by industrial zones’ infrastructure investors. Only Phu My 1 industrial zone’s sports hall, volleyball and soccer fields are situated in the precinct of the industrial zone trade union headquarters funded by the government.

**Table 2**

*Cultural, athletic institutions in some industrial zones, businesses in Ba Ria – Vung Tau Province*

<b>Industrial zones, businesses</b>	<b>Cultural, athletic institutions</b>
Dong Xuyen	Small soccer field, tennis field
Phu My 1	02 small soccer fields, 03 volleyball fields, 03 badminton fields, and 04 ping pong fields
Vietnam Posco Company (Phu My II Industrial Zone)	Cultural and athletic center

*Source: People’s Committee of Ba Ria – Vung Tau (2023).*

Even though the mental life of factory workers in industrial zones is increasingly being improved, the need of workers has not yet been met. The reasons are:

- (i) In industrial zones, cultural and athletic houses are still few;
- (ii) Artistic performance and movie showing programs for the benefit of factory workers are mainly in areas surrounding industrial zones; conditions have not been met to direct provision in business units in industrial zones;
- (iii) The facilities of some cultural and athletic centers have not been invested to reach a high quality, the area is small, only meeting partly the cultural and athletic need of factory workers;
- (iv) The province’s Labour Union and Management Board of the Industrial Zones haven’t taken the initiative to coordinate with Cultural and Athletic Branch in bringing cultural activities to the workers.
- (v) Many businesses focus on stabilizing and developing production and business and fail to give proper attention to the mental life of workers, as well as building kindergarten and nursery schools for children of factory workers.
- (vi) As workers are under pressure about their working time, few of them have opportunities to take part in cultural and entertainment activities.

## **4. Conclusion and suggestions**

### **4.1. Conclusion**

Ba Ria – Vung Tau is one of the top ten leading provinces in the country that attract domestic and foreign investments. Along with the emergence and development of industrial zones, there is a flow of workers moving from different regions to come to live and work. The housing issue, mental life issue for workers in industrial zones and education for their children have always been given attention.

Even though the province has regulation about the financial support for children and teachers of private preschools in regions with industrial zones being higher than the regulated minimal rate, the majority of the workers have to entrust their children to private preschools, kindergartens, and nursery classes that have not been granted permission with many risks and high fees.

Besides and investments and support in creating favorable conditions for businesses to use land, tax exemption and reduction policies to build cultural houses and athletic areas for workers, a few industrial zones, business in industrial zones have paid attention to investing, building, developing housing, cultural institutions for workers, contributing to creating a civilized living environment, a healthy lifestyle for factory workers.

The system of cultural institutions for workers in industrial zones are still very few compared with the needs; the facilities of some cultural, athletic centers have not been invested to reach a high quality, the area is still small, only partly meeting the cultural and athletic activity needs of factory workers so have not attracted a large number of factory workers to take part in them.

### **4.2 Suggestions**

- Hasten the progress of clearing the land for the 14.5-hectare Phu My New Urban Resident area of factory workers Project to quickly start on the construction of 04 projects that have selected investors and call on investments for 05 remaining lands;

- Co-ordinate on carrying out “Invest on the construction of trade union’s institutions at industrial zones” headed by Vietnam General Confederation of Labour to invest in the construction of housing for factory workers, kindergartens, supermarkets and cultural, athletic projects factory workers in industrial zones;

- Build Housing Development Project of the 2022-2030 period to be the basis to materialize the objectives, solutions; implement the quota of houses built for factory workers in industrial zones that was assigned to the province and was approved by the Prime Minister in Decision Number 338/QĐ-TTg, which approved the proposal “Invest in the construction of at least 01 million subsidized houses for targets with low incomes, factory workers during the period of 2021-2030”;

- For new industrial zones that will be planned and built in the future, arrange to establish and approve to build industrial zones with the plan to build housing for the workers along with planning to develop the industrial zones;

- For the industrial zones that have already been established but have not yet made any arrangement for worker housing construction, it is necessary to check, and make addition to the plan, arrange for land withdrawal, compensation to clear out the land to create new land to hand over to Management Board of Industrial Zones, which will plan the housing construction for factory workers and pre-schools for their children;

- Besides the budget, it is necessary to step the call for the socialization of investments of preschools in industrial zones, assign related departments and branches to check, and adding to the land to carry it out;

- The province's People's Committee should continue to take an interest, invest the expenditure for cultural, artistic, athletic activities, improving the cultural, and mental life of factory workers;

(repeated paragraph) carry out "Invest on the construction of trade union's institutions at industrial zones" headed by Vietnam General Confederation of Labour to invest in the construction of housing for factory workers, kindergartens, supermarkets and cultural, athletic projects factory workers in industrial zones;

- The province should have policies encouraging businesses to invest in housing, preschools and cultural, athletic, service institutions in industrial zones. Create legal conditions and capital advantage to businesses building housing for workers to rent or buy on instalment plan, suitable for the incomes of workers;

- Labour Union of the province, Management Board of Industrial Zones should coordinate closely with Department of Culture and Sports to carry out "Invest on the construction of trade union's institutions at industrial zones" headed by Vietnam General Confederation of Labour in mobilizing business units to provide support for organizing cultural, artistic, and athletic activities for workers in businesses to create favorable conditions for workers to take part in activities;

- The province's Management Board of Industrial Zones should coordinate with the province's Labour Union to continue organizing cultural, artistic, athletic activities for factory workers on holidays, Tet, traditional days of businesses, contributing to the improvement of the cultural, mental life of the workers in industrial zones;

- Coordinate surveying and counselling, propose the province's People's Committee about the improvement of cultural, athletic constructions near construction zones to put into use the institutions to serve factory workers in industrial zones in organizing and practicing cultural, artistic and athletic activities.

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確保自治法院生產過程的安全和效率：法律方面

**ENSURING THE SAFETY AND EFFICIENCY OF PRODUCTION  
PROCESSES IN AUTONOMOUS COURTS: LEGAL ASPECTS**

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註解。 文章討論了自主船舶的運作過程； 員工對生產過程的安全和效率的責任； 由船員提供船上所有系統和設備。 介紹了自主船舶上的船員必須具備哪些技能和知識才能確保船舶的功能。

關鍵字： 自主船舶、 船員、 船員責任、 生產流程支援。

**Annotation.** *The article discusses the process of operation of autonomous ships; crew responsibility for the safety and efficiency of production processes; provision by the crew of all systems and equipment on the ship. It is presented what skills and knowledge crew members on autonomous ships must have to ensure the functioning of the vessel.*

**Keywords:** *autonomous vessel, ship crew, crew responsibility, support of production processes.*

Currently, autonomous shipping is a promising direction in the development of the maritime transport industry. The introduction of autonomous technologies into sea and river vessels opens up new opportunities for optimizing production processes, improving safety and increasing the efficiency of transport transportation. However, legal aspects regarding the safety and operational efficiency of autonomous ships require serious consideration.

The purpose of this study is to analyze the legal aspects related to ensuring the safety and efficiency of production processes on autonomous ships. Particular attention is paid to the consideration of crew responsibility on autonomous ships.

By definition proposed at the 99th session of the IMO, a Maritime Autonomous Surface Ship (MASS) is a ship capable of providing decision support or performing human-controlled or autonomous navigational and operational functions independently of whether the operations are on board the ship or from a remote location through automated processes. [1]

This system consists of sensors (including radars, visual and thermal imaging cameras and light radar (“LiDAR” - Light Detection And Ranging) that collect information about the environment and the condition of the vessel, and then, using special algorithms, process this information for further decision decisions in ship management. An autonomous ship is capable of performing the following tasks:

- Navigation along sea routes using GPS and other sensors;
- Determining the optimal route to save fuel and time;
- Detecting obstacles on the route and avoiding these obstacles;
- Control of engines and power systems for optimal operation of the vessel;
- Transportation of goods and passengers, rescue of people at sea;
- Exploration of the deep sea and detection of underwater objects, collection of data for scientific research on the marine environment and climate;
- Monitoring the state of the marine environment and detecting pollution;
- Ensuring communication and data transfer between the ship and coastal stations and safety when working in ports (at moorings).

The above list of functions performed by an autonomous vessel is not exhaustive; in fact, it can perform a wider range of tasks. This raises questions about how autonomous ship technology can be integrated into the complex network of international laws, regulations and conventions that have been developed over hundreds of years. The most important of them will be the question of what changes the seafaring profession will undergo. Given the nature of autonomy and the introduction of advanced technologies into the maritime industry, there is a possibility that the seafarer’s role will evolve, including the emergence of new jobs requiring specialized skills in automation, artificial intelligence systems and maintenance.

Another issue in this regard will concern the certification standards and features applicable to crew members. Indeed, despite the rapid development of shipbuilding, not all ships will be completely autonomous; some of them will still require the presence of crew members. The crew, in turn, must have certain knowledge and skills corresponding to the features and requirements of autonomous ships.

Today, despite significant achievements in the field of autonomous technologies, it is too early to talk about complete automation of navigation. However, the emergence of such autonomous ships will obviously lead to a reduction in crew or even to the complete absence of human presence on board, which can undoubtedly be considered one of its advantages. However, there are some disadvantages here:

1. Having a significant impact on the maritime industry due to the loss of most jobs;

2. Lack of sufficient personnel to respond quickly in the event of an emergency;
3. The inability to fully monitor the serviceability of all systems used, etc.

But at the same time, continued automation will also create demand for new types of jobs: remote operators, global operations crews and mobility service providers. Consequently, autonomous ships are more likely to transform jobs than eliminate them.

The global merchant fleet is expected to grow over the next ten years, according to the 2021 BIMCO/ICS Seafarer Workforce Report. According to the analytical project, the demand for officers will increase by 10% every five years. Even with autonomous ships, demand for officers with higher qualifications will exceed supply. [2]

Thus, automation in the shipping industry has a number of advantages and disadvantages. Currently, it is difficult to talk about the complete absence of a crew on board an autonomous vessel, since its technologies are still at the development stage. In addition, there are a large number of laws and regulations governing maritime transport that require the presence of a person on board the vessel. In this regard, it is necessary to determine what requirements will apply to the crew members of an autonomous vessel, as well as their responsibilities.

Crew responsibility remains a key factor in ensuring production processes, despite the fact that high-tech systems help to carry out most of them without human intervention. It also includes monitoring the technical condition of the vessel's equipment, ensuring navigation safety, environmental protection, etc.

The International Maritime Organization (IMO) has already carried out a number of projects to determine the responsibility of crews of autonomous ships. In 2018, The Legal Committee of the IMO developed guidelines for the use of autonomous ships, including recommendations on the distribution of duties and responsibilities between the shipowner, operator and crew. Also in 2019, the IMO Marine Safety Committee (MSC) developed interim guidelines for the testing and testing of autonomous ships, which includes requirements for crew training and certification. From May 31 to June 2022, the MSC made significant progress in developing a target document governing the operation of MASS, which is planned to be adopted by 2025. The Committee noted the working group's general position regarding crew training, certification and competency requirements, as follows:

1. When seafarers are on board MASS, STCW (International Convention on Standards of Training, Certification and Watchkeeping for Seafarers) rules apply to them;
2. When operators and masters are in a remote control center rather than on board a vessel, STCW rules do not apply to them.

The joint working group also developed a table, presented as a document, to address such general issues as: defining the role, responsibilities, and competence

of the captain and crew of an autonomous vessel; Definition of the term “remote operator” and its responsibilities. The next meeting of the joint working group is expected to take place in April 2024.

The International Maritime Organization continues to actively develop a regulatory framework for the operation of autonomous ships, which will include amendments to existing conventions, as well as new rules specifically designed for autonomous technologies.

The operation of an autonomous vessel will depend more on its technology and design, and the crew will play a completely different role than on a traditional vessel. Instead of operation, crew members will be responsible for monitoring and maintenance.

Each crew member of an autonomous vessel will be responsible for ensuring production processes. They must also work closely with each other.

Moreover, the crew must be prepared to deal with emergency situations that may arise during the voyage. Despite the fact that an autonomous vessel is capable of controlling most processes independently, crew members need to continuously monitor its technical condition in order to prevent possible emergency situations.

These aspects overlap in many ways with the principles laid down in the 1982 United Nations Convention on the Law of the Sea, which focuses more on the safety of ships and the protection of the marine environment. In accordance with this document, the crew is responsible for the efficient operation of the vessel. International standards pay special attention to ensuring readiness to manage emergency situations. Thus, the safe provision of production processes on an autonomous vessel has a direct connection with international norms and standards.

It should be emphasized that the activities of the crew on autonomous ships will largely depend on the type of vessel, its purpose and the degree of autonomy, differing significantly from the role of the crew on traditional ships. In this regard, we can note some key aspects:

1. Monitoring. The primary responsibility of the crew of an autonomous vessel is to monitor the vessel’s operating systems. It consists of ensuring the proper functioning of autonomous navigation and control systems, as well as taking appropriate measures in a timely manner when the need arises (monitoring engines and safety systems).
2. Maintenance and repair. Includes crew members troubleshooting problems with autonomous technology (fixing sensors and other on-board systems).
3. Emergency response. The crew is responsible for taking all necessary measures in emergency situations (response to equipment failure, adverse weather conditions or unforeseen obstacles).
4. Cargo work. If the ship is intended to transport cargo, the crew may participate in its loading and unloading, as well as take actions to ensure safety during transit.

5. Communication. The crew must constantly communicate with shore personnel, other ships and authorities and provide updated information during the voyage and make requests for assistance.
6. Planning. Crew members may be responsible for planning the route and, if necessary, adjusting the course, taking into account various factors (weather conditions, traffic, etc.)

Among other things, crew members will play a role in ensuring the safety of the ship, its cargo, and passengers and personnel on board (if any). They may be responsible for documentation, including maintaining records related to the operation of the vessel, cargo and inspections.

The specific crew functions on an autonomous vessel will depend on the type of vessel, its operating conditions, and the level of automation. As technology continues to advance, the role of the crew may undergo repeated changes, which will undoubtedly lead to the emergence of new roles and responsibilities for crew members.

Having determined that the presence of crew members, even on an automated ship today, is necessary, it is worth indicating what skills and knowledge they should have.

One of the most important requirements for crew members is a high level of qualifications and training. They must be familiar with the technical features of the vessel and be able to manage all systems on board; for this they need experience with artificial intelligence, computer and software, and remote control systems that are used on autonomous ships.

Another necessary requirement is certification confirming the level of qualifications and training of crew members. Such certification must be internationally recognized and updated regularly.

In addition, for the safe and efficient operation of a vessel, communication skills are required to ensure that personnel are able to communicate not only with each other, but also with other such vessels and shore services.

Possible failures in the autonomous ship system and other emergency situations create a requirement for seafarers to be trained in safety procedures. Since every employee on the ship must know how to react in case of unforeseen circumstances during the voyage. Because autonomous ships rely heavily on software and communications systems, crew members may also need cybersecurity training to prevent cyberattacks and ensure rapid response.

An important role in this issue is also played by the legal status of crew members, which is currently the subject of controversy in the development of autonomous navigation. Defining a clear legal status for crew on autonomous ships is essential to ensure operational processes and provides a basis for the development of training and qualification standards. In relation to this issue, it is possible to

introduce amendments to the Convention on Training, Certification and Watch-keeping for Seafarers (STCW-78), as well as to the Maritime Labor Convention (MLC). In this case, it is necessary not only to take into account the very aspects of the legal status of crew members, but also to develop clear mechanisms for their implementation, which will ensure equal, safe working conditions.

It is necessary to establish clear principles regarding compensation in the event of an accident, as each crew member should have the right to protect their interests and to fair compensation for damage caused during the operation of an autonomous ship.

It is important to note that these requirements are currently only general and may vary depending on the specific regulations, rules and policies established by individual countries and industry organizations. Due to the development of autonomy in the field of navigation, these requirements may undergo some changes and take on a more standardized form.

In conclusion, crew responsibility on autonomous vessels is a critical aspect in ensuring the safety and efficiency of maritime industry processes. As the use of autonomous vessels begins to increase in scale, clear guidelines, rules and practices must be developed to address the challenges associated with unmanned shipping. With careful planning, coordination and mutual cooperation, we can move towards autonomous shipping while maintaining the safety and efficiency of marine production processes. The future of autonomous shipping holds great promise, and only with the right measures in place will we be able to take full advantage of this technological evolution while preserving the safety of the marine environment, the goods being transported and human lives.

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COVID-19大流行引起的流行病學狀況的法律規制審查  
**REVIEW OF THE LEGAL REGULATION OF THE  
EPIDEMIOLOGICAL SITUATION CAUSED BY THE COVID-19  
PANDEMIC**

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抽象的。 本文討論了與冠狀病毒感染在世界範圍內傳播有關的新法規的出現相關問題。 對俄羅斯聯邦和中華人民共和國在衛生領域的法律框架進行了比較。

關鍵字: 流行病、疫情、COVID-19、健康、醫療保健領域的法律監管、俄羅斯聯邦、中華人民共和國、生物安全。

**Abstract.** *The article discusses issues related to the emergence of new regulations in connection with the spread of coronavirus infection in the world. The legal framework of the Russian Federation and the People's Republic of China in the field of health is compared.*

**Keywords:** *epidemic, pandemic, COVID-19, health, legal regulation in the sphere of health care, Russian Federation, People's Republic of China, biological security.*

The infamous epidemic of Covid-19 first emerged in Peoples' Republic of China in Wuhan, Hubei on December 1st of 2019 [1]. Later, on January 30, 2020, the World Health Organization Director announced the outbreak of Covid-19 and the pandemic on March 11, 2020. Since that time, almost 1 billion cases of the disease and about 7 million deaths have already been registered. The countries turned out to be unprepared for such a serious problem, both from an economic and legal point of view, even despite extensive experience in countering local epidemics [2].

As early as 2005, the World Health Organization developed the International Health Regulations (IHR) and a scale including the six phases of the outbreak and

development of the epidemic, where phase 1 is low risk and phase 6 is pandemic. However, these rules were not fully developed, it was necessary to rethink, to find new and most effective ways to qualitatively counter the spread of infection.

The lockdown measures put in place by the Chinese government were so severe and strict that they were described by the World Health Organization's (WHO) country representative to China, Dr Gauden Galee, as "new to science" and "not tried before as a public health measure"[3]. The authorities of Peoples' Republic of China, indeed, shortly reacted to the occurrence of the Covid-19 virus: even before the declaration of Covid-19 an outbreak, on January 23rd 2020 Command Centre on the Prevention and Control of the Novel Coronavirus Pneumonia Epidemic of Wuhan issued Notice №1 [4], which shut down all public transport including outbound trains and flights, effectively cutting off Wuhan from the rest of China.. Two weeks later, On 10 February 2020 (in fact, 11 February 2020 as the notice was issued after midnight), Public Notice 12 [5] was issued by the Wuhan Command Centre. This Notice imposed the immediate close-off of all residential blocks in Wuhan and ordered those who were diagnosed with, or who were suspected of having been infected by Covid-19, to stay inside their apartments. In case of non-compliance with quarantine measures, criminal liability under Article 115 of the Criminal Code of the People's Republic of China, entitled "Crime threatening public security in a dangerous manner", that calls for a prison sentence. Chinese New Year celebrations were cancelled nationwide, cinemas and tourist facilities were closed as well. Existing Laws have been modified with the onset of the pandemic in China. Meaning laws such as:

- 1) Emergency Response Law of the People's Republic of China [6];
- 2) Law of Precaution of Infectious diseases;
- 3) National Action Plan of Emergency Situations;
- 4) Decision of the Council of State on Health Emergencies. Worth noting, that the official state of emergency was not introduced.

Taking the example of the People's Republic of China, the Russian national legislator reacted quickly to the spreading infection. Regulatory legal acts have been issued that have simplified control over the spread of COVID-19 in the territory of the Russian Federation. One of the first was the Decree of the President of the Russian Federation dated 03/25/2020 No. 206 "On the announcement of non-working days in the Russian Federation"; Decree of the President of the Russian Federation dated 04/02/2020 No. 239 "On measures to ensure the sanitary and epidemiological welfare of the population in the territory of the Russian Federation in connection with the spread of a new coronavirus infection (COVID-19)"; Decree of the President of the Russian Federation dated 10/20/2021 No. 595 "On the establishment of non-working days in the territory of the Russian Federation in October - November 2021." Later, the Government of the Russian Federation took measures to combat coronavirus infection and support the economy. A number of Resolutions of the Chief State Sanitary Doctor

of the Russian Federation and regulatory legal acts of the subjects of the Russian Federation have also been published.

The Federal Law “On Biological Safety in the Russian Federation” (hereinafter referred to as the Law “On Biological Safety”) has become the largest legal act in the Russian Federation, which is the basis for countering pandemics and epidemics since 2020. In accordance with article 2, the legal basis for ensuring biological safety is the Constitution of the Russian Federation, international treaties of the Russian Federation in the field of ensuring biological safety and sanitary and epidemiological welfare of the population, federal constitutional laws, this Federal Law, other federal laws and other normative legal acts of the Russian Federation adopted in accordance with them, laws and other normative legal acts of the subjects of the Russian Federation.

Other spheres of life have also undergone changes in connection with the “outbreak” of coronavirus infection and a number of amendments have been made to other regulatory legal acts. For example, amendments to: Federal Law No. 100-FL dated 04/01/2020 “On Amendments to the Criminal Code of the Russian Federation and Articles 31 and 151 of the Code of Criminal Procedure of the Russian Federation”, new penalties were introduced for the dissemination of deliberately false information, which entails grave consequences. Federal Law No. 99-FL dated 04/01/2020 (ed. dated 12/19/2022) “On Amendments to the Code of Administrative Offences of the Russian Federation”, in this amendment, the legislator worked out measures of responsibility in connection with the outbreak of coronavirus. The Federal Law “On Amendments to the Federal Law “On the Suspension of Certain Provisions of the Budget Code of the Russian Federation and the Establishment of Specifics of the Execution of the Federal Budget in 2020” dated 04/01/2020 No. 103-FL (latest edition), the main changes were made to the federal budget, in connection with new expenditures in the epidemiological situation. Federal Law “On Amendments to Parts One and Two of the Tax Code of the Russian Federation and Certain Legislative Acts of the Russian Federation” dated 04/01/2020 No. 102-FL (latest edition), articles concerning the timing of tax payments and the amount of taxes were changed, which contributed to improving various spheres of life and reducing the risk of morbidity.

Thereby, based on various regulatory legal acts of the Russian Federation and the People’s Republic of China, it can be concluded that the legal framework has become more developed, which has made it more prepared and aimed at the operational regulation of public relations in a situation of an epidemic of diseases similar in scale and severity to COVID-19. One of the positive consequences of the spread of coronavirus infection is the branching of Russian legislation, the detailed elaboration of legal regulation in the field of healthcare, which contributed to an increase in the standard of living of the population. The integration of

Chinese legislation into Russian legislation, using the example of the legal side of epidemic prevention and control, creates prospects for effective legal regulation of global epidemic situations in the countries under consideration.

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盧德主義是阻礙執法活動數位化的因素  
**LUDDISM AS A FACTOR HINDERING THE DIGITALIZATION OF  
LAW ENFORCEMENT ACTIVITIES**

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抽象的。這篇文章專門討論了路德主義是阻礙執法活動數位化的一個因素。作者將盧德主義理解為人們對無人認領的恐懼，因為工人的大部分職能職責目前已成功自動化，並且未來可以由人工智慧成功執行。該文章分析了可能為執法人員帶來失業風險的人工智慧技術。對資訊社會中引入創新技術的風險與早期存在的工人面臨的風險（包括 19 世紀初勒德運動廣泛傳播的英國）進行了比較分析。

關鍵字：資訊社會、數位化、執法、盧德主義、新盧德主義、恐懼、需求不足。

**Abstract.** *The article is devoted to Luddism as a factor hindering the digitalization of law enforcement activities. The author understands Luddism as people's fear of remaining unclaimed due to the fact that a significant part of the functional responsibilities of workers is currently being successfully automated and in the future can be successfully performed by artificial intelligence. The article analyzes artificial intelligence technologies that can create a risk of unemployment for law enforcement officers. A comparative analysis of the risks of introducing innovative technologies in the information society with those risks for workers that existed earlier, including in England at the beginning of the 19th century, when the Luddite movement became widespread, is carried out.*

**Keywords:** *information society, digitalization, law enforcement, Luddism, neo-Luddism, fear, lack of demand.*

A key feature of the development of modern society is digitalization. It is digitalization, which refers to the widespread introduction of digital technologies in various spheres of life, that has significantly modified law enforcement activities.

Back in 2019, at the International Forum “Army-2019” at a round table with the Minister of Defense of the Russian Federation, Army General S.K. Shoigu was addressed by Corresponding Member of the Russian Academy of Sciences, Pres-

ident of the Kurchatov Institute, Doctor of Physical and Mathematical Sciences, Full Professor M.V. Kovalchuk, who made a rather unexpected and provocative statement for those times: “You know, people are no longer needed!” M.V. Kovalchuk explained his thesis with the following considerations. If at the beginning of the twentieth century. people were employed primarily in agriculture, then with the advent of combine harvesters they were no longer needed there in the same quantity, and by the middle of the twentieth century. the freed-up labor force was employed in industry. By the end of the twentieth century. People in industry are no longer needed in the same quantity, because where previously about 100 people were involved in conveyor production, now one specialist in the field of information technology is needed who controls the operation of the computer that ensures the operation of the entire conveyor. If the most popular profession in the USSR was that of a driver, then according to M.V. Kovalchuk, who inspected the exhibition of unmanned vehicles at the Army-2019 International Forum, in 10 years the profession of “driver” will not exist, since the car will be controlled by artificial intelligence.

And it is precisely computerization that today creates the risk for significant masses of people of being unclaimed. In the history of mankind, we have already encountered examples of people’s acute negative reaction to technological progress.

For example, the Luddites (from the English “*luddites*”), which are understood as participants in spontaneous protests in the first quarter of the 19th century against the introduction of machines during the industrial revolution in England. The Luddites considered their leader a certain British weaver Ned Ludd, who was credited with the destruction in 1779 of two hosiery looms that produced cheap stockings and undermined the business of experienced knitters. It is not historically confirmed whether Ned Ludd existed as a real person or not. Therefore, sometimes the weaver Ludd is associated with the folklore character Captain Ludd, the semi-legendary king of the Britons named Ludd, or General Ludd. However, the Luddite movement was real and quickly spread throughout England in 1811, causing the destruction of wool and cotton mills until the English government brutally suppressed the Luddite uprising. From the Luddite point of view, machines displaced people from production, which led to technological unemployment. Technological unemployment led to protest, and protest was expressed in pogroms and destruction of machinery and equipment.

The destruction of machinery (industrial sabotage) was made a capital offense in England, and 17 people were executed in 1813. Many people were exiled to Australia. At one time, the troops were more concerned with suppressing the Luddite uprisings than resisting Napoleon in the Iberian Peninsula.

Events similar to the actions of the Luddites in England at the beginning of the 19th century occurred later. For example, during the Belgian strike of 1886,

workers destroyed the glass factory and villa of *Eugène Baudoux* near Charleroi. Shortly before these events, Eugene Baudot introduced the latest furnaces for melting glass at his factory. Working with such furnaces required lower qualifications than with older furnaces, which allowed the manufacturer to replace highly skilled (usually hereditary) glassblowers with less skilled labor. It was this modern factory of Eugene Baudot that was destroyed by strikers on March 26, 1886, while the factories that continued to work according to the old method were not attacked. A crowd of five thousand people, in just half an hour, first destroyed the factory's equipment and then completely burned it down. After this, the crowd looted and burned Bodo's villa.

*Similar fears arise among people today in connection with the introduction of artificial intelligence technologies.*

In the information society, the concepts of “Luddism”, “Luddite”, as well as “*neo-Luddism*” and “*neo-Luddite*” began to be applied to people who struggle with the achievements of innovative technologies.

Thus, in the conditions of the information society, from our point of view, Luddism should be understood as *people's fear of remaining unclaimed due to the fact that a significant part of the functional responsibilities of workers in the context of the digital transformation of society is automated and in the future will be successfully performed by artificial intelligence.*

Let us recall that artificial intelligence is proposed to understand a set of technological solutions that allow simulating human cognitive functions (including self-learning and searching for solutions without a predetermined algorithm) and obtaining results when performing specific tasks that are comparable to the results of human intellectual activity, as well as superior to the results of human intellectual activity.

*Based on the degree of correspondence to the results of human intellectual activity, it is customary to distinguish between “strong” and “weak” artificial intelligence.*

*“Weak” artificial intelligence, the most common one these days, does not strive to reproduce a person in the full range of his inherent capabilities, but solves specific applied problems.*

At the same time, when solving specific applied problems, artificial intelligence is able to perform them much better than human natural intelligence, surpassing it in such cognitive processes as, for example, memory and thinking.

*“Strong” artificial intelligence is designed to most fully reproduce human cognition, that is, his mental cognitive processes (including memory, thinking, speech). In the future, artificial intelligence can become the digital equivalent of all elements of the structure of the human psyche - mental processes, properties, states and formations, in a certain sense, replace a person.*

*Artificial intelligence technologies* are proposed to be understood as technologies based on the use of artificial intelligence, including computer vision, natural language processing, speech recognition and synthesis, intelligent decision support and advanced artificial intelligence methods.

*The introduction of what artificial intelligence technologies into law enforcement activities can leave law enforcement officers without work?* From our point of view, we are talking about the following technologies that are actively developing these days:

comprehensive solutions that ensure the transition from paper document flow to electronic, supported by automated workstations for law enforcement officers;

carrying out registration and registration activities;

automated processing of applications and reports of crimes, administrative offenses, incidents with the preparation of draft instructions for their resolution;

artificial intelligence technologies for autonomous robots and robotic systems that provide solutions to law enforcement tasks, including crime scene inspection, patrolling, inspection of dangerous objects (for example, with the potential presence of explosives, toxic and other substances);

artificial intelligence technologies for unmanned aerial vehicles intended for patrolling the territory, identifying crimes and administrative offenses through a preliminary legal assessment of the actions of individuals, recording relevant events to form an evidence base, and transferring information to interested subjects of law enforcement;

systems for non-contact, remote recognition and assessment of the psycho-emotional state of an individual, groups of people in the process of questioning, observation, personal identification, inspection of premises (non-contact polygraph), lie detection systems for assessing the degree of reliability reported to law enforcement officers, automating the work of polygraph examiners;

comprehensive automation of the procedure for inspecting the scene of an incident and preparing procedural documents using 3D scanning technologies and mathematical modeling;

analysis of existing and developing regulatory legal acts for the presence of conflicts and development of proposals for improving the regulatory framework;

analytical systems, including searching and obtaining data to predict future criminal events, etc.

*Thus, artificial intelligence can largely replace a law enforcement officer in such areas of law enforcement as:*

firstly, *maintaining public order and ensuring public safety* (including suppression, prevention, prevention of administrative offenses);

secondly, *identification, suppression, disclosure and investigation of crimes* (including operational search, expert forensic activities and procedural certification activities - inquiry and preliminary investigation);

third, *the provision of public services*;

fourthly, *ensuring law enforcement activities* (scientific, pedagogical, personnel, information, financial, logistical support and other types of support).

*The readiness of law enforcement agencies to implement artificial intelligence technologies*, from our point of view, should be assessed in three categories: *first*, technical readiness; *secondly*, the readiness of personnel; *thirdly*, readiness for organizational and staffing changes.

Thus, the introduction of artificial intelligence technologies into law enforcement activities can actualize the fear of being unclaimed among law enforcement officers. Let us recall that fear is an emotion that arises in situations of threat to the biological or social existence of an individual and is aimed at the source of real or imagined danger. In this case, we are talking about the fact that the active introduction of artificial intelligence technologies into law enforcement activities can put law enforcement officers in a socially dangerous situation, leaving them without work. In some cases, as can be seen from the above analysis, such fear is not real, but imaginary, since modern artificial intelligence technologies do not completely eliminate the presence of humans in production processes, but only complement them, acting as a human assistant. However, even imagined danger can modify human behavior. This is precisely why a person's fear of remaining unclaimed is called Luddism and can become an obstacle to the digitalization of both society in general and the digitalization of law enforcement in particular, which requires scientific understanding and further analysis.

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拉丁美洲舞蹈训练对运动员协调性的影响  
**THE EFFECT OF LATIN AMERICAN DANCE TRAINING ON  
ATHLETES' COORDINATION**

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**摘要：** 本文探讨了拉美舞蹈对运动员协调能力发展的影响问题。讨论了协调能力在舞蹈运动中的重要性。介绍了该研究的一些结果。提出了发展舞蹈运动协调能力的建议。

**关键词：** 拉美舞蹈，协调能力，训练过程，运动舞蹈。

**Abstract.** *The article discusses the issues of the influence of Latin American dances on the development of coordination abilities of athletes. The importance of coordination abilities in dance sport is discussed. Some of the results of the study are presented. Recommendations for the development of coordination abilities in dance sport are proposed.*

**Keywords:** *Latin American dances, coordination abilities, training process, sport dances.*

### **Introduction**

Latin American dancing, as a complex type of dance sport program characterized by technical movements, requires the participation of all muscle groups of the body, especially the use of small muscle groups, and emphasizes the overall cooperation of each muscle group, which places strict demands on coordination abilities. To define sports coordination, scientists from different countries have different understandings, Chinese scientist Tian Maijiu in the book “Sports Training” pointed out that “coordination refers to the ability of the athlete’s various systems, parts and organs to work together to complete a technical movement, and is an important basis for the formation of technique.” .

This study attempts to apply Latin dance to the coordination training of athletes with the aim of empirically studying the specific effects on the motor coordination

abilities of athletes through training activities using Latin dances, expanding the ways of developing the motor coordination abilities of athletes and promoting the development of motor coordination abilities of athletes.

**The purpose of this study** is to study the influence of Latin dances on the ability of motor coordination of athletes.

The study involved 30 non-latin dance athletes from Zaozhuang College, who were randomly divided into two groups - experimental and control, each with 15 athletes. By training athletes in Latin dance for 12 weeks and assessing their motor coordination abilities before and after the intervention, the effects of Latin dance on athletes' motor coordination abilities were examined.

The control group did not participate in any sports other than regular physical education classes; The experimental group took Latin dance classes, in addition to physical education classes, three times a week, for 90 minutes each time, for 12 weeks.

Before and after the experiment, both groups were tested on the left-right-hip-shoulder test, the two-handed jump rope test, the cross-change jump rope test, and the rhythmic movement coordination test. Data were processed using SPSS 27, and parametric and nonparametric independent sample t tests were used to compare the two groups.

**Research results:**

Test for normality of motor coordination test scores in the experimental and control groups The sample of this study is only 30 people, which is an experiment with a small sample size, so we use the Chapiteau-Wilk test to test the normality of motor coordination test scores in the experimental and control groups before and after the intervention of Latin dances. The results are presented in Table 1.

**Table 1**  
*Test for normality of indicators of the test of motor coordination abilities (n=30)*

	pre-laboratory		post-experimental	
	P-value for control group	P-value for experimental group	P-value for control group	P-value for experimental group
Left and right swing across the arm test*	0.418	0.272	0.542	0.272
Jump Rope Test with Crossed Hands*	0.098	0.053	0.341	0.227
Cross Change Jump Test*	0.368	0.452	0.062	0.456
Rhythmic Movement Coordination Test	0.006	0.018	0.007	0.082

Note: “\*” means the data follows a normal distribution, P>0.05 means the data follows a normal distribution, and P<0.05 means the data does not follow a normal distribution.

From the above Table 1 we can conclude that the control group before and after the experiment on the rhythmic type of motor coordination test does not correspond to the normal distribution, and the experimental group corresponds to it after the experiment. The left and right shoulder tests, the two-arm crossover jump rope, and the crossover jump rope tests followed a normal distribution before and after the experiment, so parametric and nonparametric tests were used to compare differences when analyzing the data from this experiment.

**Analysis of variability in motor coordination abilities before the experiment**

The performance of the left and right arm swing test, the jump rope change of hands test and the jump rope change of hands test, which correspond to the normal distribution, will be tested using an independent T sample, and the test results are presented in Table 2:

**Table 2**  
*Pre-experimental motor coordination (independent sample T-test: n=15)*

	<b>control subjects (x±s)</b>	<b>experimental group (x±s)</b>	<b>T-value</b>	<b>P-value</b>
Left and right swing across the arm test	18.13±1.309	17.80±1.342	-0.178	0.846
Jump Rope Test with Crossed Hands	10.60±0.761	10.00±1.000	-0.477	0.443
Cross Change Jump Test	11.40±0.914	11.07±1.026	-0.246	0.591

Note: P>0.05 no significant difference

Indicators of the rhythmicity of motor coordination, which did not correspond to the normal distribution before the experiment, were subjected to a nonparametric t-test of independent samples, the results of which are presented in Table 3:

**Table 3**  
*Pre-experimental motor coordination (non-parametric test; n=30)*

	<b>control subjects (x±s)</b>	<b>experimental group (x±s)</b>	<b>Z-value</b>	<b>P-value</b>
Rhythmic Movement Coordination Test	1.07±0.799	1.47±1.125	-0.939	0.348

Test of the left and right hip through the hand: from table 2 we can conclude that the average values of the control and experimental groups are (18.13±1.309) and (17.80±1.342), respectively, with a difference in the average value of 0.333, there is no significant difference in the average value, and there is no significant

difference  $P=0.846>0.05$ , which means there is no significant difference in the control and experimental groups of the left and right hip through the arm test from the mean value and P-value before the experiment.

Two-hand crossover jump rope test. From Table 2, we can conclude that the mean values of the control and experimental group were  $(10.60\pm 0.761)$  and  $(10.00\pm 1.000)$ , respectively, and the mean values were very close to each other, and  $P=0.443>0.05$ , which is not significant difference, indicates that there is no significant difference between the performance of the control and experimental groups of the two-hand crossover jump rope test before the experiment, which corresponds to the experimental standard.

Crossover jump test: from Table 2, the mean values of the control and experimental groups were  $(11.40\pm 0.914)$  and  $(11.07\pm 1.026)$ , respectively, and the difference in their mean values was  $0.333 (11.40-11.07)$ ,  $P=0.591>0.05$  without significant difference, indicating that the crossover jump test performance of the control and experimental groups was at the same starting point and met the experimental Criteria.

Test for coordination of rhythmic movements: from Table 3 we can conclude that the average values of the indicators of the control group and the experimental group are  $(1.07 \pm 0.799)$  and  $(1.47 \pm 1.125)$ , respectively, and the value of the difference in the means is  $0.400$ , and  $P = 0.348 > 0.05$  is of significant importance, which meets the experimental requirements.

From the above analysis, we know that the difference in the mean of each coordination ability test score is small or close to equal, and after using the non-parametric independent samples t-test to compare the differences, we found that there is no significant difference between the test scores of the control group and the experimental group before the experiment ( $P>0.05$ ), which proves that there is no significant difference between the experimental group and the control group before the experiment in the motor coordination ability test scores.

**Differential analysis of the ability to motor coordination after the experiment**

The control and experimental groups after the experiment corresponded to the normal distribution of the left and right arm over the hip swing test scores, the jump rope cross transformation test scores and the jump cross transformation test scores, were subjected to independent sample t-tests, and the results are presented in Table 4:

*Table 4*  
*Post-experimental motor coordination (non-parametric test, n=30)*

	<b>control subjects (x±s)</b>	<b>experimental group (x±s)</b>	<b>T-value</b>	<b>P-value</b>
Left and right swing across the arm test	19.00±1.748	24.53±1.294	2.544	0.017*

Jump Rope Test with Crossed Hands	12.27±1.007	15.47±1.116	2.128	0.042*
Cross Change Jump Test	12.33±1.308	19.53±1.279	3.935	<0.01**

Note: \*P<0.05 - significant difference; \*\*P<0.001 - very significant difference.

The control group and the experimental group do not correspond to the normal distribution of motor-coordination ability rhythmic class test scores for the non-parametric independent samples T-test, the results are presented in Table 5 below:

**Table 5**  
*Post-experimental motor coordination in rhythmic categories (non-parametric test; n=30)*

	<b>control subjects (x±s)</b>	<b>experimental group (x±s)</b>	<b>T-value</b>	<b>P-value</b>
Rhythmic Movement Coordination Test	1.13±1.060	1.53±0.915	1.106	0.876

Left-Right Flapping Arm Test: Table 4 shows that the mean of the experimental group increased from 17.80 times to 24.53 times before the experiment, and the mean of the control group increased from 18.13 times to 19.00 times before the experiment, and the number of completed movements of the experimental group increased significantly more than that of the control group, which means that the experimental group significantly improved their ability in the left-right flapping test, and with  $P=0.017<0.05$ , which means that there is a significant difference between the experimental group and the control group in the test of left-right waving hand after the experiment. The ability of the experimental group was clearly improved, and from  $P=0.017<0.05$ , there was a significant difference between the experimental group and the control group in the performance of the left and right swing arm test after the experiment.

Two-hand cross-transformation jump rope: Table 4 shows that the mean value of the two-hand cross-transformation jump rope index in the experimental group increased from 10.00 times before the experiment to 15.47 times, and the mean value of the control group increased from 10.60 times before the experiment to 12.27 times, and The experimental group and the control group were compared, and the experimental group before and after the experiment was much larger than the control group before and after the experiment, and the improvement was more than two times, indicating that the experimental group and the control group had significant differences in index of jump rope with cross transformation with two hands after the experiment. There is a significant difference between the experimental and control groups in jump rope with crossed arms.

Cross Jump Test: As can be seen from Table 4, the mean value of the cross jump test index increased from 11.07 to 19.53 before the experiment, and the mean value of the control group increased from 11.40 to 12.33 before the experiment, comparing the two groups, the increase in the number of movements performed per unit time of the experimental group after the experiment was much greater than the increase in the number of movements performed per unit time of the control group (19.53>12.33), and  $P < 0.01$ , indicating a very significant difference between the experimental group and the control group in the cross-jump test index after the experiment. 12.33), and  $P < 0.01$ , indicating that the experimental group and the control group in the post-experimental cross-turnover jump test indices to a very significant difference, indicating that three months of Latin dance training on the experimental group cross-turnover jump test indices have advertising Effect.

Rhythmic Coordination Test: Table 5 shows that the mean of the Rhythmic Coordination Test of the experimental group increased from 1.47 to 1.53 before the experiment, and the mean of the control group increased from 1.07 to 1.13 before the experiment, and the difference in the mean is only 0.4 ( 1.53-1.13). were basically the same, with no significant changes.

In the experimental group, after the experiment, all motor coordination ability scores changed significantly, while in the control group, compared with the experiment before the experiment, the changes are not obvious, after using the parametric independent sample t-test and the non-parametric independent sample t-test to compare the differences It was found that after the experiment, the left and right swinging crotch through the hand and the two-hand cross-change jump rope test,  $P < 0.05$ , indicating that there was a significant difference between the experimental group and the control group. This is explained by the fact that Latin American dance classes help improve motor coordination abilities.

### **Conclusion**

1 Three-month Latin American dance classes improve athletes' motor coordination abilities.

2 Three months of Latin American dance training significantly improved athletes' upper-lower body coordination and whole-body coordination.

3 Three-month Latin American dance classes improved the athletes' ability to move spatially and balance:

Comparison between groups

- before the experiment there was no significant difference in the average values of the indicators between the two groups of subjects ( $P > 0.05$ ).

- after the experiment, the data of the experimental group were compared with the data of the control group in the test with abduction of the left and right arms from the hip and the test with changing the rope with both hands.

The data of the experimental group was significantly larger than that of the control group in the left and right overhead swing test and the two-handed jump rope test, and the difference between the two groups was significant ( $P < 0.05$ ); the difference between the two groups was highly significant ( $P < 0.01$ ).

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澄清教育術語

## CLARIFICATION OF EDUCATIONAL TERMINOLOGY

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註解。教育術語的規範是討論的一個原因。本文基於個人的教學和研究實務經驗，對討論的必要性和便利性進行論證。不斷變化的術語和解釋的變化影響著知識、科學和教育詞彙的結構。從這個意義上說，不完整和不平衡是不可避免的。正確感知資訊很重要。文中舉例說明。

關鍵字：術語、科學和教育術語、新術語、特殊術語、專業詞彙、意義、知識、研究、「學校」、教育學、個人、社會、專業社區。

**Annotation.** *The specification of educational terminology is a reason for discussion. In this article, the arguments about the necessity and expediency of discussion are based on personal experience in teaching and research practice. The changing terminology and variability of interpretations influence the structure of knowledge, scientific, and educational vocabulary. In this sense, incompleteness and imbalance are essential. And it is important to perceive information correctly. The text is illustrated by an example.*

**Keywords:** *term, scientific and educational terminology, new terminology, special terminology, professional vocabulary, meaning, knowledge, research, "School", pedagogy, person, society, professional community.*

Among the issues discussed in modern science are studies on the definition, systematization of terminology, the search for new meanings that explain the meaning of occurring phenomena, and the uniqueness of object-subject reality. The emergence of concepts is due to changes the level of scientific developments, digitalization of processes, creation of programs for the study of innovations, ways of speaking. There is a combined use of words, their borrowing, and artificial word formation. Adaptation of terms from related sciences enhances the interdisciplinarity of knowledge.

In the current conditions, the specification of educational terminology related to professional vocabulary is of paramount importance. Common words facilitate rapid exchange of information and proper understanding. Meaningful use and ac-

curacy of description of commonly understood language constructs leads to an unmistakable scientific generalization. We agree with the researchers, “the unity of scientific knowledge is a pattern of development of science.” Dictionaries, reference books, resource databases for students, teachers, and scientists are sources of normalization. Undoubtedly, mastery of the language of scientific and educational terminology ensures overcoming intercultural restrictions and the language barrier. At present, the role of creating unified multilingual dictionaries, glossaries - thesauruses of special terms, online translators that reveal the contextual meaning of new words of professionalism, visualization of new concepts in a non-verbal language of communication accepted for use throughout the world is invaluable.

Every person needs answers, accurate, convincing, reliable knowledge. Rational conclusions, sensory rethinking of reality expands his idea of himself. Subjectively perceived and explained, it creates for everyone an individual era, an exceptional time.

In connection with the above, the differentiation of the set of characteristics related to individual terms of pedagogy is clear. Let’s consider the concept of “School” - a word that has an ancient Greek etymological basis, adopted by other European language groups. The original meaning of the term (Greek) “free time, leisure” in Latin was expressed in the meaning of “rest from physical labor, leisure.” In Polish, the following has been added to the general designation: “delay, study during free hours, study in free time, reading, lecture, school” [12].

In the domestic reference literature, there is a diversity of definitions that highlight a number of meanings from the general context. They are the focus of this text. The wording of the “School” is not published in full. Similar indications of division by gender, religious affiliation, general accessibility, specialization, profile and levels are not posted. Isolation emphasizes the existing difference in content. This makes it possible to talk about the combination of different approaches to the construction of scientific views (expanded or, conversely, focused). Thus, the idea of the “School” has evolved according to current, historically popular directions. The signs, typology and characteristics of the organization, educational and developmental functions noted by researchers establish the boundaries and range of measurement of values, their value. Selected distinctive and atypical meanings are given below.

School - institution and system:

- *“a social institution and public-state system designed to satisfy the educational needs of society, the individual and the state” [1];*
- *“a developing system in which the best of what was created before is preserved, the undeservedly forgotten is revived in new forms, innovations are carried out in all areas of activity” [10];*

- *“a key organizational unit in the education system” [2];*
- *“scientific school” [2].*

School is a path and state that transforms a person:

- *“any position of a person where he, willy-nilly, acquires resourcefulness, experience and knowledge” [12];*
- *“this is a ladder, steps that lead up; a house of joy in the process of learning the world” [5];*
- *“a school of life, as something that especially teaches a lesson and gives experience” [2];*
- *“already in primitive society, in preparation for initiation, the main features of the formal School are visible, as it has been preserved to the present day: it complements spontaneous, natural, in particular family, socialization” [3].*

School - educational institution:

- *“an educational institution, public or private, that provides general education, that is, a body of knowledge about nature, society and knowledge, and the corresponding skills and abilities necessary for a person in life, regardless of profession” [9];*
- *“an educational institution that, under the guidance of teachers, carries out the training and education of the younger generation” [4];*
- *“an educational institution that carries out the training and education of the younger generation at the expense of the state or private individuals and societies” [7];*
- *“school in general is like any educational institution” [2];*
- *“an educational institution that performs the functions of education, upbringing, personal development, “preparation for adult life”” [6].*

The school as a team:

- *“temporary research team” [13].*

School as a model of institution:

- *“taking into account the capabilities and characteristics of students (Sunday school)” [10].*

School as a space:

- *“cultural and educational space” [10];*

School - type of organization of education and training:

- *unified school,*
- *labor school (its subtype is the illustrative school)*
- *boarding school*
- *Sanatorium-Forest, etc. [8].*

In information times, developmental, pre-vocational schools, with subject-specific reinforcement in educational and methodological planning, project-based

schools, using various forms of training (volunteers, mentors, counselors, etc.), with national and regional components, and proprietary ones have become widespread. Family schools are popular, the development of which has been noticeable in recent years thanks to distance learning with online communication opportunities. The process of transforming the organizational and pedagogical conditions of education continues. The search for criterion compliance of educational definitions for the formation of a system of knowledge, the possibility of the presence of this knowledge, conducting convincing discussions, competition, processes of exchange of judgments, improvement of the individual and society, the prospects of the profession, and the unity of the global professional community remains relevant.

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基于“超星学习通”的智慧课堂教学模式设计  
DESIGN OF SMART CLASSROOM TEACHING MODE BASED ON  
“CHAOXING LEARNING PLATFORM”

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**摘要.** 智慧课堂作为一种新型的教学模式,以其丰富多样的教学手段和个性化的学习方案,极大地提高了学生的学习积极性和自主学习能力,促进了教育教学的现代化和信息化。本文在介绍智慧课堂的定义及其优势、超星学习通平台的功能的基础上,对基于超星学习通的智慧课堂教学活动设计进行探讨,认为,基于“超星学习通”的智慧课堂教学模式,以其丰富的教学资源和多样化的教学工具,提高了教学效率和学生的学习效果。

**关键词:** 超星学习通; 智慧课堂; 教学模式;

**Abstract.** *As a new type of teaching mode, smart classroom, with its rich and diverse teaching methods and personalized learning programs, has greatly improved students' learning enthusiasm and independent learning ability, and promoted the modernization and informatization of education and teaching. In this paper, on the basis of introducing the definition and advantages of the smart classroom and the functions of the Chaoxing Learning Platform, it discusses the design of teaching activities in the smart classroom based on the Chaoxing Learning Platform. It is believed that the smart classroom teaching mode based on "Chaoxing Learning Platform" improves teaching efficiency and students' learning effect with its rich teaching resources and diversified teaching tools.*

**Keywords:** *Chaoxing Learning Platform; smart classroom; teaching mode.*

### **1. Research Background**

With the development of technologies such as information technology, cloud computing and big data, the world we live in is becoming more and more intelligent. These technological developments have not only brought productivity gains, but have also impacted the education sector. The emergence of the new teaching mode of "Smart Classroom" has brought strong challenges to the traditional teaching methods and methods that rely on blackboards, chalk, slides, and projectors.

The reason why the teaching model needs to be changed is that the group of college students has undergone qualitative changes. The traditional teaching mode emphasizes the subject position of teachers, ignores the subjectivity of students, hinders the development of students' personality and the cultivation of innovative thinking, and thus is difficult to adapt to the needs of society. With the development of information technology and the change of learning environment, People are increasingly calling for new teaching models. In order to make education more intelligent and digital, "China's Education Modernization 2035" pointed out: "Make full use of modern information technology, enrich and innovate curriculum forms, and accelerate educational reform in the information age. Build intelligent campuses and coordinate the construction of integrated intelligent teaching , management and service platform."<sup>[1]</sup>The promulgation of these guidance documents means that the intellectualization, digitization, and informatization of education have become a new trend in the development of China's education. The support and promotion of national policies provide the necessary guarantee and motivation for the development of smart classrooms.

## **2. Definition and Advantages of Smart Classrooms**

Regarding the definition of smart classroom, there is no unified definition in academic circles at present. Many domestic scholars have different understandings from different angles. This article agrees with Sun Shuhui and others who pointed out the concept of smart classroom. "Smart classroom is based on constructivist learning theory. , using the "Internet +" way of thinking and the new generation of information technology such as big data, cloud computing, and the Internet of Things to build an intelligent and efficient classroom that supports the application of the whole process before, during, and after class."<sup>[2]</sup> Compared with the traditional teaching mode, the smart classroom has the following advantages:

### **2.1 Improve learning efficiency**

Smart classrooms make full use of modern information technology and adopt a variety of teaching methods and methods, such as PPT, video, audio, animation, etc., to enrich teaching resources and teaching forms, and to make learning more vivid, vivid and easy to understand. The core goal of this teaching model is to provide a learning experience that is more participatory than a single teaching form. <sup>[3]</sup>

### **2.2 Enhancing interest in learning**

The smart classroom is characterized by strong interaction. With the help of the smart classroom platform for teaching, students are no longer just passive recipients of knowledge, but can actively participate in teaching activities through real-time interaction, feedback and evaluation, thereby motivating students. students' learning interest and enthusiasm, and better achieve the goals of education and teaching.

### 2.3 Improving the quality of teaching

According to the learning situation and needs of students, teachers can make full use of the timely feedback of the smart classroom platform to adjust the teaching content and teaching methods in a timely manner, so that the teaching is more suitable for the needs of students.

### 3. Function introduction of smart teaching platform - “Chaoxing Learning Platform”

The key to keeping pace with the times is to speed up the transformation of education models and learning methods. [4] At present, all parts of the world are actively carrying out the construction of smart education. Smart learning is an inevitable trend of the transformation of learning models driven by the wave of smart education. The important direction of the transformation of the concept of learning and learning. [5]

Smart classrooms need a suitable smart teaching platform. “Chaoxing Learning Platform” is a professional mobile learning platform for mobile terminals such as smart phones and tablet computers. Users can use “Chaoxing Learning Platform” to complete library book borrowing inquiries, electronic resource search and download, Browse library information, study school courses, conduct group discussions, view the school’s address book, and have e-books, newspaper articles, and metadata of Chinese and foreign literature, providing users with convenient and fast mobile learning services.” [6] It has been widely used in the teaching practice of many disciplines.

In the “Chaoxing Learning Platform” resources. Resources, every learning resource can be collected and read, and the process of searching for information, reading, analyzing, and thinking is actually a part of independent learning, and mobile learning can be carried out at any time and any place.” [7] In During classroom activities, “Chaoxing Learning Platform” has multiple functions such as sign-in, candidate selection, quick answer, voting, topic discussion, questionnaire, scoring, group tasks, live broadcast, etc.

### 4. Design of Smart Classroom Teaching Activities based on “Chaoxing Learning App”

With the help of information technology, smart learning realizes the comprehensive application of various teaching strategies (text-based strategies, question-and-answer strategies, and dialogue strategies) to carry out thinking teaching and cultivate learners’ “critical-analytical thinking”, “creative-synthetic thinking” and “practical thinking”. —Situational thinking” . [8] It mainly includes three links before class and after class.

#### 4.1 Student Pre-Class Preview Feedback - Real-time Data Presentation on “Chaoxing Learning App” Client

In traditional classroom teaching, the analysis of students’ learning situation during the pre-class preview stage mainly relies on personal experience and sub-

jective understanding of students, lacking in-depth understanding of students' situations. Students' preview situation has a great deal of uncontrollability, and whether they have thoroughly previewed the material depends entirely on their own consciousness.

Based on the smart classroom teaching mode of "Chaoxing Learning App", the pre-class preview stage has largely solved the shortcomings of traditional classrooms, including the following aspects:

#### **4.1.1 Teacher-made Preview Materials**

The production of preview materials is a key point in the design of classroom teaching activities. Based on the smart classroom platform, the selection of preview materials is very extensive, including self-made micro-lessons, rich media resources, courseware, related links, selected excellent MOOCs, preview test questions, and other diverse materials that can stimulate students' learning interests.

#### **4.1.2 Resource Pushing**

Teachers send the well-made preview resources to students through the "Chaoxing Learning App" on the smart classroom platform. When pushing resources, teachers can set the class to which they are published, whether to allow resource downloads, and set a preview deadline. After teachers push resources through the client, students will receive reminders in real-time through the mobile client.

#### **4.1.3 Independent preview**

The pre-class preview based on the "Chaoxing Learning Platform" client is controllable. Whether students preview or not, their preview situation and answer situation will be presented to the teacher in the form of data on the client.

#### **4.1.4 Real-time communication**

When encountering problems during the preview process, students can directly communicate with teachers in real time on the platform, raise questions or suggestions, and teachers can provide initial explanations on the platform.

#### **4.1.5 Teaching plan**

Based on the pre-class preview situation and answer situation of students on the "Chaoxing Learning Platform", as well as the communication situation between teachers and students, teachers conduct comprehensive and systematic analysis, and optimize the teaching design plan based on student feedback.

#### **4.1.6 Learning reflection**

After completing the preview, students can write down their own learning experience on the "Chaoxing Learning Platform" and reflect on their preview situation.

### **4.2 Three-dimensional interaction in class—Continuous communication between teachers and students with the help of "Chaoxing Learning Platform"**

"In the interactive stage of the class, the traditional classroom mainly consists of three links: teacher lectures-students listening to lectures, teachers asking

questions-roll call and answering, assigning homework-after-school homework. From these three links, we can see the lack of interaction in traditional classrooms. Students In a passive position.”<sup>[9]</sup>In contrast, the key to smart classroom teaching with the help of “Chaoxing Learning Platform” lies in good classroom interaction. In the teaching process, students’ dominant position is emphasized, and teachers only play the role of guide, The role of the facilitator.

The in-class teaching activity process adopts the “6+5 process” structure, including 6 links of teacher teaching and 5 links of student learning . Specifically include the following aspects:

#### **4.2.1 Sort out and determine the problem**

In the smart classroom, the teacher can divide the class students into 5-6 groups, and discuss the problems encountered in the pre-class preview in groups. The members of the group can solve the problems through communication and discussion. “Pass” to the teacher, the teacher records the feedback questions of each group, and makes judgments based on the pre-class preview situation presented by the client, selects typical questions, and gives key explanations.

#### **4.2.2 Create situations and introduce new lessons**

Teachers can use a variety of methods to create learning situations and import teaching content through “Chaoxing Learning Platform”, including uploading videos and audios related to course content; setting up some interactive classroom activities Such as voting, question and answer, discussion, etc.

#### **4.2.3 Multi-screen teaching and learning**

The multi-screen display in the smart classroom includes the teacher’s computer, teacher’s mobile device, student’s mobile device, projection, etc. Smart-phones use wireless projection technology to visually present teaching content from multiple angles. Teachers can use the projection screen to create teaching scenarios to immerse students in it.

#### **4.2.4 Random test in class, time-limited submission**

In the smart classroom teaching environment, the classroom follow-up test is mainly that the teacher pushes the test questions through the “Chaoxing Learning Platform”, and the students receive the test questions through the learning platform and submit them after completion. The evaluation system of “Chaoxing Learning Platform” will automatically generate the answers to objective questions, and the correct rate of students’ answers will be displayed intuitively in the form of a histogram.

#### **4.2.5 Real-time comments and consolidation of internalization**

Teachers can comment on the group’s homework, compare and analyze the learning results of each group, and other groups can also express their opinions and ideas based on the data from the “Chaoxing Learning Platform” platform and student feedback.

### **4.3 Personalized counseling after class, taking into account the differences of students**

In the after-class session, the traditional classroom mainly requires students to complete the homework assignments assigned in class, and hand them over to the teacher in the next class, the teacher will make corrections, and the students will get feedback on the homework in the next class. It can be seen from this, In the traditional classroom, homework feedback is not timely enough, and homework evaluation can only solve common problems, and cannot take into account the differences of each student. The lag of homework feedback will affect students' continuous learning. The smart classroom with the help of "Chaoxing Learning Platform" can solve this problem very well. Through the "Superstar Learning Pass" platform, teachers can push personalized review materials according to individual differences of students, release targeted after-school exercises, and students will submit them after completion. Teachers The end platform will receive the students' answers. For objective questions, the platform can automatically make corrections and give timely feedback to teachers and students on the answers. Teachers can make corrections and comments on subjective questions and give timely feedback to students.

### **5.Conclusion**

Based on the smart classroom teaching mode of "Chaoxing Learning Platform", with its rich teaching resources and diverse teaching tools, it has improved the teaching efficiency and students' learning effectiveness. Teachers can achieve comprehensive teaching before class, in-class teaching, and post-class consolidation through various tools and resources on the platform. Students can improve their learning interest and active participation through diverse teaching methods and interactive tools, deepen their understanding and memory of knowledge points, and thus improve learning effectiveness.

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軍校學員經濟文化形成的標準評估

## CRITERIA-BASED ASSESSMENT OF THE FORMATION OF THE ECONOMIC CULTURE OF MILITARY UNIVERSITY CADETS

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註解。 文章探討了對軍校學員經濟文化形成進行標準評估的可能性。 其形成的必要性在於，未來軍官的經濟文化是重要的價值組成部分，是一種體現在經濟高效的軍事職業活動中的智慧財產權。 提出了評價經濟文化形成水準的標準和指標。

關鍵字：經濟文化、認知標準、動機標準、活動標準、價值論標準、個人標準、指標、經濟文化水準。

**Annotation.** *The article discusses the possibility of a criterion assessment of the formation of the economic culture of cadets in a military academy. The necessity of its formation lies in that the economic culture of future officers is an important value component, an intellectual property that manifests itself in economically efficient military professional activities. Criteria and indicators for assessing the level of formation of economic culture are proposed.*

**Keywords:** *economic culture, cognitive criterion, motivational criterion, activity criterion, axiological criterion, personal criterion, indicators, level of economic culture.*

The need for the formation of an economic culture for the personality of military university cadets is due to the importance of military professional training of specialists with modern military-economic thinking. The need for such preparation is determined, on the one hand, by transformation processes in a modern market economy, general geopolitical instability and new conditions for the economic development of Russia. On the other hand, high demands are placed on the officers who are entrusted with serving at the latest complexes for ensuring the national security of the state, including their training, which should be focused on the cost-effective use of funds intended for the needs of the country's defense.

We define the economic culture of cadets as a set of cognitive and axiological attitudes implemented in their military-professional activities during the implementation of economic military-economic relations.

The problems of forming an individual's economic culture were considered by Dzhagaeva T.E. [1], Dorofeev E.M. [2], Bryzgalov I.V. [3], Kalaev V.Yu. [4], Borisjuk A.B. [5] and others.

Currently, there is a need to improve the control system in order to evaluate not only the knowledge gained during the study of educational material in the disciplines of the economic cycle, but also the skills, abilities, and personal achievements of cadets [6]. In the course of analyzing existing approaches to assessment, criteria and corresponding indicators were formulated for assessing the level of economic culture of cadets with the prospect of creating pedagogical conditions for its formation and development.

The criteria for assessing the level of economic culture can be divided into two interrelated groups - qualitative and quantitative [7], the dual unity of which should contain a number of the most important components, the indicators of which should be manifested in the subjects of training [8], these include:

- motivational-value and emotional-evaluative [9] position of the cadet in the process of achieving significant economic knowledge and its applied use in his future military professional activities;

- general and special economic knowledge and skills of their application in real situational problems solved by a military specialist;

- formation by cadets of self-valuable significant qualities that correspond to the psychological characteristics of the individual [10].

To illustrate this approach, consider an example of how cadets mastered the concept of "inflation." In this case, it is necessary to pay attention to the fact that the assessment must contain:

- subject of assessment – knowledge and understanding of the essence of inflation, its causes, and methods of reduction;

- indicators: reasoned statements by cadets about the essence of inflation, listing the types and types of inflation, ways of measuring it and methods of reducing it;

- criteria: all types and types of inflation, methods for measuring and reducing it must be listed, a correct correspondence must be established between the size of the money supply in circulation and the level of inflation.

Let's consider the criterion component of the procedure for assessing cadets' knowledge, the main content of which is the planned learning outcomes [8]. Let us highlight some specific criteria for assessing the assimilation of economic knowledge and the corresponding indicators as components of the economic culture of the cadet's personality (Table 1).

The general grounds for grading are:

“excellent” (5) – the indicators are fully expressed, there is deep, comprehensive knowledge on this topic (issue), confident actions to apply the acquired knowledge in practice, competent, reasoned, free and logically coherent presentation of the material when answering;

“good” (4) – the indicators are sufficiently expressed, the presence of solid and complete knowledge on a given topic (issue), correct actions to apply knowledge in practice, clear, competent, free presentation of the material;

“satisfactory” (3) – the indicator is poorly expressed, the presence of fragmentary knowledge, presentation of answers with individual errors, confidently corrected after additional questions, correct actions to apply knowledge in practice;

“unsatisfactory” (2) – the indicator is not expressed, the presence of gross errors, lack of understanding of the essence of the educational material, inability to apply knowledge in practice, uncertainty and inaccuracy of answers to additional questions.

**Table 1**

*Criteria and indicators of the formation of the economic culture of a military university cadet*

Particular criteria	Indicators (i)	Score in points			
		5	4	3	2
Cognitive	-qualitative characteristics of cumulative economic knowledge with awareness of their functional connections and understanding by the cadet’s personality of the unity of laws, postulates and scientific facts of economic processes in their place in economic theory; - the cadet’s understanding of the nature of the connections between the elements of economic knowledge, the mechanism of formation, expression and method of obtaining them.				
Motivational	- activity and interest in acquiring economic knowledge, high quality of tasks performed; - motivation for self-development and economic self-education.				
Active	- the presence of skills and abilities of the cadet to apply the acquired economic knowledge in variable situations related to the performance of future professional activities\$ - economic feasibility of acting as a leader with command powers in peacetime, extreme and combat conditions, as well as the effective use of weapons, military and special equipment when performing professional tasks.				

Axiological	- adoption of military-economic value guidelines, understanding the importance of applying the economic approach in future military-professional activities; mastering methods for minimizing the expenditure of funds in the implementation of professional and everyday tasks, developing responsibility for the management decision made.				
Personal	- the ability of an individual to identify the entire set of characteristics of the economic concept under consideration and the ability to establish connections between them; - mastering economic competence, a culture of economic thinking and the formation of an economic worldview.				
The general level of formation of the economic culture of cadets					

The integral criterion is the level of formation of the economic culture of cadets and is calculated as

$$E = \frac{\sum_{i=1}^m k_i}{m}$$

where  $k_i$  are grades in areas of assessment subjects (particular indicators);

$i$  – serial number of assessment;

$m$  – total number of partial indicators.

The level of development of the economic culture of cadets, depending on the data received, will correspond to insufficient, level of understanding, acceptable, basic and high.

Modern economic conditions and the national interests of the state determine the importance of forming the economic culture of future officers. It is necessary to take into account the objective relationship between the state of the economy and the military potential of the state, the influence of economic laws on the stability of the country, understand the increasing role of the state of the economic component in the effective solution of military-professional tasks, and show creativity in the economic context of the nature of military-professional activity. The proposed approach to assessing the maturity of the economic culture of cadets at a military university makes it possible to identify its level, potential for development and adjust pedagogical conditions based on the capabilities of the educational environment of the university.

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## TERMINOLOGY OF THE VOCAL ORGANS OF THE INDIGENOUS PEOPLE OF SAKHA

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抽象的。這項研究的相關性在於，人們對語音形成問題，尤其是雅庫特人的語音形成問題所知甚少。這對於保護每個國家的文化遺產非常重要。筆者認為，發聲的本質與歌唱密切相關。每個民族都有自己獨特的歌唱技巧，這取決於語言的語音特徵。特別是每個民族都有二聲部獨唱，可以看出每個民族的唱法特色。

作者分析了發聲器官的名稱及其定義術語，識別了不同科學流派中它們的特徵，並確定了進一步研究的必要性。

**關鍵字：**雅庫特語，雅庫特語語音形成術語，發音基礎，生理機制。

**Abstract.** *The relevance of the study is due to the fact that the issue of voice formation, in particular, of the Yakuts, is poorly understood. This is important for preserving the cultural heritage of every nation. The author believes that the nature of voice formation is closely related to singing. Each nation has its own distinctive features of singing technique, which depend on the phonetic features of the language. In particular, every nation has solo two-voices, and it is possible to identify the distinctive features of the technique of this singing in each nation.*

*The author analyzes the names of the vocal organs, their defining terms, identifies their characteristics in different scientific schools, and determines the further need for research.*

**Keywords:** *Yakuts, terminology of Yakut voice formation, articulatory base, physiological mechanism.*

**Purpose of the article:** to consider the terminology of the Yakut vocal organs. Achieving this goal involves setting the following tasks:

- highlight the terminology of the vocal organs;
- consider the physiological mechanism.

The object of this work is the terminology of the vocal organs of the Sakha people.

The subject of this study is the terminology of the Yakut vocal organs.

Researchers divide the vocal organs into three groups:

- organs that deliver air (inhalation, exhalation muscles, trachea, bronchi, lungs),
- organs that produce the main sound (larynx and vocal folds).

The third group of voice-forming organs includes organs that perform acoustic processing of the main laryngeal sound (throat, oral cavity, nasal and paranasal cavity, etc.). It is the process of action of this group of voice-forming organs that determines the functioning of the resonator-articulatory system of a native speaker. The resonator-articulatory system is interconnected with the articulatory base of the people.

The theory of the articulatory base of the people was developed by L.R. Zinder (1979). He called the articulatory base of the people “the set of movements and positions of the pronunciation organs that are customary for a given language.” He established the possibility of differences in the articulatory base of peoples. He wrote that “in Russian pronunciation the middle part of the language is intensively used, and in Georgian pronunciation it is almost not involved in sound formation” [3, pp. 80-81]. Lev Rafailovich Zinder also emphasized the importance of the articulation of consonant sounds in the formation of the resonator system of the people, while noting the absence of pharyngeal and laryngeal consonants in the Russian language. Phoneticians of Siberia under the leadership of V.M. Nadelyaev, since 1968, began to conduct research on the languages of the peoples of Siberia using methods of experimental philology in order to identify the characteristics of the articulatory-acoustic base. Research has shown that “AAB, as a system of pronunciation skills, together with their acoustic effects, is not characteristic of a language, but of a certain ethnic group, i.e. tribe, nationality, nation” [1, P. 50].

We will try to consider variants of some terms of the Yakut voice formation. Terms denoting vocal organs exist among many Turkic-Mongolian peoples. Perhaps the basis of singing among these peoples has common roots. But for each nation, one should look for the distinctive features of the technique of this singing, which is characteristic only for it due to its phonetic features of the language. In our opinion, an analysis of singing terms can help with this.

Solo two-voices are the result of specific guttural singing and the musical and poetic thinking of the people. Among the Tuvans, for example, it is due to their boundless love for nature. Therefore, nature was the measure of all things and the source of inspiration for ancient performers and masters. The value and beauty of sound was measured by the ability to convey “living life” not only through imitation, but also through penetration into its essence.

Here is a comparative table (Table 1) of the names of the vocal organs of E.K. Pekarsky and P. S. Afanasyev.

**Table 1**  
*Comparative table of names of vocal organs*

		<b>Pekarsky E.K.</b>	<b>Afanasyev P.S.</b>
1	Belas	Pharynx, throat	aat. Ayakhkoneyyñ tygeh øtte, tamah ulaḡata (nuuch.throat)
2	Komögoy, komököy (komөгoy, komөҗөy)	(cf. KҮөmey, dzhag.kөmekey) the sky in the mouth	aat. Woluk, woluk үүте.
3	Kүөmäi (күөмеi)	(cf. Komogoy, tel. Komoy) palate in the mouth, larynx)	aat. Khabarga rear tordun diekki øtto.
4	Tamah	(cf. Türk tamag, tamak, damak throat, palate in the mouth, organ of taste)	aat. Ayah көңдөүө beles kiirer sire, beles sagalanyuta. Orys, үрекһ муораҗа, күлgetүher sire. Tuoh zmit saḡalanar ebiter bysahar sire.
5	Tagalai (tagalai)	Por. (cf. Turk. Tagalai, taglay, tagday, telai) Sky	aat. Ayah көңдөүyn үөһеө øтүнеөҗi etc.
6	Khabarga, khabyrga	Pharynx, throat	aat. Kihl - сүөһү өһүргес tierbesteritten оһоһулааһ, kihiehmoonnyun inninen (сүөһүге allaraa øttunen) туһтыгар тйер көркөloy tyynar uorganа.
7	Rear	(cf. Türk. Rear, til, dil language, speech)	aat. Haramay agyyr, amtany biler, Otton kihl onu tagynan saharar, ayagyn ihiger syllyar, imigestik khamsyyr uorgan.
8	Tyga, tyga	(cf. tyyn) lungs	
9	Tis (tiis)	(cf. Turk. Tis, tish, tiish, dish tooth) tooth, teeth.	
10	ajakh (cf. Turkic ajak) (Anah, ayah)	Ditch, mouth of a ravine, Por.	
11	Was	Lip, lips.	
12	Agdaka (cf. Dagdakha)	Chest, chest cavity. Por.	

From the analysis of Table 1 it is clear that there is not complete agreement between the views of scientists E.K. Pekarsky and P.S. Afanasyev.

*Conclusion.* Having researched and studied materials on the topic, we have derived terms denoting the vocal organs of the indigenous people of Sakha - the Yakuts. But each nation has distinctive features of the technique of this singing, characteristic only for it due to its phonetic features of the language. 12 terms are considered: of these, E.K. Pekarsky found 12 terms, P.S. Afanasyev 7 terms. The comparative analysis revealed inconsistency among five terms.

In further research, one should find terms in the dictionaries of other Turkic peoples of Siberia, identify common features and distinctive features of the vocal organs.

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俄罗斯职业教育教师专业化研究  
**A STUDY OF THE PROFESSIONALIZATION OF TEACHERS IN  
THE VOCATIONAL EDUCATION IN RUSSIA**

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**摘要:** 本文对俄罗斯职业教育教师专业化进行了研究。

“专业化”的相关性是由于它在社会发展中的重要性。由于新员工在每一个职业、每一个专业中,都不可避免地要经历一个职业化的过程,面临很多困难。

本文的目的是:找出理解“专业化”现象的不同途径,对俄罗斯职业教育教师专业化进行研究。

**任务:**

1. 分析了国内外作家作品中关于“专业化”概念的内容。

2. 中等职业教育教师专业化问题研究。

作者考察了“专业化”概念的内涵,并分析了国内外心理学、教育学、哲学界代表的工作。考虑了理解专业化现象的各种方法,包括各种方法。

描述了专业化的形式。作者对职业教育教师专业化的问题进行了研究。

**关键词:** 专业化, 教师, 适应, 职业教育。

**Annotation.** *This article presents research on the professionalization of teachers in vocational education in Russia.*

*The relevance of “professionalization” is due to its importance in the development of society. Due to the fact that in every profession and specialty, new cadres inevitably go through a process of professionalization and face a lot of difficulties.*

*The purpose of the article: to identify different approaches to understanding the phenomenon of “professionalization”, to study the professionalization of teachers in vocational education in Russia.*

**Tasks:**

*1. Analysis of the works of domestic and foreign authors on the content of the concept of “professionalization”.*

*2. Studying the issues of professionalization of teachers in secondary vocational education.*

*The author examines the content of the concept of “professionalization”, and also analyzes the work of domestic and foreign representatives of psychology, pedagogy, philosophy. Various approaches to understanding the phenomenon of professionalization are considered, including various approaches.*

*Forms of professionalization are described. The author studies the problematic issues of professionalization of teachers in vocational education.*

**Keywords:** *professionalization, teacher, adaptation, vocational education.*

The “professionalization” of modern vocational education requires a change in the strictly functional approach, which is focused on assimilating the amount of skills, abilities and knowledge acquired in the professional sphere, to the formation of the ability of the teacher to realize the self-development of his own potential. The harmonious development of a student’s personality is capable of being carried out by a pedagogical worker possessing emotional stability, personal maturity, social responsibility, the ability to show interest in communication, adequately perceiving others, with an adequate self-esteem, with flexible behavior, able to inspire trust.

“Personal professionalization” serves as a basis for research in many areas, including psychology, sociology, philosophy, pedagogy. It is worth noting the relative novelty of this term, since it appeared only in the twentieth millennium, but is rapidly evolving with regard to the frequency of its use. More precisely, the term “professionalization” appeared in the sixties of the twentieth century. His initial interpretation is “personal formation of potential employees, inculcation of interest in professional craft and other qualities that are necessary in the performance of official duties”.

It is important to emphasize that the concept of “professionalization” finds its application in the science of the Russian federation and foreign countries, acting as an identity with personal professionalization.

A. a. angelovsky emphasized in his works that the basis for the initial professional stage is the education provided by the technical college (college), where the importance of continuous professional development is justified, thus, as an agent the above-mentioned educational institutions, with the primary role of secondary vocational education belongs to self-education and self-improvement in the profession, The social agent is the subject of professional process [1: 70].

Analyzing foreign literature of psychological and pedagogical direction (p. Thornton, l. f. Barrett, p. putman, u. l. guberman, r.i. petty, j.). Jones, d. r. olson, d. kady, b. Mooney) come to the conclusion regarding the many research directions of theory and empirics of professionalization.

The most common among the approaches of the research process of the term “professionalization” is functionalist. This approach was opened by r. merton and

p. Kendall. The basis of the interpretive approach is the German idealistic tradition of social thought. - j. Burrell and j. Morgan, describe professionalization based on the main bases: ideogram, nominalism, voluntarism, anti-positivism [18: 34].

Foreign sociologist and theorist of integrationist symbolism c. kyli by the phenomenon “professionalization” understands the process of assimilation of systemic roles of society by the individual [10: 8].

Thus, the professionalization of the personality is the process of learning the experience of the professional community, the process of formation and development of the personality as a professional.

According to the small academic dictionary “professionalization” is the mastering of a profession, specialty and acquisition of a professional category [7: 723]

A different emphasis is placed in the psychological and pedagogical sciences. R.m. shamionov interprets this definition as a definition of the position occupied by the employee and adaptation to the position occupied [16: 167].

L.e. probst believes that professionalization should be understood as a form of socialization in the profession [13-22].

A.v. morozova focuses on the narrow area covered by this term, as it covers mainly the psychological aspect of social professional activity [12: 32].

Professionalization in terms of socialization is concentrated on the society where the existence of this definition occurs, so it should be said about the proximity to the term “professional socialization”.

It is undeniable that, with regard to difficulties in the professional sphere of activity, there are obvious problems in the regularities of the formation and development of the individual in certain socio-cultural conditions of the establishment of professional educational activities.

The educational environment should be understood as part of the social life, where the subjects’ own educational needs are met and certain professional qualities of the individual are developed.

On the basis of the above, it can be summed up that the manifestation of professionalization is reflected in the process of social institutions, where professional personal training of personnel is carried out, in conscious and active participation in obtaining knowledge in the professional sphere, obtaining experienced practical knowledge, assimilating the values of the professional process, in the orientation towards realization in the professional direction, in independent upbringing and existence in the professional direction.

A.k. markova believes that in the process of obtaining vocational education, an individual develops the personality of a specialist with certain professional characteristics [11: 48]. This interpretation of the term makes it possible to consider it as a socializing aspect, which is connected with the study and application

in personal activity of the acquired norms of profession, skills, knowledge and skills, allows to develop ethical and cultural aspects of professional activity with appropriate training.

Personal professionalization should also be understood as the realization and construction of the socio-cultural environment of educational institutions that have a pedagogical background and control, where personal development takes place with a certain set of characteristics of the psyche that are able to reflect the state and dynamism of the socio-cultural environment. As a result of this environmental action, a person can be included in the profession.

Thus, the term “professionalization” refers to the holistic concept of society as a characteristic of the socio-political policy of the state, developing human potential.

So, we note that personal professionalization should be understood as the function of learning the experience of the professional community, the process of formation and development of the personality as a professional. Since this problem is so urgent nowadays, many works have been attributed to its study in the last decades, its active development, refinement of hardware concepts, formation of a large number of approaches in the study of development in the profession and career, a variety of technologies have been proposed that accompany professional workers.

However, it should be noted the negative aspect - accumulation of serious theoretical problems caused by special psychological aspects in the formation of professionalization. Professionalization is formed on the collision of different branches of psychology, where the main place is occupied by the psychology of development and labor psychology. These directions of psychological science served as the basis for the creation of the concept in psychology and personality professionalization.

The influence described above can be found when widely used in psychological professionalization of terms psychological development and labor psychology, but there are differences in the subject-matter specifics. The complexity of the situation lies also in the fact that in solving theoretical and applied problems in professional psychology, the authors can take as a basis either the method of psychological development or the method of labor psychology.

This situation gives rise to two conceptual approaches used in training. D. n. zavalishina describes [8: 24], one approach is called ontogenetic, the second, in turn, professional genetic. Ontogenetic approach is based on the methodology and principle of psychological development, while professional genetic methodology and principles of work psychological activity.

The formal basis for career cycles is a change of profession, position, profession or a combination of these changes. A single cycle in a profession is an indi-

vidual case, if there are complete coincidences between the cycles of professional and working paths.

In concluding the subjects of professional activity levels, the most striking aspects should be highlighted. The first - professionalism has two basic levels. It is logical to believe that sub-levels exist, but they have not yet been considered in this work. The second is the lack of originality in determining the levels of personal professionalization. Specialists take into account three age values in carrying out their professional activities: length of service in the profession, length of service in working life, age according to the chronology. Third - using the approach to structure and levels, it becomes possible not only to make adequate professionalization, but also to create a promising basis for resolving the difficulties of personal development in the professional industry. The difficulties in this context are the periodicity of professionalization, the attitude of a professional one-cyclist to a polycyclist, the problem of specialization of development in the professional industry, determinative crises in professional development and others.

Next, we turn to the problematic issues that arise in the process of professionalization of vocational education teachers. It should be noted that the last decade has been characterized by a high interest in studying the problems of personal professionalization. Russian scientists refer to the consideration of these issues in the aggregate of personal formation as a subject carrying out professional activity of the professional process. In order to avoid possible problems in the professional process, the teacher should seek the assistance of teachers with extensive experience, as well as engage in self-development on the basis of teaching and educational materials provided by the higher education institution.

Teachers often need help from colleagues and administrative staff when confronted with problems of professionalization [5:12].

As a rule, the teacher appeals to colleagues with extensive experience. However, the teacher does not always receive the appropriate level of response, so it becomes impossible to solve the problem. In order to solve this problem, universities are introducing a system of self-development of a young teacher, which consists of a mentor and various courses of growth of qualification level.

E.a. melekina carried out work to identify professional teaching level and emerging problems. Questionnaires diagnosing problem areas of teachers' development, developed by rpu named after them, were offered for research. A. i. Herzen. Nineteen foreign language teachers, whose experience was up to two years, participated in the survey.

According to the results of the study, the majority of teachers showed a high level of active development (the highest number of respondents scored 67 points), which is considered an excellent indicator.

This indicator reflects readiness to work professionally. Three respondents showed that there was no established system of self-development. This type of

teacher, who starts working with difficulty independently solves difficulties, has an urgent need to conduct courses, refresher courses, seminars that improve language teaching skills and teacher's skills, and attend classes conducted by other teachers.

One respondent who participated in the study showed a stagnation of development. Here it is necessary to understand the reason for stopping development. There are many reasons why this problem can be solved directly by the mentor.

This problem can be solved by reducing the burden on the teacher, thus facilitating work and freeing up time for self-development.

Barriers for first-time teachers are: multiple failures that have led to frustration; Insufficient management assistance and support.

The incentive factors for new teachers are: the level of trust of management and colleagues, influence and examples on the part of colleagues, self-educational activities.

The purpose of the second questionnaire is to study the problems encountered by first-time teachers in order to assist in the implementation of the continuous educational process. The essence of questionnaire surveys is to get acquainted with the answers to the question, "do you have a problem with...". The data revealed: implementation of a differentiated training approach; Application of forms of effective work with pupils; Formation and development of abilities, skills and knowledge necessary in professional practice of the pupil.

On the basis of the data obtained, it can be said that often the problem of a new teacher lies in the theoretical basis of the activities carried out, in particular, the lack of knowledge about the forms and approaches of training.

The survey revealed the following problems of absence and complexity:

A differentiated approach in the training process (36.8 per cent of questionnaires);

Providing effective forms of work with pupils (36.8 per cent of respondents);

Stimulation and development of skills and knowledge required in the student's professional practice (36.8% of the questionnaires;

We conclude that a mentor is necessary for a successful beginning teacher to seek advice and assistance in case of problems.

It is also necessary to hold seminars for qualification development and improvement of existing methodological teaching knowledge, skills and abilities.

The professionalization of vocational education is aimed at assimilating the sum of existing skills, abilities and knowledge in the profession, aimed at developing the ability of the teacher to realize the self-development of his own potential.

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青少年英語文學中的表達文法  
**EXPRESSIVE SYNTAX IN ENGLISH LITERATURE FOR  
TEENAGERS**

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抽象的。 本文致力於研究表達句法手段在青少年現代英語文學中的作用。特別關注括號插入、句法重複、省略和分割結構的作用。標點符號的表達潛力也得到了體現。給出了例子。據說，表達性句法手段在青少年英語文學中廣泛使用，並在其中發揮非常重要的作用。作者所使用的所有表達句法手段都有助於創作有趣且情感豐富的文本。

**關鍵字：**表達句法、表達句法手段、青少年文學、英語。

**Abstract.** *The article is devoted to the study of the role of expressive syntactic means in modern English literature for teenagers. Special attention is paid to the role of parenthetical insertions, syntactic repetitions, elliptical and parcelled constructions. The expressive potential of punctuation marks is also indicated. The examples are given. It is stated that expressive syntactic devices are widely used in English literature for teenagers and play a very important role in it. All expressive syntactic means used by the author contribute to the creation of an interesting and emotional text.*

**Keywords:** *expressive syntax, expressive syntactic means, literature for teenagers, the English language.*

Various linguistic phenomena used in literature are widely studied in modern linguistics. The linguistic features of literary texts for different age groups are of particular interest. The focus of this article is on modern English language literature for teenagers and its expressive and syntactic features. The examples are taken from the book for teenagers “This Winter” by A. Osman (2015) [9].

Syntactic expressiveness can be used “to increase the pragmatic potential of an utterance beyond the degree achieved by the lexical meanings of the elements filling these syntactic forms” [7, p. 3]. Expressive syntax deals with “the construction of expressive speech” [1, p. 7]. The means of expressive syntax allow the author “to express the speaker’s attitude to the utterance and influence the addressee, create a situation of

a communicative act through the use of elements with semantics updated for a specific situation” [4, p. 353], namely, repetitions, elliptical sentences, parcelled constructions, rhetorical questions, parenthetical additions, etc. [1; 2; 7; 3].

The analysis of the research material shows that one of the most frequently used expressive syntactic devices is a parenthetical insertion. Parenthetical insertions are words or constructions that “are included by the author in the composition of the sentence in order to clarify it, draw attention to some ideas, express their attitude to them” [1, p. 30]. In the analyzed text, there are examples of various parenthetical insertions in terms of their position in the sentence, structure, size, content, and punctuation. Here are some of them:

- 1) Actually, I think it was probably my fault he had to go to hospital [9].
- 2) She’s got her Christmas dress on – a purple thing that’s actually quite nice – and her hair curled [9].
- 3) Lots of old people are, unfortunately [9].
- 4) I begin to recite the classic answer to this question (“It’s fine / it’s a lot harder than GCSEs / it’s nice not to have to do P.E. any more”), and as I do Charlie gets up and leaves the room [9].

Elliptical sentences also belong to the frequently used expressive syntactic means in the research material. In such sentences, there is a missing element in the utterance which can be “easily restored in the context or situation” [6, p. 525]. It is believed that the ellipsis “gives the utterance the intonation of living speech, dynamism” [5, p. 189], allows the author to express a thought briefly and concisely, draw the reader’s attention to important information, for example:

- 1) “So annoying” [9]
- 2) Don’t really want to think too much about it on Christmas Day [9].
- 3) “Only if you’ve been good!” [9]
- 4) “Are you going to get dressed soon?” [9]
- 5) “Just saying.” [9]

Parcelled constructions are divided “into several intonationally separate parts in order to create certain stylistic effects” [1, p. 68]. They are quite common in the research material, they contribute to highlighting important information, imitating spoken language, and making the text expressive. Here are some examples:

- 1) I’m going to block it all out. Just for today [9].
- 2) “I think I’d be enjoying this more if I could be someone cool like Mrs Weasley. Or Dobby.” [9]
- 3) But I don’t think that they know exactly why he had to go there. What happened [9].
- 4) I walk up to her, and her face looks like stone. Like ice, maybe [9].

An important role in the syntactic organization of the analyzed text is played by repetitions “of different words of the same part of speech in the identical syn-

tactic function in the sentence”, or “of words belonging to different parts of speech but performing the same syntactic patterns in the sentence, or in the echoing of syntactic patterns in proximate lines, stanzas, utterances and paragraphs” [8, p. 72]. Repetitions enhance the expressiveness of statements, focus the reader’s attention on certain words, expressions, and thoughts of the characters:

1) I didn’t think it was weird that he stayed in his room all the time. I didn’t think about it. About anything [9].

2) There have been a lot of difficult days in the past few months. There have been too many difficult days [9].

3) I want to cry. I want to do anything to stop him from leaving [9].

4) He turns back. His eyes are watery. His jeans are supposed to be skinny but they’re just baggy on him [9].

5) Not that that matters. I don’t matter. He matters [9].

The research material revealed examples of the use of various punctuation marks that also belong to the field of expressive syntax. Punctuation helps the author to set a certain rhythm of reading, to point out the necessary pauses in the speech and thoughts of the characters, to show certain emotions. Here are some examples:

1) I say something along the lines of “nooooo” and retreat under my duvet, but this doesn’t stop Oliver from following, tearing back the covers and crawling on to my bed [9].

2) “So ... when I’m eighty, I’ll get eighty presents?” [9]

3) Dad’s brother and his family arrive – Uncle Ant and Aunt Jules, and our three cousins: Clara, a twenty-year-old veterinary student; Esther, who’s my age; and Rosanna, a twelve-year-old who never seems to stop talking [9].

4) “Oh! Not exactly new, then!” [9]

5) “What does that mean?” [9]

As can be seen from the above sentences, the author uses a wide variety of punctuation marks: quotes, parentheses, ellipses, dashes, colons, semicolons, exclamation and question marks. All these marks add expressiveness to syntactic constructions in the text.

It is known that expressive syntax cannot be analyzed in isolation from lexical means, that is why special attention should be paid to the fact that syntactic structures under consideration contain a lot of colloquial, slang words and expressions, interjections and onomatopoeia, helping the author to imitate the real speech of the characters. Here are some of them:

1) “Yep, in a minute.” [9]

2) “Yeah, we’re just gonna finish this level.” [9]

3) Oh, I think he’s doing stuff with his family tomorrow. [9]

4) “Aw, that’s a shame.” [9]

5) Oh gosh, you are not missing much, I promise you that [9].

6) “All right-y [9].

7) “Um. No. Haha. No.” [9]

8) And it all got decorated for Christmas, so ... erm ... yeah ...” [9]

Especially noteworthy are the texts of messages through which young heroes communicate:

(11:07) Becky Allen

Lol lol lol lol lol I'm so glad i'm an only child.

(11:09) MERRY CHRISTMAS YOU INSOMNIAC

(11:10) Love u bby xxxxxxxxxxxxxxx

(12:22) Dad got me the new Call of Duty. See you in my next life x [9].

The combination of expressive syntactic and lexical means of this kind makes the constructions especially emotional.

The analysis of syntax in the research material allows us to conclude that the author uses various types of sentences. The majority of them are complex and contain different expressive syntactic means, for example:

Charlie's eyes widen in fear at the prospect of having to embark on this conversation, but thankfully, at that moment, Dad appears at the head of the table, still with his apron on over his shirt and waistcoat, and a Christmas cracker crown hanging dangerously off the top of his head [9].

I play multiple video games with my brothers and cousins, Dad always gets drunk, my Spanish grandfather (Dad's dad) has an argument with my English grandfather (Mum's dad) – truly wonderful stuff [9].

He doesn't say much more for the whole meal, which means that I have to suffer through a horrific question and answer session from Rosanna about all of my school friends, and then Esther wants an update on what TV shows I watch, and then Clara gets started on the whole “so what are you thinking about for university” thing, to which my answer is simply, “I'm not.” [9]

Summing up the study of the research material, it can be stated that modern English language literature for teenagers is characterized by a variety of expressive syntactic means that make an important contribution to creating an understandable, interesting and emotional text.

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元語言能力及其發展的一些機會  
**METALINGUISTIC COMPETENCE AND SOME OPPORTUNITIES  
FOR ITS DEVELOPMENT**

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註解。 本文探討了後設語言能力的現代願景，並提出了有助於形成學生元語言能力的任務，以便在非語言大學的英語語言實踐課程中使用。 考慮到生成或接收話語的溝通參與者的位置，對語音、詞彙、語法、語用方面進行處理的選項。

關鍵字：後設語言能力，後設語言能力，後設語言活動，外語教學。

**Annotation.** *The article examines the modern vision of metalinguistic competence and proposes tasks that contribute to the formation of metalinguistic competence of students for use in English language practice classes at a non-linguistic university. Options for working on phonetic, lexical, grammatical, pragmatic aspects of speech compiled taking into account the positions of the communication participant generating or receiving the utterance.*

**Keywords:** *metalinguistic ability, metalinguistic competence, metalinguistic activity, foreign language teaching.*

As is known, descriptive linguistics, which understands language as a system of signals that have external and internal connections, involves dividing linguistics into metalinguistics (pre-linguistics) and microlinguistics (linguistics). Metalinguistics studies the external side of verbal behavior, combining a number of disciplines, including psycholinguistics, ethnolinguistics, sociolinguistics, phonetics [Kodukhov, 2010, p. 88].

The explanatory translation dictionary interprets the term “metalinguistics” as a branch of linguistics that studies the peculiarities of the content side of language “in connection with the thinking and social life of the speaking community as a necessary condition for penetration into the nature of linguistic units and the patterns of their functioning” [Nelyubin, 2003]. The dictionary of synonyms offers a single synonym for the word metalinguistic – metalinguistic [Trishin, 2013]. Several terms and concepts are associated with the category “metalinguistic”,

including metalinguistic function, metalinguistic ability, metalinguistic activity, metalinguistic competence.

According to the Dictionary of Linguistic Terms, the metalinguistic function of language is the purpose of language “to act simultaneously as a means (tool) for research and description of language. Using language to describe the language itself” [Zherebilo, 2010, p. 193].

I.G. Ovchinnikova points out that metalinguistic competence includes the pragmatic component of linguistic competence, reflection on the language, assessment of one’s knowledge of the language and about the language. Metalinguistic ability (metalinguistic competence) is formed on the basis of linguistic competence [Ovchinnikova, 2005]. In theory of language teaching, “linguistic competence” is understood as a set of linguistic knowledge, skills and abilities, the mastery of which allows one to carry out foreign language speech activity in accordance with the linguistic norms of the language being studied [Ogluzdina, 2011, p. 93].

M. M. Bakhtin, who is considered to have discovered a branch of knowledge called “metalinguistics”, borrowing the term from the collection of articles “Collected Papers on Metalinguistics” by B. Whorf, notes that, unlike linguistics, which studies language as a system, metalinguistics defines language “in its concrete and living totality.” One of the main ideas reflecting the essence of metalinguistics is the understanding of the utterance as a unit of speech. M.M. Bakhtin considers a statement as a unit of speech communication, and not a grammatically correctly constructed sentence [Bakhtin, 1996, p. 172; June, 2019, p. 42, 46-48].

The understanding of the utterance as a subject of metalinguistics is reflected, in particular, in the definition of the concept “metalinguistic activity”: metalinguistic activity is the process of human interaction with language, including the acquisition of knowledge about language, the formation of the ability to operate with it and use it for the purposes of perceiving, creating and evaluating utterances [Almazova, Savvidi, 2022, p. 124].

Based on the above, it becomes clear which aspects of language and speech need to be addressed when forming and developing metalinguistic competence in foreign language classes. Let us consider some possible variants of tasks, compiled taking into account the positions of the communication participant generating or receiving the utterance.

When working on the phonetic aspect to develop, in particular, a conscious attitude to the tempo of speech, students can do different types of exercises.

Since dividing a sentence into syntagmas is important for its best understanding both when reading aloud and when reading silently, we invite students to divide the sentence, as, for example, *Moscow is the capital and most populous city of Russia with 13.2 million residents within the city limits and 20 million within the metropolitan area*, into semantic groups and update (pronounce) it so that the

pause between groups is slightly longer than the pause between words, but somewhat shorter than the pause marking the sentence boundary. The division can be carried out in different ways, here are just two of the possible options: Moscow is the capital | and the most populous city of Russia | with 13.2 million residents within the city limits | and 20 million within the metropolitan area. Or Moscow | is the capital | and most populous city of Russia | with 13.2 million residents | within the city limits | and 20 million | within the metropolitan | area. Let us also recall that the most important information in a statement is pronounced more slowly than the less important information.

The intonation pattern of an utterance is necessary for the listener to correctly perceive it, and in some cases has a semantic distinguishing function. We invite students to say the opening line with dividing question Nice weather, isn't it? so as to get different response lines, for example: "Awful!" or "Yes, very!" or "Wait a bit." etc. Combination options in this case may be as follows:

∨Nice weather, ∨isn't it? (low fall + low fall) is perceived as an ironic remark, and then the agreement remark "Awful!"

∨Nice weather, ∨isn't it? (high fall + low fall) is perceived as a statement of a real fact, in this case the answer "Yes, very!"

∨Nice weather, ∨isn't it? (low fall + low rise) is perceived as a proposal to check, then we will hear "Wait a bit" as a response.

You can offer students an excerpt from a literary text in which the author reflects the phonetic features of the character, and ask them to analyze these features. From a phonetic point of view, in our opinion, the following examples may be interesting: in a replica *He's poisoned, isn't 'e?* (Herriot J.) demonstrates phonetic reduction when pronouncing the pronoun he; in the passage *'Dredful,' ses Harry. 'You could wring the clo'es out. I s'pose it's healthy for me, ain't it, sir?'* (Jacobs W.) We can see that the author cites not only the individual features of the character's pronunciation, illustrating them with words *ses clo'es*, *s'pose*, but also a historically developed version of the attached question *ain't it* (instead of the more familiar "grammatically correct" *isn't it*). Research by G. Tottie and S. Hoffmann, which option *ain't it* currently found in both American and British English [Tottie, Hoffman 2006, p. 286].

When working on the lexical aspect, students may be asked to work with dictionary entries, where the meanings of words are explained by definitions, in order to understand the differences in the use of synonyms, subsequently compose synonymous series, and isolate the synonymous dominant. An example of this type of task is the consideration of synonyms that have the Russian meaning "to look":

*look* – to turn your eyes in a particular direction. (note: She looked at me and smiled.);

*watch* – to look at smth/smb for a time, paying attention to what happens. (note: Watch what I do, then you try.);

*see* – to watch a game, television program. (note: In the evening we went to see a movie.);

*view* (formal) – to look at smth/smb, especially when you look carefully. (note: People came from all over the world to view her work.);

*regard* – to look at smth/smb, especially in a particular way. (note: He is regarded us suspiciously.)[Oxford Advanced Learner’s Dict., p. 908].

Another option for working with synonyms would be to complete a task to find synonyms among the proposed words, for example:

*steady, suitable, sustainable, obtainable, noticeable, priceless, convenient, observable, comfortable, safe, protected, particular, secure, available, stable, visible, precious, single, unique, accessible, valuable.*

To improve the understanding of words when relying on morphological parts, an exercise will help to analyze the method of word formation, finding words formed by conversion, affixation, compounding, abbreviation:

*AI, wearable, pathway, lifelong, widespread, automatically, set, AI-based.*

A useful exercise will be to identify the morphemes that make up a word, as well as its opposite - to compose a word from the given components: parse the word according to its composition (carry out a morphemic analysis of the word), indicate the prefix, root, suffix in the words overcritical, improper, unemployment; From the given morphemes, make up possible words super-, non-, un-, over-, special, price, expense, success, innovate, contribute, grow, fail, develop, object, expend, -ly, -able, -or, -ful, -tion, -th, -ist, -ion, -ory, -ure, -ive, -less, -ing, -ment, -ity, -ture, -y, -ize.

The task can also be formulated as follows - give possible derivatives for the following words, using a dictionary and taking into account all the word formation methods known to you:

*keep, satisfy, short, net, hold, pay, employ, realize, value, change.*

Another option for the task is to compile derivatives of the given words, indicating the parts of speech that they represent:

<b>Verb:</b>	<b>Noun:</b>	<b>Adjective:</b>
...	← work →	...
	...	← industrial
	organization→	...
develop →	...	

When working on the grammatical aspect of speech, the following exercises will help develop metalinguistic competence:

•analyze the use of the verb form in the response sentence:

–*Mike, why are you keeping silence?*

–*I’ve been waiting for my chance to put a word in.;*

•rewrite the sentence using passive voice:

*He will show his new invention.;*

- complete the sentence using the infinitive as the subject:

..... *was the only thing to do.;*

- change the function of the gerund in a sentence:

*John is interested in getting good education.;*

- replace the independent participial phrase with a subordinate clause:

*She entered the room, a book in her hand.,* and many others.

The pragmatic aspect of speech, which affects the influence of the addresser and the addressee on each other in a certain communication situation, must also be taken into account when drawing up tasks to improve metalinguistic knowledge, skills, and abilities. In our opinion, the following tasks would be appropriate:

- for the opening response The student knows English well, choose the one that can be used in the response to 1) demonstrate polite attention to the words of the interlocutor, 2) indicate surprise and interest, 3) express distrust and doubt: Does he? He doesn't. Really? You don't say so! Yes, doesn't he? Right. Try to update your response so that the interlocutor understands your intention.

- review the recording of the dialogue, note pragmatic and discursive markers and explain their functions in the speech of the interlocutors (recall that in Russian literature there are different approaches to the concepts of “pragmatic” and “discursive” markers. In particular, N.V. Bogdanova-Beglaryan classifies speech automatisms as pragmatic markers, which are generated unconsciously; they are not recorded in dictionaries. The researcher considers words and phrases fixed lexicographically to be discourse markers; they help build discourse, as of course, firstly, etc. [Bogdanova-Beglaryan, 2018, p. 97]):

T: Can I just have a quick word?

G: Yeah sure have a seat

T: (sitting down) Great weather er

G: Mmm

T: Yeah been a good week did you get away skiing at the weekend? [Holmes, 2000, 55-56].

Among the discourse markers, we note the adverb sure and the exclamation yeah in the function of agreement-assent, the form Can I just, constructed in the form of an interrogative sentence, but understood as a polite request, among the pragmatic markers - fillers of the hesitant pause er, the marker for maintaining contact mm.

- consider the rendering of the pragmatic marker by different translators. As an example, the following is Hamlet's remark from a conversation with the gravediggers: ***I think it be thin, indeed; for thou liest in 't.*** (Shakespeare W., “Hamlet”), in which we see two discourse markers *I think* and *indeed*. In different interpretations the replica sounds differently: *Конечно, твоя, потому что ты в ней.* (transla-

tion by A. Kroneberg); *Я думаю, что она твоя, раз ты в нее ложишься.* (translation by A. Radlova); *Разумеется, твоя, раз ты в ней путаешься.* (translation by M. Lozinsky); *Верю, что твоя, потому что ты лжешь из могилы* (translation by B. Pasternak). We ask students to analyze each translator's approach in order to understand how equivalents are selected to reflect pragmatic markers.

Explanation of words, coming up with a definition, for example, for the word "chair" - a piece of furniture on which one sits and which is usually located next to the table" - is one of the exercises for the development of metalinguistic competence. The next step after individual words is the explanation of phrases - idiomatic expressions: a horse of another color (this is a completely different matter) [Kunin, 1984, p. 398], which can be explained, for example, by the combinations it's a different matter, that's a different matter, it's a different story, that's different, that is quite another matter. In the future, you can explain entire statements; perhaps the best choice would be to explain proverbs: explain the meaning of the proverb As the workman so is the work - what the leader is, so is his team.

Finding several equivalents for statements in the native and target languages is also a useful exercise: Let's invite students to give English equivalents for the Russian "He will surely come." Here are some possible options – He is sure to come. I am sure that he will come. He is going to come for sure. He must come. He'll be there for sure. He will be here for sure. He'll definitely come, etc. When selecting Russian equivalents for English You are not quite right, the answers may be - "You are not quite right. You are not right. You're wrong. You are wrong. You're wrong. This is not entirely true. No, not like that," etc. This exercise will help speed up the selection of the necessary lines in live speech.

Composing several options for an initiating response for a given response or composing several options for a response for a given initiating response will help the student quickly navigate the situation of direct communication: come up with a statement that in a dialogue can cause a response "Yes." ("No." "I agree." "Unfortunately", "We can't.", etc.). Let us recall that the beginning sentences can be represented by any communicative type of sentence (interrogative, imperative, declarative). If the task is to come up with a dialogue response for the statement "Could you work this week-end?", and it is possible to determine in advance the intention of the respondent - he intends to agree, he intends to refuse, he intends to clarify the conditions, he intends to take time to think, etc.

A child begins to recognize indirect speech acts in his native language by the age of five [Ovchinnikova, 2005], so students can easily recognize them in the everyday speech of classmates in their native language.

To create the exercise, let's take the line Do you have a pen? and ask students to come up with response lines to it both if it were perceived as a question and if it were perceived as a request for a pen, an incentive to activity, that is, the form and meaning of the statement would not coincide (indirect speech act).

Note that a grammatically correctly constructed response sentence (from the sphere of linguistic competence) would look, for example, like Yes, I do. No, I don't. or Yes, I have a pen. No, I don't have a pen. Such answers are quite expected if the question is perceived by the addressee as the addressee's desire to find out if he has a pen, for example, asking if the addressee needs it.

Used as an indirect speech act, the question is perceived by the addressee as a request to look and give a pen to the addressee; such a statement will be within the scope of consideration of metalinguistic competence. The response to such a request may be expected, such as Wait a bit; I'll give you; Yes, I do and unexpected, like What do you want to write? Don't ask me. The answer can also be actional - the addressee will take out and extend a pen to the addressee. An actional response can be combined with a verbal one – Here you are, yes, etc.

In conclusion, we note that metalinguistic competence is built on the basis of linguistic competence, i.e. it can be developed only when the student has formed an idea of the language system and knows how to construct a grammatically correct sentence, has a certain vocabulary and the sound side of foreign language speech. It is quite obvious that the very study of a foreign language in an educational institution includes metalinguistic activity, because the explanation of the phenomena of the language being studied occurs through the native language, i.e. It is impossible without a conscious attitude towards language and speech. The first result of metalinguistic activity is the formation of linguistic competence in a foreign language. If it is possible to form it, then the possibilities for developing metalinguistic competence are limitless.

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資訊社會的社會哲學解釋  
**SOCIO-PHILOSOPHICAL INTERPRETATIONS OF THE  
INFORMATION SOCIETY**

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註解。本文對資訊社會的主要社會哲學概念進行了理論分析。研究表明，現代社會哲學論述充滿了對現代社會類型的多種方法、概念和解釋，並得出結論，將現代社會解釋為資訊社會最能滿足現代社會哲學的理論和方法論需求。可以說，在當前發展階段，資訊社會正在向數位社會轉型，其特徵是公共生活數位化進程佔據主導地位。

關鍵字：資訊社會、數位社會、資訊社會的社會哲學概念、資訊時代、資訊與通訊科技、人工智慧、數位化。

**Annotation.** *The article presents a theoretical analysis of the main socio-philosophical concepts of the information society. It is shown that modern socio-philosophical discourse is filled with many approaches, concepts, interpretations of the modern type of sociality and it is concluded that interpretations of modern society as an information society most satisfy the theoretical and methodological needs of modern social philosophy. It is justified that at the present stage of development, the information society is being transformed into a digital one, which is characterized by the dominance of the processes of digitalization of public life.*

**Keywords:** *information society, digital society, socio-philosophical concepts of the information society, information age, information and communication technologies, artificial intelligence, digitalization.*

At the turn of the millennium, humanity entered a period of global transformations accompanying its transition to a new stage of civilizational development, defined by contemporaries in different ways: post-non-classical - if we start from scientific paradigms and state the emergence of a new scientific paradigm; post-industrial – if guided by production factors and economic structuring; informational – if we consider information, communication, virtualization as key determinants

of socio-economic and socio-cultural development; globalization - if we are guided by the planetary scale of changes in the economy, politics, culture; and many others. Despite the existing diversity of interpretations and multiplicity of interpretations of the modern stage of development, the specific features of modernity are clearly recorded: large-scale introduction and mass distribution of computers, computer networks, information systems, their incorporation into all spheres of public life and into the everyday life of each individual, intensive growth of scientific knowledge, which determines the rapid progress of technology and the active transformation of nature. Thus, the transformation of information into a key factor in social development and its determination of all aspects of the existence of modern civilization is the basis for defining the modern era as an information era.

The key determinants of information modernity are modern information and communication technologies, which in an incredibly short period by historical standards have radically changed social reality and transformed modernity into post-modernity [1]. All social subsystems without exception have undergone radical reconfiguration: economic, political, social, spiritual, and, quite naturally and predictably, man himself, who today, more than ever before, has found himself so inextricably linked with his technological continuation - smart machines. At the beginning of the twentieth century, N. Berdyaev stated technology as “the last love of humanity,” under the influence of which a person is ready to change his image [2, p. 3], and already at the end of the same twentieth century, this prediction began to be very successfully and rapidly realized, and the reason for this was the emergence of computers, information technologies, including artificial intelligence.

Awareness of the social significance of information and ways of interacting with it in the middle of the twentieth century was due to a number of factors, primarily technical, technological, economic, and sociocultural. Information becomes the subject of scientific study, within various fields of scientific knowledge it receives different interpretations and meanings, which led to the emergence of new scientific fields related to the study of the meaning and role of information in nature and society. Against this background, information list interpretations of society are actively being formed, which leads to the emergence of a new social theory - the theory of the information society. Within the framework of this concept, a new type of society, in contrast to the previous post-industrialist one, is understood from the exclusive priority of information and the processes caused by it: production, transmission, storage, which in turn determines all socio-economic and socio-cultural development [3, p. 209].

The origins of informationalism are associated with the introduction of the term “information society” into scientific circulation. There is no unity regarding the authorship of this category in modern scientific and philosophical discourse.

Most researchers tend to believe that the first to use the phrase “information society” were Tokyo Institute of Technology professors Y. Hayashi and T. Umesao in the 1960s. Interpretations of the new type of society by Japanese scientists boiled down to understanding it as a society in which computerization processes provide people with access to reliable sources of information, relieve them of routine work, provide a high level of automation of production, a society in which production becomes more knowledge-intensive, the share of innovations increases, and the driving factor of social development becomes not a material product, but an information product [4, p. 29].

In the 1980s, the concept of the information society gained popularity in the West. The leading theorist of post-industrialism, D. Bell, in his work “The Social Framework of the Information Society” [5] synthesized the ideas of post-industrialism and informationalism, giving information a decisive status in social processes. The information society, as interpreted by D. Bell, has all the characteristics of the post-industrial society he described earlier - the priority of the service sector, the leading role of scientific knowledge and focus on it, the development of intelligent technologies, at the same time, important determining importance is attached to the convergence of electronic computing and communication technology [5, With. 330].

Further understanding of the information society, presented in the work of I. Masuda “The Information Society as a Post-Industrial Society” [4], provoked a new wave of scientific interest on the part of the world scientific community in understanding modern society precisely as an information society. An equally interesting theoretical construct for understanding society as an information society is the philosophical interpretation of E. Toffler’s “Third Wave” [6], in which the philosopher comes to the conclusion that the characteristic features of modern society, in addition to a high level of innovation, are the demassification and destandardization of all aspects economic and political life; A special role in the new information society is played by mass communications and the global information space - the global computer network. In such new sociocultural conditions, a new type of culture and a new type of person are emerging, which is losing the qualities of a “mass person.”

E. Toffler’s predictions turned out to be viable. Indeed, a special role in the establishment of the information approaches in defining a new type of sociality, starting from the mid-90s. The twentieth century was played by the emergence of the Internet, when it turned from a specialized military network into a real Global Network. From that moment on, the information society began to be interpreted as a society based on the ability of everyone to work with information, and gradually began to materialize from theory into pure reality [7, p. 5-6]. The new space of life in the 21st century is the global information space produced by computers,

their networks and with the help of information and communication technologies, within the virtual limits of which today a significant part of the life and activity of modern man is carried out. The emergence of the global Internet and its transformation into a global human heritage, its technological capabilities and tools, new digital methods of transmitting, accumulating and storing information, artificial intelligence and its widespread incorporation into traditional aspects of human life, various digital assistants, smart gadgets and much more are becoming starting points of a new technological reboot of humanity - digital. In this regard, M. Poster, in the late 1980s, even before the Internet became a global commons, concluded that it is impossible to most fully interpret social reality without taking into account changes in the structure of communicative experience [8].

The informationalist concept of M. Castells has significant methodological significance in understanding the essence of modern society, which, without detracting from the merits of the theoretical conclusions of D. Bell, significantly expands the ideological content of post-industrialism. According to the sociologist, modern society can be considered informational, or networked, on the basis that the main sources of productivity are “the qualitative ability to optimize the combination and use of production factors based on knowledge and information” [9]. If industrialism is focused on the production and distribution of energy and maximizing the output of material products, then informationalism is focused on the development of technology, the accumulation of knowledge and the achievement of higher levels of information processing. The modern information society, therefore, is characterized not only by a change in production methods and the replacement of a material product with an information product, but also entails a transformation of values, needs, and ideological guidelines of a person. As A. Turing concluded, the fundamental nature of technologies lies in their disappearance: they are woven into the fabric of everyday life and are increasingly indistinguishable from it [10, p. 101]. Indeed, computers are becoming more and more compact and miniaturized, becoming an important component of cars, household appliances and consumer electronics. New sensors and machine learning algorithms provide new channels for accessing computers - without interacting with the screen and keyboard. All this opens up opportunities for technological expansion of the natural boundaries of the human body - the implantation of microchips, allowing even more unhindered contact with a computer and artificial intelligence.

The further evolution of the information society indicates a gradual transition of the information society to a qualitatively new state, transforming into a digital society. W. Beck in his work “Metamorphoses of the Modern World” [11] states radical changes in society, which, in his opinion, cause a shock, that destroys the traditional anthropological constants of habitual existence and an established understanding of the world. Among the metamorphoses transforming social real-

ity, the sociologist focuses on digitalization, accompanied by the spread of digital communications, the use of big data technologies, the hybridization of online and offline spaces, etc. [11] Under the influence of digitalization processes, the meaning, content and direction of social processes are changing - methods of activity, interpersonal interaction, social practices, work, leisure, and many others are designed based on digital technologies. Digital technologies, stimulating new social connections and relationships, thus turn into a “social fact” [12, p. 41].

A digital society can thus be defined as “a society whose infrastructure functions through digital technologies (big data and artificial intelligence technologies, algorithms and algorithmic systems, cloud computing, etc.), and the basic form of organization and social interaction is network structures and platforms” [13], and the main characteristics of modern digital society are the presence of such essential elements of its technological infrastructure as communication networks, big data technologies, algorithms and platforms, which in turn determines the essence of the processes underlying digitalization, such as networking, datafication, algorithmization, platformization [14, p. 123].

Based on the foregoing, it should be concluded that the conducted theoretical analysis of the main theoretical and methodological approaches to defining the modern type of society defines it precisely as an information society, and the society of the beginning of the 21st century - the digital society - is a new natural stage in the evolution of the information society.

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費希特的哲學與PI諾夫哥羅德採夫的道德理想  
**FICHTE'S PHILOSOPHY AND THE MORAL IDEAL OF PI  
NOVGORODTSEV**

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抽象的。本文試圖分析諾夫哥羅德採夫道德理想主義的起源和對社會理想的理解。費希特的哲學影響了 P. I. 諾夫哥羅德採夫 (P. I. Novgorodtsev) 追求道德理想的工作。法哲學家將個人必須履行其道德使命的概念置於道德社會理想的基礎上。目的是按照道德義務行事，並光榮地維護人的尊嚴。這種基於全民團結思想和康德道德理想普遍性原則的對生命最高絕對原則的理解，被稱為道德唯心主義。諾夫哥羅德採夫的道德唯心主義原則不僅基於康德和費希特的哲學，也基於柏拉圖對此思想的理解。科學家的道德觀念構成了他的社會理想的基礎。本文的相關性在於我們希望找出 P. I. 諾夫哥羅德採夫哲學的新康德主義起源。研究的理論先決條件是對資料來源的分析，特別是 V. Windelband 和 P. Novgorodtsev。

關鍵字：費希特、道德理想、諾夫哥羅德採夫、絕對、義務、自由人格。

**Abstract.** *The article attempts to analyze the origins of moral idealism and understanding of the social ideal by P. I. Novgorodtsev. Fichte's philosophy influenced the work of P. I. Novgorodtsev in his quest for a moral ideal. At the basis of the moral social ideal, the legal philosopher places the concept of an individual who must fulfill his moral calling. The purpose is to act in accordance with moral duty and to bear one's human dignity with honor. This understanding of the highest absolute principle of life, based on the idea of solidarity of all people and the Kantian principle of the universality of the moral ideal, is called moral idealism. The principle of Novgorodtsev's moral idealism is based not only on the philosophy of Kant and Fichte, but also on Plato's understanding of the idea. The scientist's moral ideas formed the basis of his social ideal. The relevance of this article is due to the desire to identify the neo-Kantian origins of the philosophy of*

*P. I. Novgorodtsev. The theoretical prerequisites for the study are the analysis of sources, in particular V. Windelband and P. Novgorodtsev.*

**Keywords:** *Fichte, moral ideal, Novgorodtsev, Absolute, obligation, free personality.*

Introduction. The topic seems to be little studied, despite its relevance. The spiritual sources of philosophy are in demand more than ever in the modern world situation of moral crisis, cultural degradation, and the transition to post-industrial values. The moral social ideal of Novgorodtsev is the goal and subject of this study, in addition, the purpose of the study is also to discover deep connections between Fichte's absolute ideal and the social ideal of the Russian neo-Kantian scientist.

**The leading approach** here is the interpretation of Windelband's "History of New Philosophy" in comparison with the text of P. I. Novgorodtsev's "The Social Ideal," which ultimately allows us to discover the origins of the problematic of neo-Kantian values, which goes back to the philosophy of not only Kant, but also post-Kantian philosophy, in particular, rests on the ideas of Fichte.

It would seem that the Age of Enlightenment brought people political and moral freedom and placed natural law with its inalienable human rights on a pedestal. But Fichte, according to Windelband, with merciless harshness denounces the age of Enlightenment, its dogmatic freethinking mixed with the theory of utility and eudemonia. Not freedom, but freethinking, not morality, but eudemonia, not law, but complacency - this is how the Enlightenment ideal can be characterized from Fichte's point of view [see: 1, p. 246]. But both Windelband himself and Pavel Novgorodtsev no longer admire enlightened culture, are not proud of it as a great achievement of the West, their aspirations are aimed at the ideal of duty, obligation. "Back to Kant!" - this is the motto of the end of the 19th century. Kant, polemicizing with the ideas of the Enlightenment, develops a philosophy of moral duty, where the moral law is initially, immanently given to reason, or is derived from it. And this law is alien to all kinds of pleasures, passions, feelings; only the maxim of moral obligation remains in the name of the triumph of this moral law. And in this triumph, the dignity of man, his conscience, his right to a dignified existence is preserved. **"In fact," writes P. Novgorodtsev, "the development of European thought in the 19th century proceeded in such a way that the political ideal had barely time to fade when it was immediately replaced by a social ideal..." [4, p. 39].** This social ideal was seen in either socialism or anarchism, each of them presupposing a revolutionary upheaval. **This desire for a social and moral ideal was laid down by the philosophy of Fichte,** which went beyond the moral philosophy of Kant. **Kant is not yet talking about the ideal, his moral law is a commanding imperative, called categorical, which affirms this moral law**

for all people and for everyone, but Fichte already has the concept of a moral ideal associated with the social and state structure. The philosopher's sublime nature and his moral aspirations showed a passion for fighting the injustice of political institutions and laws. Fichte was an opponent of private trade and expressed downright socialist ideas in his essay "The Closed Trading State" [1, p. 242]. His new views became even more evident when the police state collapsed during the Napoleonic Wars and the German national state began to take shape. The awakening of their national feeling prompted Fichte to think about national destiny, about the purpose of each individual as a whole. The formula of the categorical imperative takes on the following form: "Do as your destiny tells you" [see: 1, p. 241]. Fichte convinces, Fichte believes that moral convictions need to be cultivated among the people; He views the self-liberation of the German spirit as a duty that the nation must fulfill to realize its destiny [1, p. 243]. **Kant, Fichte, Nietzsche, writes Pavel Novgorodtsev, push our worldview forward**, not to stop at anything given, to always search, to fight - this is what it means to fulfill a moral duty, this is the task of moral progress, the desire to realize the eternal ideal [4, p. 46–47]. And at the top of all this for P. Novgorodtsev stands a free personality, as a goal, as a moral ideal of social order. But the free individual is an old concept, associated with Rousseau and natural law. "The old social philosophy sought its support in various historical categories, to which it attached absolute importance. A perfect state, a true church, God's chosen people, a progressive economic class and similar historical phenomena seemed to be the cornerstones of the future ideal communication" [4, p. 52–53]. And finally, evolutionary theory, from which one can derive moral (as well as legal [see also: 8–9]) perspectives on evolution. Having analyzed the evolutionary theory, Novgorodtsev comes to the conclusion that it does not explain the moral side of life, much less its emergence, and actually speaks of the supra-historical nature of the moral law. A study of the concepts of Darwin, Wallace, and Weisman, says Novgorodtsev, shows that behind the apparent action of natural selection, the action of initial creative forces is still allowed [4, p. 84]. His polemic here is directed towards polemics with N.N. Alekseev, who believed that the absolute ideal is achievable in each specific historical moment [see: 3, p. 24]. **This thesis was not supported by Pavel Novgorodtsev, so in "The Social Ideal" he implicitly polemicized against this traditionally Russian concept.** He moves more and more towards the moral ideal, corresponding, in his opinion, to the moral improvement of the individual, without which no life transformations are possible.

**Novgorodtsev also turned to the Absolute under the influence of Fichte.** The concept of world moral order in Fichte's philosophy is identified only with the highest philosophical principle, with the absolute "I". And the moral world order for him is the Absolute. **In Novgorodtsev's philosophy, this Absolute turns into**

**an absolute ideal.** The search for an absolute ideal was in the traditions of Russian philosophy [see: 7]. Each time, the philosopher says, the desire for the absolute ends only in approaching the ideal, and everything depends on the correct combination of the absolute and the relative in social progress [4, p. 90–91]. According to his understanding, the absolute ideal is not achieved in each specific historical period; its achievement is a very difficult task, carried out precisely in these same historical periods, but gradually, step by step approaching its goal of becoming absolute morality. Yes, the future is unknown and dark, says the scientist, but the moral goal is clear and definite, and even if the ideal is unattainable, then we must want and demand the achievement of this ideal. Lawyer Pavel Novgorodtsev confuses law with morality [3, p. 24], which is clearly seen from his “Social Ideal”, in which he forms a religious and ideological problem [see: 3, p. 90]. The result of this moral work is not important to him. “For a moral commandment,” says the philosopher, “immediate practical success does not matter... And that righteous land in which we must believe, from this point of view, is first of all our duty, a requirement of moral consciousness, a command of an objective moral world order” [4, p.138]. Novgorodtsev, like Fichte, saw in this the moral and highest destiny of man and society. And this is undoubtedly an idealistic philosophy.

The scientist finds the idea that moral progress is only an ascent from more imperfect to less imperfect and “still infinitely far from perfection” [4, p. 91]. He derives the social ideal from the individual principle alone, like Vladimir Solovyov, who once said that there cannot be many moral norms, just as there cannot be many supreme goods or many moralities [4, p. 103]. The concept of personality for Novgorodtsev unfolds in its “unconditional meaning and endless calling”, in the right to a decent human existence [see: 5–6].

**Conclusions. Textual analysis showed the influence of Fichte’s ideas on the moral philosophy of P. I. Novgorodtsev and his social ideal. In addition, the authors clarified the issue of the content of this ideal in the scientist’s works, and also revealed the results of Novgorodtsev’s polemic with N.N. Alekseev on the question of the achievability of this ideal in each specific historical period.**

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培養皿的影響和過去的哲學認知問題  
**THE PETRI DISH IMPACT AND THE PAST PERCEPTION  
PROBLEM IN PHILOSOPHY**

**Apartsev Oleg Rolenovich**

抽象的。以形上學流行假說為研究工具，對哲學問題意義上的過去知覺問題進行分析。結論是關於時間尺度的單向性可能基於人口的性質，作為一個已確立但未解釋的科學概念。本文尋求確認人口理論應用作為研究過去和預測未來的方法基礎的可接受性和充分性，特別是透過使用抽象人口的模擬功能。論文指出，存在著一種歷史知識難以獲取的人口現象，其棲息地發生了根本性的變化，其表現被稱為「培養皿影響」。

**關鍵字：**過去知覺問題、人口理論、矛盾概括理論、信用化、形上學、辯證、培養皿影響。

**Abstract.** *Using the Hypothesis of Popularity as a Metaphysical given as a research tool, the analysis of the Past Perception Problem in the sense of a philosophical problem is carried out. The conclusion is made about the possibly population-based nature of the unidirectionality of the time scale, as an established but unexplained scientific concept. The article seeks confirmation of the acceptability and adequacy of the application of population theory for use as a methodological basis for researching the Past and predicting the Future, in particular through the use of simulation capabilities of Abstract Populations. The paper points to the existence of a population phenomenon of inaccessibility of historical knowledge with a radical change in the habitat of a population, the manifestation of which has been called the “Petri Dish Impact”.*

**Keywords:** *past perception problem, population theory, theory of ambivalent generalization, creditization, metaphysics, dialectics, petri dish impact.*

The purpose of this work is to study the Past Perception Problem (hereinafter referred to as the PPP) in a philosophical and general scientific sense, including in comparison with the Future Forecasting Problem (FFP). The research is carried out using the theory of dynamics of population systems, within the framework of axiomatic attitudes that do not go beyond those inherent in the concept of population theory developed by the author under the title “Theory of Ambivalent Generalization” (TAG).

Earlier, in the works [1...12] devoted to the development of TAG, among other applications, its applicability for building not only an original philosophical concept was discussed, but, most of all, it was considered as a new step in the development of the methodology of cognition of the surrounding world, which makes it possible to obtain answers, including to sacramental questions philosophy.

As part of the discussion, the statement about the unity of any material Object and its Attributive properties was analyzed, which was used as an axiomatic statement about the Dual nature of the Material and Ideal entities [7,10] of all objects of the Universe, without exception, as an initial Metaphysical given. At the same time, an ideal substance expressed by Attributes, inseparable from a locally defined Material Object, is represented as a predetermined ability to interact the attributes of an object with the attributes of other objects, but, at the same time, it is not assumed that such interaction is indispensable.

The next step was to include Populations – sets consisting of uniform objects with a dual essence in the list of legitimate Metaphysical objects, which allows us to significantly expand the boundaries of hitherto exclusively atomic Metaphysical concepts recognized in traditional philosophy.

This approach made it possible to connect the Algebra of intra-population and inter-population interactions to philosophical analysis [5], and it was this algebra that became the operational basis of TAG. Moreover, such a step makes it possible to clarify the place and importance of mathematics in the proposed philosophical worldview doctrine as a tool for the study of abstract attribute sets.

After long (almost 10 years) reflections, consideration of arguments and counterarguments, the conclusion was announced [9, 12] that TAG is the actual expression of Dialectics as a science describing the metamorphoses of dual objects of Metaphysics (both atomic and population), which can also be considered one of the most important results of the development of the proposed concepts.

The entire list of Metaphysical objects was defined as carriers of dialectical laws, as well as these carriers, in their attributive interaction, were established as elements of the executive mechanism of the above-mentioned laws.

The entire list of Metaphysical objects was defined as carriers of dialectical laws, as well as these carriers, in their attributive interaction, were established as elements of the executive mechanism of the above-mentioned laws.

Another significant achievement in the development of population methodology is the extension of the concept of “Consciousness” [4] to any process of assimilation of an arbitrary population in the surrounding World, carried out, including, in addition to external inter-population interactions, through intra-population interactions, defined in the TAG by the term “Credies” [1,4]. In general, the expansion of the zone of applicability of the term “Consciousness” to all populations, regardless of their composition and complexity, makes it possible to consid-

er Population mechanisms as a fairly simple and clear way to solve the Problem of Cognizability of the Universe in the Metaphysical and Dialectical construct proposed by TAG.

At the same time, the mechanisms of population development towards complication, which are the result of gaining new opportunities for interaction with the surrounding space, as the results of the formation of ensembles from heterogeneous populations, become clear. The activity of these processes is determined by two ambivalent mechanisms, one of them is intrapopulation competition in resource consumption, the other is creditization (intrapopulation exchange) adaptive modification of population members, which is described quite fully in the TAG.

An essential result of the population approach is the disclosure of opportunities not only for the processes of population cognition of external, extroverted attributes of arbitrary objects [2,3]. But, also, with the interaction of several conjugate populations, memory and analysis mechanisms can be reproduced, suitable for cognition of internal, introverted attributes belonging to the deep structures of members of a certain population [2,3]. And also, the dialectic constructed by means of TAG allows for the analysis of the dynamic development of Real population systems, by transferring and reproducing their properties on Abstract populations.

Abstract populations are suitable for simulation, that is, capable of generating attribute configurations identical to some other population objects, and, when the necessary conditions are created, it becomes possible to reproduce population processes with similar dynamics. The use of abstract, but still material populations (it should be recalled that only material populations are considered in the TAG) is a very strong solution, also due to their capabilities for prolonged existence in a latent, inactive state. This allows storing copies of the attributes of the original population up to contact with some specific population having associated attributes of “reading” the information states of the Abstract population. The associated population, in fact, plays the role of an operating environment, or at least a means of transmitting information to the operating system about the stored attribute image of objects identical to the original population. With this approach, the population concept allows a structural approach to the consideration of information processes through the operational capabilities of the TAG Algebra, which allows, among other things, a new look at the philosophical meaning of the concept of information, primarily by denying information in non-material manifestations [7.10].

In the works devoted to TAG, it was demonstrated that it is possible to carry out simulation extrapolation of dynamic development for various systems in an abstract way, by identical transfer to model population objects. That is, in fact, TAG interprets the solution of the problems of determining the future object without the object itself as the construction of simulation structures using attribution-

ally equivalent populations, and this, apparently, is a philosophically sound approach to considering FFP.

We will try to use the TAG basis, also, to consider the PPP, according to the stated purpose of this article.

Once again, we emphasize that the metaphysically recognized popularity is taken as the basis of the approach, and at the same time, TAG is considered as the law of dialectical transformations for any metaphysical objects and a way to abstractly describe dynamic changes.

Considering a narrowed field of events consisting only of reversible acts of attributive interaction, it is necessary to recognize that the PPP is the implementation of an inverse function in the task of simulating some one-act attributive interaction. But, attributive interaction, which has an operational status indistinguishable from the direct course of the time process, demonstrates that a step into the Past is completely equivalent to the task of determining the Future in the proposed paradigm. That is, as if there is no difference between the Past and the Future.

Moreover, when considering irreversible attributive processes, it can be seen that they can also be formally reduced to reversible ones, by speculative mutual circulation of the process of generating and destroying objects in a single act of interaction. That is, if you do not set the time orientation as an estimated factor, for example, an increase or decrease in the level of complexity of objects generated in one act of interaction, then it will also not be possible to determine the “time vector” in such a one-time process.

However, the time factor exists, and it manifests itself in an obvious way, but it must be sought beyond a single act of interaction. The time factor is a manifestation of the properties of populations, demonstrating that for two interacting objects in one act, the reverse course of events is possible, but for more than two participating objects and, accordingly, for more than one interaction event, each subsequent event occurring within the population significantly reduces the probability of returning to the previous state, capturing the new general state of the population.

Thus, even the minimum multiparticle sets the time factor, as a result of the consistent fixation by any system of changes in its attribute and configuration statuses.

Based on this, through the inclusion of populations as recognized metaphysical objects, it is possible to take a fresh look at the question of time, both as a physical and as a philosophical concept. Let’s briefly touch on this topic.

### **Do we understand what “time” is?**

If we follow the line of population logic, then time is a sequence of population events that change this population. Moreover, in fact, we can only talk about “discrete time”, that is, each event for a population is a time quantum. There are no events – time is unchangeable.

A legitimate question arises:

**But how do events follow each other?**

**How does it turn out which event happened first?**

If you do not look for difficult answers, then any event for a population is the acquisition of a new status, the steps of its individual self-determination. For an external observer, the essence of the concept of time can be considered a population “metronome” – counting the number of acts of interactions that separate a population from its initial state. With such a chronometer, time processes can be measured, including in other populations.

**What motivates the acts of interaction?**

There is no answer to this question. And maybe it won't be coming soon.

The author's assumption: The initiation of interactions, with the help of fluctuations in some primary physical substance, may be completely unrelated to any temporary processes, for example, it may depend on the density of matter at a specific point in space. In this case, time is excluded from the number of primary natural phenomena, and is only a secondary, indirect projection on the outside world from some basic activity of matter. And, then, time is the pulse of events in a certain population, nothing more. It is clear that this is only an illustrative model.

The purpose of this speculative construction is an attempt to find an explanation for the unidirectionality of the passage of time within the framework of the doctrine of popularity.

The essence of attributive processes lies in the fact that multiparticle interactions, which can include any population interactions, have significant randomization through the establishment of a random sequence of states created one after another in time. The states each time set a unique field of restrictions on further interactions at each step of such a rebuild. This can be imagined in the form of sequentially arranged “sieves” for possible events to be executed. It should be noted that these “sieves” have both a configuration component, which takes into account, among other things, the relative position of all participating objects, and an attributive component, which defines the attributive “golf course of interactions”.

The random direction of population interactions allows us to evaluate only an integral result, understood as some general trend of development for a particular population, although this is often quite a difficult task when evaluating the dynamics of systems. But, along with this, there are quite trivial analytical outcomes, probably one of such outcomes can be attributed to the inertial motion of a certain physical body, as a population object moving outside of external influence, having attributive changes only in geometric coordinates.

It follows from the above, in the context of the issue studied in this article, that the PPP is characterized by a negligibly low probability of restoring the reverse

course of events for population systems by simply “reversing the direction of calculations”.

Moreover, it seems paradoxical to conclude that, even with the complete reversibility of attributive interactions, an attempt to restore the return path of a population from a certain state by its spontaneous and natural attributive transformation, funnily enough, demonstrates only the movement of the population “forward” in time.

And only with a probability of 1/1000...000...000 (depending on the number of acts of attributive interactions that have occurred), the population can theoretically return to the Past state, but everything else is the way to the Future! This is the nature of the processes in populations, and the only way to fully achieve the past is something like a bundle of “Ariadne Threads” for the whole population, that is, fixing all acts of interaction for each member...

However, uncertainty also arises in solving problems with the direct development of systems over time. However, we are used to the uncertainty of future forecasts, considering predictions of the future in the form of establishing a general trend of the entire population, and we treat this as a given.

**-Where is the boundary between the simulation of the past and the future?**

In an attempt to find out the fundamental difference between the direct and inverse problems of studying the dynamics of an arbitrary process, based on the concept of population, we will compile a table of discrepancies in the provision of initial data for the study of the Past and forecasting the Future.

The table indicates the presence of all significant factors that determine the initial and final states according to TAG, **Tab. 1:**

*Table 1*

	<b>State Factors (Yes +, No -)</b>	<b>Past</b>		<b>Present</b>	<b>Future</b>
1	Population configuration	+/-		+	-
2	Environment configuration	+/-		+	-
3	Configuration of the remote environment	+/-		+	-
4	Configuration of the remote environment	+/-		+	-
5	The composition of extroverted environment attributes	+/-		+	-
6	The composition of extroverted attributes of the distant environment	+/-		+	-

7	The composition of extroverted attributes of the distant environment	+/-		+	-
8	Composition introverted environment attributes	+/-		+/-	-
9	The composition of the introverted attributes of the distant environment	+/-		+/-	-
10	The composition of the credies of the population	+/-		+/-	-
11	Method of solving the problem Interpolation Extrapolation	Interpolation			<i>Extrapolation</i>
12	<i>Task</i>	<i>Cognition of the Past</i>			Cognition of the Future

Obviously, the most effective, in terms of accuracy, can be solutions for events that are completely close in time to the “Present”, even in the past, even in the future – where the TAG algebra can be applied directly.

The table shows a significant difference in the possibilities of determining the factors of final states, as well as an obvious difference in the methods of solving problems: Interpolation and Extrapolation. Simple arguments can be given that repeat what has already been said:

Absolute Knowledge of the Past is formed as overcoming a rigidly defined, but, a priori, unknown maze of a sequence of states, which represent fixed coordinates of the state of each population, changing after each act of interaction. It is assumed that only some initial and final coordinates of population states can be known (perhaps partially). To go through such a maze in reverse order, based on the knowledge of the coordinates of the two extreme points, the initial and the final, is incredibly difficult, especially since it is necessary to unravel the entire trajectory of the direct path.

In contrast, cognition of the Future is not yet a maze, but a pure field of possible states. Something like a growing “branch with a fixed end”, the growth of which is determined by the randomness of attributive interactions, and, of course, population algebra.

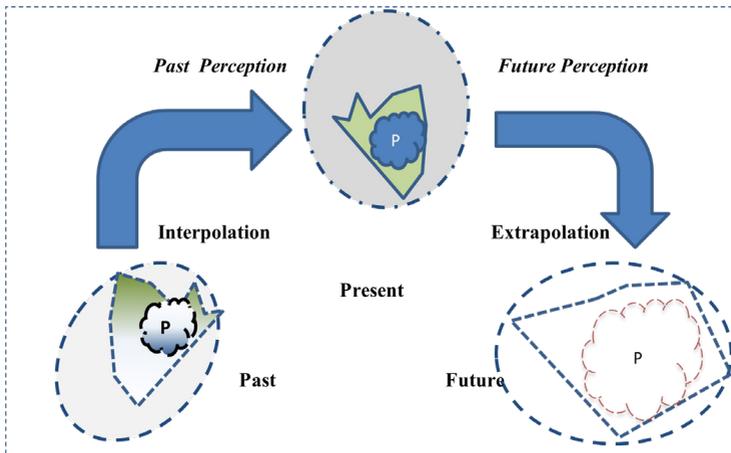
The following comparison can be considered quite illustrative, apparently:

*Let’s imagine that we have a chessboard with pieces at the beginning of the game. If we know the strategies of the players, then we can consider their ideas about the strategy of the game as additional attributes of choice acting on top of the chess rules. Having played a certain number of simulation games, we can know some of the most reliable future, as the most likely trend of outcomes for a*

*real chess game with specific players and their ideas and other, for example, moral and psychological attributes.*

*The inverse problem is solved in the reverse way. On the board, for example, there are two kings and a queen in the checkmate position in relation to one of the kings. Task: step by step to return the game to the starting point of the game. This is an impossible task! And now imagine that, as in real life, the strategy of the game of the participants is unknown, or changed during the game!*

You can try to graphically comprehend the issues under discussion, as an option, according to the diagram shown in Figure Fig. 1, which schematically reflects the past, present and future of a certain population. In it, for the population P, its near and far environment, the color saturation reflects the reliability of the available attribute qualities, and the continuity of the boundaries indicates the presence of reliability of knowledge about the configuration of the population, unlike dotted ones – unreliable knowledge.



**Figure 1**

When considering this scheme, as well as from previous considerations, the question arises:

**-What if we don't know anything from the past?**

Perhaps it would be appropriate to give an example, somewhat extravagant in its excess, and offered in the form of a joke. But, as you know, in every joke, there is only a fraction of a joke:

*Let's imagine that we are a bioculture placed in a kind of glass bowl, with a more or less nutritious environment, thanks to the efforts of Bedlamov, a third-year biology student at the University-At-the-Edge-of-the-Universe, but, because*

*of his sloppiness, we were not taken from the right test tube at all, therefore - by mistake. (All the names and the storyline are an invention of the author, possible coincidences are an accident.)*

*And now the questions are:*

***Is it possible to indicate the creator in this act of outrage?***

***How can we, bioculture, guess about our true origin and our original purpose?***

***If, after all, this action was not done by mistake, but by calculation and volitional way, does it change anything for us?***

From this humorous example, the name for the example in question was born, from which, as will be shown later, there are far-reaching conclusions:

“Petri Dish Impact”

*That is, the impact of a radical change in the environment as the cause of the loss of a true understanding of the past of the population and the lack of an objective possibility of restoring such knowledge.*

It should be said, however, that human Consciousness, which has become a Mind, its power, universal interpretive ability, and previous experience of cognition of the surrounding World, in some part solves the problem of predicting the Future and cognition of the Past.

It can be pointed out that the study of the simplest populations belonging to the sciences from the section “natural science” provides an opportunity to organize a series of experiments to clarify their collective behavior when interacting with other simplest populations, and this is practically at any point of their configuration and attributive states. In such populations, reconstruction of the past, as well as prediction of the future, is quite possible, if experimentally established conditions and circumstances are reproduced in sectors. This is quite understandable: in advance, the relevant science experimentally and simulatively establishes population development trends at every possible point in the population space.

But the ability to understand the past and predict the future often comes to a standstill when faced with complex populations. This is precisely the reason for the endless failures in attempts to take advantage of conclusions from historical events, the results of research into political and social transformations, also bearing in mind economic effects. Objects that form the dynamics of society, and these are ideas and people, create unpredictable dynamics of social behavior.

Social sciences, among other things, lack adequacy in describing the host of populations accompanying human society, and, of course, human society itself is interpreted extremely inadequately.

Hence the result: the complexity of the ideological motives of members of society, with their shameless manipulability on the part of ignorant and, including, biased mass media, which constantly lead to erroneous assessments of unfolding

historical situations in the past and in the present. Moreover, the change of ideas in people's minds is carried out through chronically distorted "historical knowledge", rewritten to please political beneficiaries over a short period of time, which is often less than one generation.

But in terms of tags, this provides incorrect data on the configuration and composition of attributes of very complex population systems! Another source of erroneous judgments about the past are scientific methods based on the analysis of written materials, which are attributed to adequacy in describing the ideological attributes inherent in society, while these materials were often a means of changing public opinion. That is, most of the "historical data" turn out to be deviant to varying degrees.

That is why the social sciences, unlike the natural sciences, lack adequacy in transferring historical examples of the Past to analyze the problems of the present and find solutions in the Future.

Let's not talk in general about the shortcomings of modern scientific approaches to the analysis of social, political, ideological, pedagogical, economic, gender, and other conditions of modern human society, considering all this as content for the formation of attributes of human civilization, or more simply, human ideas of existence. But a one-sided, and sometimes deliberately false interpretation of the historical ideological and social attributes inherent in humanity in the past is a vile gift not only to the present, but to future generations.

I would like to note the methodological possibility of the proposed TAG population concept to substantiate predictive scientific methods, including for rather complex social objects consisting of a large number of small and large social groups burdened with multilevel ideological complexes that can be studied as a projection of their inherent attributive properties.

It seems that the main conclusions of this article can be considered:

- The presence of meaning in the population approach to the consideration of the Problems of Cognition of the Past and Prediction of the Future.
- The possibility of a new look at the Concept of Time through the prism of popularity as a metaphysical given.
- Justification of the methodology of population dynamics of TAG in application to the History of Systems, which can be recognized as a Dialectical approach.
- The irreducibility of the Petri Dish Impact is the effect of the unknowability of the past of the system when changing the initial substrate of its development.
- The validity of the unidirectionality of the flow of Time for population systems, as a consequence of the insignificance of the probability of a return to their original status, possible by a reverse sequence consisting of a step-by-step cancellation of the results of all attributive interactions that occurred.

And finally, the last, perhaps the most controversial thesis of this article:

In most philosophical gnostic approaches, the emergence of the Universe from a kind of embryonic starting state of the World is used as a fundamental principle.

Philosophy cannot afford the baselessness of any view. She is forced to look for answers to imperative questions:

**Was there a point of primary global initiation of the universe?**

**And can we know it?**

In the questions posed, the most important thing is the attitude of philosophy to the unity of the World.

And if the World is one, and we consider popularity to be its essence, then applying the concept of the Petri Dish Impact introduced in the article, we can say that we, the inhabitants of this World, will NEVER be able to answer these questions.

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醫護人員的述情障礙  
**ALEXITHYMIA IN HEALTHCARE WORKERS**

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抽象的。述情障礙是一種以識別和表達情緒能力下降為特徵的心理疾病，在醫療保健專業人員的專業工作中已成為具有重大科學意義的對象。這篇文獻回顧提出了作者關於述情障礙與倦怠、壓力和工作投入現象之間關係的不同觀點。雖然一些研究顯示患有述情障礙的醫護人員遭受這些不利影響的風險可能會增加，但其他研究則強調了這種關係的複雜性。關鍵問題是述情障礙是負面工作經驗的原因還是結果？本文旨在強調這個問題並找到這個問題的答案。

**Abstract.** *Alexithymia, a psychological condition characterized by a reduced ability to identify and express emotions, has become the object of significant scientific interest in the context of the professional work of healthcare professionals. This literature review presents different opinions of authors regarding the relationship of alexithymia with the phenomena of burnout, stress and work engagement. While some studies indicate the possibility of an increased risk of these adverse effects in healthcare workers with alexithymia, others highlight the complexity of this relationship. The key question is whether alexithymia is a cause or a consequence of negative work experiences? This article is aimed at highlighting this issue and finding an answer to this question.*

**Purpose of the study**

The purpose of this study is to examine in detail alexithymia among healthcare workers. Most publications describing this phenomenon focus on its impact on the general population. However, the role of alexithymia in the medical profession remains poorly understood.

The authors suggest that the level of alexithymia in health care workers may be higher due to their increased emotional load and stress. The hypothesis is based on the work of M. Sifneos (1973), who first defined alexithymia as the inability to transform emotions into verbal images.

At the same time, there are counterarguments. Some authors argue that health care workers develop greater levels of empathy and self-regulation to successfully deal with the suffering of others (Decety J., Jackson PL., 2004).

Thus, this article aims to explore this discourse: whether the results will confirm or refute the presence of high levels of alexithymia in healthcare workers.

### **Introduction: Concept and features of alexithymia in medical workers**

Alexithymia, a term coined by Siineos (1973), describes difficulties in identifying and expressing emotions. In healthcare professionals, boredom or stress can increase alexithymic traits, which can negatively impact relationships with patients and overall well-being. Authors Deady & McCarthy (2010) present it as a potential risk factor for professional burnout among nursing staff. On the other hand, Gleichgerrcht et al. (2013) proposed a counterargument: controlled alexithymia may be functional under high-stress conditions by maintaining mental stability. This discussion highlights the need for more in-depth study of the relationship between alexithymia and the medical profession.

### **Causes and factors for the development of alexithymia among medical personnel**

Alexithymia in medical workers is a current topic of scientific research. According to the literature, various factors may predispose to its occurrence. Some authors note professional stress as the main provoking factor (Deychak, 2019), others believe that personality traits and emotional intelligence also play a significant role (Kristinasen, Johnson, 2020). The importance of studying this issue is emphasized by Wright and colleagues (2018), pointing out the potential consequences of alexithymia for the health of staff and the quality of care provided.

### **The influence of alexithymia on the professional activities of medical workers**

Alexithymia, as a psychological phenomenon, is attracting more and more attention from researchers, especially in the context of the professional activities of medical workers. According to the literature (Bekker & Croon, 2010; Parker et al., 2008), alexithymia can negatively affect the quality of interpersonal relationships with patients and colleagues. Brady and Gardner (2017) indicate the potential for increased levels of stress and fatigue in healthcare workers with alexithymia due to difficulty recognizing and expressing emotions.

However, Hemingway and Smidt (2015) talk about the possibility of compensating for the negative effect of alexithymia through the development of professional self-regulation skills. Their ideas are supported by the results of Murray and Collin (2016), who found higher effectiveness of self-preservation behavior in healthcare workers with alexithymia after specialized training.

Thus, the impact of alexithymia on the professional performance of medical workers requires further research.

### **Implications of alexithymia for the health and well-being of healthcare workers**

Alexithymia, defined as difficulty identifying and describing emotions, may adversely affect the health of healthcare workers. The literature has found evidence linking alexithymia with high levels of stress (Taylor et al., 1997) and an increased risk of burnout (Leweke et al., 2012). Some authors point to other consequences of alexithymia: an increased likelihood of depressive states (Hintikka et al., 2004) and problems in interpersonal relationships (Nemiah & Sifneos, 1970). This is alarming from the point of view of the well-being of medical personnel, since their emotional state directly affects the quality of care provided.

### **Methods for preventing and treating alexithymia in medical personnel**

Alexithymia, a condition characterized by difficulty recognizing and expressing emotions, can negatively impact the performance of healthcare professionals. Various approaches to the prevention and treatment of this condition have been proposed in the literature. Some researchers argue that psychological training plays an important role: it helps to become aware of one's emotions and learn to manage them (Fukunishi, 1999). Other authors have proposed cognitive therapy techniques to address alexithymic symptoms (Taylor et al., 2000). As noted in Nemen and Sjögren (2016), an integrated approach combining group therapy with meditation and relaxation has also been shown to be beneficial. Despite differing viewpoints, all experts agree that more research is needed to determine the most effective strategies for addressing alexithymia among health care workers.

### **Conclusions**

According to the authorities reviewed, alexithymia in healthcare workers is a significant problem. Levi et al. (2020) highlight that this condition can affect the effectiveness of communication with patients and colleagues. At the same time, Nemiah et al. (1976) note that alexithymia may be a response to stress and burnout in the medical environment.

Parker et al. (1993) argue that emotional regulation training may help combat this condition. However, Bagby et al. (1994) criticize this approach and prefer to focus on the direct treatment of alexithymia.

Thus, despite different points of view on this issue, all authors unanimously recognize the need for further research in this area to determine the best approach to treating alexithymia among medical professionals.

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俄羅斯聯邦高等教育包容身心障礙學生的發展方向  
**DIRECTIONS FOR THE DEVELOPMENT OF HIGHER  
EDUCATION IN THE RUSSIAN FEDERATION DURING THE  
INCLUSION OF STUDENTS WITH DISABILITIES**

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註解。 提出論點來證明俄羅斯聯邦需要進一步改善全納教育。 分析了高等教育在包容身心障礙學生方面的作用。 描述了可以改善此類學生的教育過程的方法和技術。 本文討論了家長在全納教育體系中的重要性，在全納教育體系中，所有學生，包括有特殊教育需求的學生，都被納入普通教育過程。 也提出了創建無障礙和友善的學習環境的策略。

關鍵字: 高等教育、身心障礙學生、全納教育、無障礙環境和學生支援。

**Annotation.** *Arguments are presented to justify the need for further improvement of inclusive education in the Russian Federation. The role of higher education in the inclusion of students with disabilities is analyzed. Methods and technologies that can improve the educational process for such students are described. The article discusses the importance of the role of parents in the inclusive education system, where all students, including those with special educational needs, are included in the general educational process. A strategy for creating an accessible and friendly learning environment is also proposed.*

**Keywords:** *higher education, students with disabilities, inclusive education, accessible environment, and student support.*

Higher education plays a key role in the development of society and the formation of professional personnel. The modern world is increasingly paying attention to the inclusion of students with disabilities. This aspect of educational improvement promotes tolerance, mutual respect and social inclusion.

Inclusive education is aimed at creating equal opportunities for learning for students with disabilities. In the article we consider the role of higher education

in the process of inclusion of students with disabilities and the prospects for its further development. In Russia, there is an urgent need to improve the inclusive education system, and this is explained by a number of factors, including the development of humanistic principles and awareness of the value of each human person, as well as an increase in the number of children with disabilities.

There are more than 650 million people with disabilities in the world and reports indicate that more than 77 million children are not receiving education, with 30-40% of them having a disability. The vast majority of these children live in developing countries. Statistics show that approximately 781 million people cannot read or write [1].

In order to eliminate the problems of social integration and higher education for people with disabilities in Russia, it is necessary to conduct a comprehensive study that would include an analysis of the institutional context and identifying ways to overcome these problems. In this case, it is necessary to take into account not only legislative norms, but also real practice and problems faced by students with disabilities.

In addition, it is necessary to pay attention to the fact that the problem of accessibility of higher education for people with disabilities is not limited only to the creation of necessary conditions in universities, for example, transport ones. The generally accepted areas of such work are the adaptation of curricula and teaching methods, the provision of additional material support to students with disabilities [2]. We believe that it is necessary to carry out work on teaching communication to students with disabilities during the learning process. Also, it is necessary to prepare students with disabilities for productive activities after receiving a higher education diploma.

In general, conducting such a comprehensive study will identify problematic issues and shortcomings in the higher education system and will help ensure equal opportunities for education and social integration of people with disabilities in Russian society.

In recent decades, issues of integration of students with disabilities into higher education institutions have become increasingly relevant. Inclusive education involves creating conditions for the full participation of all students in the educational process, regardless of their physical, mental or intellectual characteristics [3].

The main objectives of Education for All are:

- development of a concept for including people with disabilities in the educational process;
- development of psychological training, professional attitudes and professional competencies of teachers working with students with disabilities;
- creating conditions for the social adaptation of students with disabilities into the educational space;

-development of a model for the activities of the teaching staff in the field of education of students with disabilities, skills of effective social interaction.

The role of educational institutions in the inclusion of students with disabilities is as follows:

1. Creating an enabling environment for learning: Institutions must provide accessible space and infrastructure, and adapt curricula for students with various forms of disabilities.

2. Support and adaptation: universities can provide support services for students with disabilities, including adaptation to the educational process, organization of individual lessons, consultations and support in solving everyday issues.

3. Development of competencies: studying at a university helps students with disabilities develop professional skills, gain knowledge and experience that will be useful in their future career.

4. Socialization and integration: higher education promotes the socialization of students with disabilities and their integration into society by providing opportunities for communication, participation in public life and the development of social skills.

We highlight the following prospects for the development of higher education in the context of inclusion:

Development of inclusive culture: universities should actively work on forming an inclusive culture, which involves respecting and accepting differences among students. This includes changing stereotypes, training teachers and staff in special methods of work, and creating conditions for interaction between students and those with disabilities.

Increasing accessibility: Institutions should strive to make their educational programs accessible to all students, including those with disabilities. This should include the development of special training materials, the use of modern IT technologies and adaptation of programs.

Cooperation with social partners: universities should plan cooperation with social and medical institutions to ensure support for students with disabilities throughout the entire learning process. This may include extracurricular activities, weekly faculty consultations, medical care, mental health care, and other services.

International cooperation: cooperation with foreign universities can help in exchanging experience and best practices in the field of inclusion, as well as in attracting foreign students with disabilities to study at Russian universities and vice versa.

We highlight the following stages of inclusion:

1. Diagnosis and assessment of the needs of young people with disabilities. At this stage, it is necessary to diagnose applicants with disabilities in order to determine their educational needs and capabilities. This may in-

- clude assessment of physical, mental, intellectual and social development and plans for postgraduate development.
2. Development of individual educational programs (IEP). Based on the results of such diagnostics and assessment, the development of individual educational programs that take into account the characteristics of students and their educational needs. The IEP should be aimed at developing the skills and competencies of students, as well as their successful adaptation in the educational process.
  3. Creating an inclusive environment in the university that takes into account the needs of students with various types of disabilities. This includes ensuring accessibility of buildings and facilities, using special teaching methods and technologies, as well as support from the teaching staff and educational institution employees.
  4. Implementation of individual educational programs. For the successful development of inclusive higher education, it is also necessary to ensure accessibility to all necessary information and communication for students with disabilities. This may include the use of adaptive technologies such as readers and recording devices, captioning of lectures where appropriate, and videos with sign language interpretation.

Adaptation of the learning process is also an important aspect of inclusive higher education. This may include the appointment of individual mentors or coordinators (who may be faculty, graduate department staff, or undergraduate students) who will work with each student to determine their current needs and implement an individual learning plan. Such work should be included in the teaching load of teachers, and should be financially and morally stimulated for department staff. It is also important to provide access to specialized support services, such as psychological counseling or the creation of special skills development classes in first years.

A significant aspect of the development of inclusive higher education is increasing the level of awareness and education among students, teachers and administrators. To achieve this goal, it is necessary to conduct trainings, seminars and conferences, as well as create information resources and materials. The more people are aware of the principles of inclusiveness and are willing to work with diverse students, the more successful inclusive higher education will develop [4].

One of the important aspects of the development of higher education in an inclusive environment is also the cooperation of universities with parents and organizations involved in protecting the rights and interests of people with disabilities. Interaction with parents will help to better understand the needs and expectations of students, as well as create conditions for their successful learning. Cooperation with organizations (for example, a society for people with disabilities ...) can also

facilitate the exchange of experience and resources, and increase awareness of the features of inclusion.

The role of parents in inclusive education is key. They can actively collaborate with educational institutions to provide the best learning environment for their children. They can participate in the development of educational programs and provide information about the needs and interests of their children. Parents should communicate regularly with their child's teachers to stay informed of their child's progress, concerns, and achievements. This will help teachers better understand the child's needs and adapt the learning process to his individual characteristics. Parents also play an important role in providing emotional support to their children. They can help their student child cope with stress, anxiety and other emotional problems that may arise during the process of inclusive education.

To successfully develop inclusion in higher education, financial aspects also need to be taken into account. The government, regional authorities and educational institutions must allocate sufficient funds to create accessible infrastructure and purchase specialized equipment and software.

It is important to note that successful inclusion of students with disabilities requires not only efforts on the part of the higher education system, but also changes in public consciousness and attitudes towards differences. It is necessary to combat prejudices and stereotypes associated with disability.

An important aspect of the development of inclusive higher education is also the support and training of teachers. They need to be trained to identify the needs of students with disabilities and the ability to adapt their teaching methods in order to create an accessible, inclusive educational environment. For this purpose, it is advisable to conduct special trainings and seminars for teachers, where they are provided with knowledge and tools for working with diverse students [5].

It is important to manage these processes, conduct research and monitor the effectiveness of inclusive programs and policies in universities. This will help identify the strengths and weaknesses of current approaches, identify shortcomings and make necessary adjustments. Regular data analysis and feedback from students and teachers will improve the quality of inclusive education and achieve continuous progress.

Finally, it is important to create a supportive environment and culture in higher education where differences are welcomed and respected. This can be achieved through various activities aimed at raising awareness of differences and combating discrimination. It is also important to create opportunities for students with disabilities to participate in extracurricular activities, sports competitions and other activities so that they can fully integrate into student life.

An important area for improving work in this direction is the exchange of experience among universities. Why is it necessary to hold annual conferences under the auspices of the Ministry of Science and Education?

Thus, the development of inclusive higher education requires an integrated approach and involves the participation of all stakeholders. The implementation of these areas will create equal opportunities for all students, regardless of their physical or psychological characteristics, and provide them with a full-fledged education and a successful future.

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論俄羅斯和中國之間的政治和文化互動  
ON POLITICAL AND CULTURAL INTERACTION BETWEEN  
RUSSIA AND CHINA<sup>1</sup>

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抽象的。 文章探討了俄羅斯和中國文化中某種精神和道德共同體，以及俄羅斯和中國之間政治和文化互動表現的一些歷史特徵。

關鍵字：文化、俄羅斯文化、中國文化、文化符號、文化傳統、政治。

**Abstract.** *The article talks about a certain spiritual and moral community of Russian and Chinese cultures, about some historical features of the manifestations of political and cultural interaction between Russia and China.*

**Keywords:** *culture, Russian culture, Chinese culture, cultural symbol, cultural tradition, politics.*

Philosophical, theological, historical, and other literature, the position of ancient thinkers, modern physicists testify that, despite certain differences and cultural characteristics of different peoples, there is a deep basis for the commonality of all cultures, which lies in the integrity of the world and in man's desire for a holistic perception of it .

In relation to the period when man felt himself to be an integral part of the cosmos, in many ancient cultures, including ancient Russian and ancient Chinese

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<sup>1</sup> To the 100th anniversary of the agreement on the free transfer of the CCR to China.

cultures, the basis for ideas about the world order was a universal fundamental antithesis, “chaos-space”.

With the emergence of nature from the cosmos (different peoples perceived it differently), when the transition to History took place, when truth began to be comprehended in logos, when the anthropological principle began to play a significant role, a contrast between good and evil appeared, which had different expressions.

God, Heaven, Space, Nature are the personification of harmony, unconditional, ideal order. Order is the basis, goal and first human need in the social state<sup>2</sup>. Therefore, the urgent task of culture and politics is to identify, from the point of view of justice, morality, an understanding of what is good and evil, their relationship and the establishment of certain restrictions to maintain order in society.

The entire traditional culture of Russia and China was aimed at solving this problem. This is evidenced by the mythological and epic periods, philosophical, historical, political and legal thought of both countries.

Traditional Russian and Chinese thinking is based on the relationship between the divine, heavenly and earthly. The cultural symbol that expressed the laws of the cosmic and natural structure, which determined Russian thinking, state legal consciousness, and state ideology over a long historical period, was the concept of law, which was associated with the righteousness of the spiritual path, true justice and the concept of Orthodoxy, as their justification and glorification.

A specific form of expression of right-justice in earthly life was the concept of truth, which personified cosmic energy, divine grace and served as a model of state-legal structure and legal justice. First of all, a ruler must be fair. Hilarion expressed this in terms of the state of truth, the law of truth, righteous government, a righteous ruler, who, in his understanding, must constantly improve, comprehend grace and do kind, good deeds<sup>3</sup>.

The cultural symbol of traditional Chinese thinking was the category “Tao”, meaning a path characterized by good vitality, grace - “de”, “ren”, a special disposition of the soul, spirituality, enlightenment - “wen”, accumulation, preservation and transmission to subsequent generations .

They determined the characteristics of Chinese culture, based on the requirement to transform an ordinary person into a perfect person, a “noble husband” capable of performing certain functions at the proper level. These requirements are primarily addressed to the ruler, who, being the bearer of power, must enrich his energy potential, achieve the good power of “de” and harmoniously combine it with human forces.

He needs these forces to fulfill his duties: for the organization of society, the state, for governance, ordering life, for performing good deeds and fighting evil,

<sup>2</sup> See: Tikhomirov L.A. Monarchical statehood. St. Petersburg 1992. pp. 17-19.

<sup>3</sup> See: Hilarion. A Word about Law and Grace // Library of Literature of Ancient Rus'. Volume I. XI-XII. St. Petersburg 2004. pp. 26-61; Teachings of Vladimir Monomakh. Ibid. pp. 457-475.

for moving from chaos and destruction to the creation and implementation of ideal political orders in the Celestial Empire<sup>4</sup>.

Russian and Chinese cultural traditions, which had a certain similarity in spiritual and moral foundations and ideological justification, served to accumulate the forces necessary in the political struggle that they had to wage throughout their history within the country and in the international arena.

One of the stages of the political struggle is associated with the geopolitical situation that developed in the second half of the 19th – early 20th centuries, which was characterized by the manifestation of powerful aggression on the part of capitalist countries: England in the Near and Middle East in relation to Afghanistan and Central Asia; England, USA, France, Japan in the Far East. During the Anglo-Russian conflict over Afghanistan in 1885, England tried to complicate the situation for Russia.

Its government provoked the Manchu rulers of China into anti-Russian protests, pushed China into conflicts with Russia, as it did in Turkey, Persia, and Afghanistan, prepared the basis for action against Vladivostok, and hatched plans for the possible use of Japan against Russia.

The Qing government did not make any complications with Russia, realizing that a conflict with it would weaken it in the face of aggression from England, the USA, France, and Japan, which acted aggressively against Korea, which was under the influence of China. She sought to establish control over the exits from the East China, South China and Japan seas.

Korea was also seen as a bridge to the continent, to Manchuria, and a spring-board for the seizure of Chinese territory. For this purpose, on July 22, 1894, the war between Japan and China began<sup>5</sup>.

The war with China in 1894-1895, Japan's penetration into Korea, its involvement in the world capitalist economy, and the actions of the British fleet against the Russian Far East coast created a new political and strategic situation that posed a serious threat to Russia in the Far East.

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<sup>4</sup> See: I Ching. Ancient Chinese «Book of Changes». Zhou Book of Changes. M., 2006. P. 472-479; Classic Confucianism. Volume one. Confucius. Lun Yu. SPb., M., 2000. P. 38-49, 113, 116, 133, 138, 169, 173, 178, etc.

<sup>5</sup> In 1872, Japan captured the Ryukyu Islands, which were vassal states of China. In 1874, she attempted to take over Taiwan (Formosa) with the support of the US government. She tried in 1884 to carry out a coup in Korea, which was under the influence of China, and seize it. In 1875 and 1876 resorted to “gunboat diplomacy.”

In 1884, with the help of troops, she created a government oriented towards Japan, which was overthrown by Chinese troops and Chinese influence was re-established. But the Japanese did not stop their actions aimed at ousting the Chinese from Korea. They told the Chinese authorities that their claims against Korea were of a sentimental and historical nature. But in Japan, the claims are more serious, economic in nature, based on the need for markets. See: History of diplomacy. Volume II. Diplomacy in Modern Times 1871-1914. The author of the volume is V.M. Khvostov. M., 1963. P. 297-332.

Any conflict in the Far East, Russia's inability to ensure the timely transfer of troops complicated its position not only there, but also in Europe, the Middle East, and Central Asia.

Under these conditions, the tsarist government intensified its policy in the Far East. Russia acted as a defender of China from the encroachments of Japan and contributed to the return of Liaodong to China. A loan of 150 million rubles was offered to the Chinese government by gold. On Witte's initiative, the Russian-Chinese Bank was created. The question of the construction of the Siberian railway to Vladivostok was raised, the Moscow Treaty on the "Defensive Alliance" was concluded, which contained an agreement on the construction of a railway through Northern Manchuria to Vladivostok. Its construction and operation was provided to the Russian-Chinese Bank. The contract for the construction and operation of the Chinese Eastern Railway was signed by a representative of the Chinese government and the Russian-Chinese Bank on September 8, 1896. The construction of the Chinese Eastern Railway was carried out in 1897-1903.<sup>6</sup>

In the process of implementing this project and the creativity of a huge number of talented, conscientious, responsible people, Harbin appeared, initially as a station on the Sungari Trans-Manchurian Railway. Since 1901, Harbin was the headquarters of the Zaanur Border District Directorate of the Branch of the Border Guard Corps of the Ministry of Finance, created on the basis of the Security Guard of the CER<sup>7</sup>.

Harbin was built in accordance with the Russian style of urban planning<sup>8</sup>, according to which the main building or area is taken as the basis. This was the square, in the center of which was the St. Nicholas Cathedral<sup>9</sup>, around which buildings were erected.

It was built quickly, had a predominantly Russian population, and Russian culture was established in it. Russian motifs of material and spiritual culture were initially expressed in urban planning, architecture, and cathedral<sup>10</sup>, civil engineering. Residential and government houses, buildings for secondary and higher educational institutions were built. Of interest are the building of the Railway As-

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<sup>6</sup> See: History of diplomacy. Volume II. Diplomacy in Modern Times 1871-1914. The author of the volume is V.M. Khvostov. M., 1963. P. 189-235, 297-332.

<sup>7</sup> Until 1917, it was called the Manchurian Road, and since August 1945, it was called the Chinese Changchun Railway (CCR). Since 1953 - Harbin railway

<sup>8</sup> According to Russian urban planning, a center is determined, from which the streets radiate in the main directions - east, west, south, north, northeast, northwest. The traditional Chinese approach is different: streets are built around a north-south center line, similar to a lattice shape reminiscent of a Chinese character.

<sup>9</sup> Built in 1899. In 1966, during the Cultural Revolution, it was destroyed.

<sup>10</sup> Of the twenty-six Orthodox churches built in Harbin since 1898, five are currently preserved: Alekseevskaya Church, Annunciation Metochion, Iverskaya Church, St. Nicholas Cathedral, Church of the Intercession - active.

sembly and the trading house of the merchant “Churina and Co.” Many streets in the city had Russian names. Russian motifs are expressed in the Russian village, the former Stalin park, in the exhibition hall of Russian painting, in ice art<sup>11</sup>, in the celebration of the “Day of Russian Culture”.

The St. Sophia Cathedral (Sophia of the Wisdom of God) deserves special attention<sup>12</sup>, a former Russian church, now a state museum of urban architecture, art and heritage in Northeast China. It was created in conditions of confrontation with world aggression, exposed evil, leading to the enslavement of the spirit by base material desires, created to support the Russian spirit. It is one of the symbols of the Russian spiritual tradition.

In the Russian spiritual tradition, the temple symbolizes an ideal beginning, a different reality (divine order in theological teaching, cosmic order in Chinese wisdom), to which a person should strive and for this spiritual improvement is necessary. Similarly in the Chinese spiritual tradition: a person, acquiring internal spiritual wealth, enriched with de energy, is able to move from chaos to space.

The Sophia three-domed temple in Harbin, built in the pseudo-Russian style (has elements of Byzantine and Russian temple culture) is crowned with a huge central dome of an onion shape. The Byzantine dome depicts the celestial sphere, the vault of heaven covering the earth. The Russian onion embodies the idea of prayerful combustion, a fiery tongue, a burning candle rushing up from worldly chaos to heaven<sup>13</sup>.

The interior walls of the St. Sophia Cathedral had rich paintings. Three places with religious objects have been preserved. In the center is a sculpture of Jesus Christ. On the right side there is an icon of the Resurrection of Christ and images of Hagia Sophia and St. Nicholas the Wonderworker.

The icon in Orthodox Christianity is an inspiring ideal. It, according to the canonical requirements and restrictions in the field of the “physical component”, in the original Russian icon-painting traditions, must express the triumph of the spirit over material life. It should present the image of a spiritualized person (endowed with the energy of de in the interpretation of Chinese thinkers), elevated above the biologism, materialism, disorder, and evil reigning in the world. The icon served as a symbolic image of the prototype of the future temple humanity.

Traditional Chinese painting was also not aimed at reproducing external images. It is not a reflection of objects, but the artist’s desire to contain the fullness of being and, through an effort of will, to express the convergence of the universal and the individual, which takes place in the depths of the heart’s experience.

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<sup>11</sup> Since 1935, exhibitions of ice sculptures with religious themes have been held.

<sup>12</sup> It was originally erected in 1907 after the completion of the Trans-Siberian Railway, which connected Vladivostok with Moscow. It was rebuilt later on the model of the Epiphany Church in San Petersburg and the Trinity (Shadrinsky) Cathedral in Blagoveshchensk. The illumination of the renovated stone cathedral took place on November 25, 1932.

<sup>13</sup> See: Trubetskoy E.N. Selected works. Rostov-on-Don. 1998. pp. 339-345.

Penetration into depth, characteristic of Russian and Chinese culture, is possible in the presence of pure consciousness, freed from everything evil, worldly, transitory, subjective. Pure consciousness gives spiritual insight and reveals the unconditional truth of existence. It leads along the path of spiritual comprehension of life and gives the ability and will to depict it artistically and write it. An example of such writing, in our opinion, is a painting by a Chinese artist of the 15th century Sheng Zhou «Landscape with a Traveler»<sup>14</sup>.

A. Schopenhauer said that great works of art, let us add - culture as a whole, which are Russian and Chinese culture, must be treated as the Highest Persons.

It is safe to say that thanks to these Greatest persons in the person of the Russian and Chinese cultures, the Russian and Chinese states, which at different times had different names and structures, have survived from ancient times to the present day. And today history entrusts these Greatest persons with a responsible, vital mission - to serve not only the preservation and exaltation of their countries, but also to influence the modern world order.

They could contribute to the recognition and comprehension by cultures of different countries of the deep, general foundations of human existence, the original Logos, the common Origin of humanity. This could give a different direction to the interaction of people, countries, states, continents, contribute to the removal of aggressiveness, which is becoming dangerous today, and the transition to the path of cooperation, co-creativity, awareness of oneself and one's joint co-existence. That is, the transition from chaos, evil to Order, Good, Justice and the beginning of a new cycle of peaceful creation on Earth.

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本都海岸的中國神話  
CHINESE MYTH ON THE COAST OF PONTUS

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抽象的。討論了在東北后海地區發現的 14 世紀婦女墳墓中發現的銀冠板的考古、文化和歷史背景，該板展示了中國神話中月兔的場景。

關鍵字：考古、黑海、西北高加索、烏魯祖奇、銀色王冠、月兔。

**Abstract.** *The archaeological, cultural and historical context of the find in a 14<sup>th</sup>-century woman's grave found in the Norths-East Black Sea Region, the plates of a silver diadem, showing a scene from a Chinese myth of Yue tu, Moon Rabbit, is discussed.*

**Keywords:** *archaeology, the Black Sea, the northwestern Caucasus, Ulu Juchi, silver diadem, a moon rabbit.*

In 1889, V.I. Sizov examined a medieval burial site near Natukhaevskaya village (Anapa District, Krasnodar Region, Russia), which consists of about 100 mounds. The earth mounds, varying in height from 1 to 3.5, are surrounded by rectangular mortuary enclosures made of stones placed edgewise. The corners of the fences are oriented with regard for cardinal points. The graves are located in stone tombs. Up to five tombs with 3-5 people buried in different periods of time were revealed beneath one burial mound.

The biggest of the mounds excavated, 2.5 m in height, contained five tombs. The objects found in the graves, e.g. coins used during the reign of khans Uzbek (1313–1341) and Djanibek (1342–1357) (Sizov 1889: 85), clearly show that the complexes examined date back from the 14<sup>th</sup> century. Special attention was drawn to the fragments of an diadem near the skull of a woman buried in one of the stone tombs (Sizov 1889: 83, Table XIII, 1).

Diadem is a 16 cm long, 2.5 cm wide silver plate. The ornamental composition is based on alternating elements, consisting of large punches (three punches along the plate margins and four punches in the centre), and three round medallions with engraved rabbit images. The images in the medallions are identical. The rabbit is standing on his hind paws and is shown in profile. There is a mortar with a pestle

over it in his anterior paws. The rabbit's head is slightly thrown back, and his eye, nose and mouth are marked with shallow pits; the ears are straight and are turned back. His four paws and tail are visible. The surface, on which the rabbit is standing, is shown by a bold line. The rough curved lines behind his back look like part of a plant ornament. The entire composition is turned to the left. There are traces of gilding on the medallions.

There are eight pits, smaller in diameter, between the medallions stretching along the lower and upper diadem margins. Small holes were made along the upper edge to the right of the central medallion and in the middle of the plate.

Diadems are seldom found in the burial mounds of the northwestern Caucasus. A similar silver diadem was reported from a burial mound near *Raevskaya village* (Anapa District, Krasnodar Region) (Sizov 1889: 89).

A copper rectangular plate with a zigzag ornament intersected by two parallel lines was found on the skull of a woman in grave 5 of a 14<sup>th</sup>-century mound near *Varenikovskaya village*, Anapa District, Krasnodar Region (Nechiporuk 2012. Fig. 543-545). Being an earth grave mound, it is, however, understood as part of a group of burial mounds near *Natukhaevskaya* and *Raevskaya* villages, as indicated by its construction design, the appearance of other objects lying in the grave and areal proximity.

The above plates from burial mounds similar in burial rites and the objects found in the graves, were found not far from each other. They were made using the same technique, display the same ornamental style, undoubtedly have a common origin and fate and should, therefore, be discussed together. We do not know of any similar plates from burial mounds of the same age found in other parts of the northeastern Black Sea Region and the northwestern Caucasus. However, women's headwear with metal decorations has been reported from in these regions, but their shape is different (Levasheva 1953: 186-188; Kramarovsky 2015: 332; Druzhinina et al. 2011: 113-115. Fig. 59-60; Chkhaidze 2017: 218).

A series of platy diadems from medieval burial mounds in Karachaevo-Cherkesia, Kabardino-Balkaria and Northern Ossetia was found earlier, but they date back from the 16<sup>th</sup>-19<sup>th</sup> centuries. (Bidzhiev 1979: 9, 21-23. Fig.3; Miziev 1974: 110-121; Gidzhirati, Tmenov 1988: 176. Fig. 1, 9; Mamukaev 1980: 105, 108. Fig. 11, 1; 14).

Discussing similar plates outside the Caucasus, it is worth mentioning a lamellar plate cut out from a thin forged silver plate found near Lake Nanto in the Ob River area. The plate décor combines two ornamental traditions: beads with the filigree and the grain are the most common types of decorations made by Bulgarian jewellers, but the technique they used to make and decorate the silver plate makes it similar to Upper Kama imitations of toreutics (Fedorova 1996: 102-103, Fig. 43).

The diadem found in a burial mound near Raevskaya village is similar *in shape* to the middle portion of the diadem from Kotnar, Romania, dated at the late 12th – early 13<sup>th</sup> centuries (Ryabtseva 2005a: 454,455, Fig. 2,1). The Kotnar diadem is similar in style to decorations produced by West European jewellers and Old Russian craftsmen of the Ryazan Jewellery School affected by West European art (Ryabtseva 2005a: 454-455).

A platy gold crown from the buried treasure found near Kamenny Brod village, Kiev Province (Ryabtseva 2012: 127, 129, Fig. 1,4) is also similar *in shape* to the Raevskaya find. The crown seems to be an icon board rather than high-society headwear (Ryabtseva 2005: 157). Also similar to the Raevskaya diadem is the plate of a late 13<sup>th</sup>-century Goranu diadem (Romania), (Ryabtseva S.S., 2005, p. 456, Fig. 2, 2,3) (Fig. 3,5–6), and a fragment of a diadem with silver gilded plates from Kemer, Bulgaria, 12<sup>th</sup>-century (Georgieva, Buchinsky 1959: 84-85, T. V,11).

The décor of the Natukhaevsky and Raevsky plates is less pompous, making them similar to more “democratic” headwear such as crowns composed of metal plates with geometric, plant and zoomorphous ornaments on silk cloth. In the 13<sup>th</sup>-14<sup>th</sup> centuries, crowns with engraved plates spread over large territories from the Carpathians-Podniester to the Baltic Region. Such decorations were most popular at that time (Ryabtseva 2012: 148).

The laconic decoration design of Natukhaevsky and Raevsky diadems, usually with individual ornamental elements in the décor-free field, a chain of punches along the plate perimeter, as well as ornamental compositions consisting of large convex dots, make them similar to the objects found in 13<sup>th</sup>-14<sup>th</sup> century nomadic graves over a large part of Eurasia from inland Tien-Shan to Kuban and Don steppes. Plates similar to the medallions of the Natukhaevsky diadem are well-known. Round gold metal plates, showing a lying goitred gazelle from the Neizatsky buried treasure (near Simferopol), are dated at 1310-1360, as indicated by 446 coins found there. They are similar in style and production technique (Kramarovsky 2001: 110).

There is a gazelle in the centre of the Neizats metal plates. The gazelle’s legs are put under her stomach and her head is turned back and upwards. The drawing above the animal’s backbone, resembling a flame spreading from under the shoulder blades of a santzyan, is an antelope, a character of the Chinese bestiary (Kramarovsky 2012: 232, note by Yurchenko: Fig. 58). This mythological animal is shown in the same pose as the goitred gazelles from the Neizats buried treasure portrayed on the enamels of a belt from Sheldzhi (Gorelik 2011: 162-164, Table 1; Kramarovsky 2012: 229-236, Fig. 74,75) and on 12<sup>th</sup>-14<sup>th</sup>-century Chinese mirror stands. The image of a “flaming gazelle” on these objects is inseparably connected with solar symbols, the sun and the moon. For example, the plate and the belt tip from Sheldzhi are decorated with an image of a white gazelle on black “earth”

drawn together with the moon and a magic mushroom, *lin chzhi*, which is eaten to live a long life (Kramarovsky 2012: 234). The goitred gazelle on a bronze mirror stand from the Victoria and Albert Museum in London is shown together with the moon and the sun (Kramarovsky 2012: 234), while the gazelle on a bronze stand from the Hermitage is portrayed together with the moon (Menshikova 2015: 432-433). This scene that became common in Chinese applied art from the Tsin period (1115–1234) persisted up to the reign of the Yuan dynasty (1271–1368) (Kramarovsky 2012: 233-234).

The metal plates from the Neizats buried treasure are assumed to be the same type of objects with “a flaming goitred gazelle”. If our assumption is correct, then these obvious stylistical, technological and areal similarities to the engraved image of a rabbit on the Natukhaevsky diadem could also be interpreted in the general semantic context.

The rabbit image in the centre of a disk dates back from an old Chinese myth of a rabbit (*yue tu*), who lives on the Moon under a cinnamon tree and mills *lin chzhi* mushroom in a mortar all year round to prepare immortality elixir (Myths 1992: 680; Lubo-Lesnichenko, Shafranovskaya 1968: 37).

Scenes with Moon Rabbit are shown on old coins, ceramics, mirrors, mirror covers and mirror stands (Elikhina & Yurchenko 2013: 401; Menshikova 2015: 432-433). *Yue tu* images on Chinese silk cloth are believed to have a special meaning. The images of Moon Rabbit on the sleeves of silk dressing gowns are assumed to be part of a costume worn by nomadic aristocracy in Mongolian time (Dode 2012; Elikhina & Yurchenko 2013: 401).

A scene of *yue tu* preparing an immortality potion has also taken root in a Buddhistic tradition. Moon Rabbit is shown on tangka from the dead city of Khara-Khoto. The celestial body disk rests on a lotus, an attribute of the Moon bodhisattva – Chandragarbi shown on a tangka in Buddha’s doctoring entourage Bhaishadzhya guru (Elikhina & Yurchenko 2013: 401). The rabbit is standing in profile on his hind legs with his back to a tree with a curved grey stem, thick roots and branches hanging over him. The rabbit is holding a pestle with his fore paws over a mortar. The surface on which *yue tu* is standing is not quite clear. The rabbit is white and the contour lines are golden. The black pestle, the black mortar, the tree and the moon disk are also drawn with gold contour lines. The two lower paws and the left upper paw of the rabbit are shown. His tail is short, his ears are set apart and his nose and the eye are visible. The mortar is drawn as a round-sided vessel with legs resting on a stand. Only two of the legs can be seen. The pestle has a rounded lower end and a bifurcated upper portion. The entire composition is turned to the left.

Moon disk images with a rabbit standing in the centre on his hind legs in front of a mortar decorate the sleeves of dressing gowns from Arthur Liper’s collection

(the décor is made using the lampas weaving technique) and a men's dressing gown from the Chinese National Museum (the disk showing the rabbit is embroidered with golden threads on basic silk cloth) (Dode 2012: 255). The surface on which the rabbit is standing is drawn with a horizontal line embroidered with a blue thread. Behind the rabbit's back is a tree with a curved grey stem, thick roots and branches with triple elongated golden leaves hanging over the pestle. The rabbit is white, and the contour line is embroidered with a red thread. The rabbit is shown in profile, so that only his left paws are visible. His tail is short and pointed, his ears are elongated vertically, his nose and mouth are drawn with contour lines and his eye is shown with short blue thread stitches. The rabbit is holding a black pestle by its upper edge. The black mortar is shown as a vessel standing on three legs. The entire scene is turned to the left.

Of utmost interest are finds from Ulus of Jochi which show Moon Rabbit preparing an immortality potion in a mortar. Moon Rabbit is shown on a silk mirror cover with golden threads found in the grave of a rich 14<sup>th</sup>-century woman from Uvek site. She was buried in a wooden coffin in a north-oriented brick tomb. The burial attributes consist of a *bogtag* with a golden filigree sewn metal lotus-shaped plate and a golden bead with a grain design and filigree, a golden ear ring in the form of a question mark with a pearl, fragments of wooden dishes and glass and carnelian decorations (Garustovich, Rakushin, Yaminov, 1998: 102-103, VII, 5; Kubankin 2013: 400-401).

The *round* mirror cover with conspicuous embroidered margins symbolizes the moon disk. There is a rabbit standing on his hind legs in the centre of the mirror. Behind the rabbit's back is a tree. The tree branches with triple elongated oval leaves are hanging in front of him. The surface on which *yue tu* is standing is drawn with a sewn horizontal line which passes into the tree stem. The rabbit's anterior paws are holding a pestle with a rounded top which is lowered into a mortar. All the four rabbit's paws, short pointed tail and elongated ears drawn backwards are visible. The mortar is shown as a round-sided vessel with a conspicuous crown on a pallet or probably on three legs of which only two are visible. The entire scene is turned to the right.

Shown on the sleeves of the dressing gown of a rich woman buried in Ryabichev necropolis (Rostov Region) are disks with a rabbit and a bird in the centre who symbolize the moon and the sun (Dode 2012: 255, Fig. 3a, b). The woman was buried in a wooden coffin in a subrectangular hole with steps and a board cover. Above the cover is a stuffed horse with a complete set of harness, including a wooden saddle wrapped with leather. The woman wore silk clothes, a silk headwear (another headwear, a beret, was lying to the left of the skull) and leather shoes. Her head was resting on an extra pillow-shaped set of clothes consisting of a headwear and a dressing gown showing celestial bodies, a rabbit and a bird. The

woman's face and head were covered with dark silk cloth (Dode 2012: 260). It should be noted that the buried woman represented the Mongolian nomadic elite, but the presence of a stuffed horse in the grave suggests her Tyurkic origin.

The rabbit on the sleeve of the dressing gown from Ryabichev burial mound is standing on his anterior and hind legs of which only two are visible. His ears are extended and drawn backwards and his tail is short and pointed. The tree, the surface on which the rabbit is standing, the mortar and the pestle are not shown. A long sequence of iconographic elements, shown together with *yue tu* on a tangka from Khara-Khoto and on a dressing gown from the Chinese National Silk Museum, consists only of a rabbit and a moon disk. Shown on the other sleeve of the dressing gown is a sun bird, but it has two (not three like the bird in the myth) legs. Z.V. Dode assumes that, on however, that "the images are distorted because there was no social group to control standard symbol reproduction" (Dode 2012: 261). On the other hand, shown on some Chinese finds are Moon Rabbit without a mortar and a pestle and a two-legged sun bird. One example is a burial banner from Mavandui mound (II century B.C.), where mythological scenes, e.g. Moon Rabbit above the moon disk and a moon toad-*chan*, are shown; to the left is a solar disk and a two-legged sun raven (China 2012: 80). A rabbit (without extra attributes) and a moon disk decorate a mirror stand from the State Hermitage (Menshikova 2015: 432-433).

A laconic set of *yue tu* attributes is seen on a buckle from the ruins of old Majar Town (Kravtsova 2013: 402). The rabbit is shown in profile. He is standing on three legs, his anterior leg is lifted, his ears are elongated and drawn backwards, and his eye is marked with a shallow pit. Behind the rabbit is a tree with a curved stem and elongated leaves. The surface on which the rabbit is standing is drawn with a chain of 5 dots. The whole scene is turned to the right. The moon disk is shown with 31 circles.

Discussing the Natukhaevsky diadem, *yue tu* iconography is most similar in the skilful portrayal of major constituents (a rabbit, a pestle, a mortar and the surface on which the rabbit is standing) and a general compositional trend to images on a tangka from Khara-Khoto and on a dressing gown from the Chinese National Silk Museum and on a mirror cover from Uvek, suggesting that the producers of the Natukhaevsky diadem followed Chinese "canons" in conveying the myth of Moon Rabbit.

It should be noted that the objects with *yue tu* from Ulus of Jochi and the environment and circumstances in which they were found are now well-understood. It is clear that they were in the women's graves which could be related to the old Chinese concepts of the moon as a female symbol (in contrast to the sun as a male symbol) (Lubo-Lesnichenko, Shafranovskaya 1968: 37).

The presence of objects with Moon Rabbit preparing an immortality potion in burial mounds is demonstrative. It should be noted that the dressing gowns

from Ryabichev necropolis and the Chinese National Silk Museum were made for burial (Dode 2012: 261). In this sense, images with *yue tu* are the same symbols of immortality on objects placed into graves or made purposely for a burial ceremony. For example, the turtle and crane images were reconstructed on the cloth of the dressing gown (Yurchenko 2013: 257) worn by a wealthy woman buried in the mausoleum of Mayachny Bugor burial mound (Vasilyev 1998: 103-111). Therefore, the diadem with *yue tu* images found in a burial mound near Natukhaevskaya village indicates that the people responsible for the burial ceremony understood the meaning of this symbol.

It should be stressed that 13<sup>th</sup>-14<sup>th</sup>-century graves, where objects showing Moon Rabbit (a woman's grave in Uvek mausoleum, a complex with luxurious silk cloth from Ryabichev burial mound), belonged to the elite of the Mongolian state. Therefore, the archaeological context of the Natukhaevsky find is of special interest.

Summarizing the results of our discussion of diadems from burial mounds near Anapa, seldom found in 14<sup>th</sup>-century finds from the northwestern Caucasus and the northeastern Black Sea Region, and their historical and cultural context, it should be noted that silver "crowns" from Kudyrge and Ust-Aleika-5 burial mounds and the burial complexes excavated in inland Tien-Shan and the Baikal Lake area are a remote prototype of these finds. The ornamental style of the objects (a sequence of punches along the perimeter, the background not filled with decor, dot patterns (crosses or rosettes) and, finally, images of lotus or *yue tu*) is consistent with the tastes of the nomads living in Eurasian steppes in the 13<sup>th</sup>-14<sup>th</sup> centuries. However, this ornamental style is reproduced on the diadem found by V.I. Sizov in accordance with the jewellers' traditions of Kaffa, Solkhat or Carpathian-Dniester workshop, including those with a semantically different implication dominated by Christian cult, as in the case of diadem from a grave near Raevskaya village, or Christian syncretism and beliefs dating back to Old Chinese mythology, like those on the diadem from a burial mound near Natukhaevskaya village.

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策略性城市規劃方法的發展前景

**PROSPECTS FOR THE DEVELOPMENT OF STRATEGIC URBAN  
PLANNING METHODS**

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註解。 如今，俄羅斯的現代城市規劃任務意味著設計量顯著增加，並且需要在最高層級的城市規劃文件開發框架內制定問題解決方案，作為複雜且多因素的策略設計建議。 今天城市規劃科學中要解決的這一級別的問題預示著專家能力的質的擴展以及全新實用方法和設計技術的發展。

關鍵字：城市規劃、策略規劃、城市-生態框架、數位建模。

**Annotation.** *Modern urban planning tasks in Russia today imply a significant increase in both the volume of design and the need to develop solutions to problems within the framework of the development of urban planning documentation of the highest order, as complex and multifactor strategic design proposals. This level of problems being solved today in urban planning science presupposes a qualitative expansion of the competencies of specialists and the development of fundamentally new practical methods and design techniques.*

**Keywords:** *Urban planning, strategic planning, urban – ecological framework, digital modeling.*

Urban planning in Russia has once again begun to face large-scale projects aimed at solving global strategic problems of development and restoration of the country's regions. In conditions when the urban planning science of recent decades did not involve such large-scale projects, today there is a serious need for the formation of new theoretical and practical methods for solving set problems using urban planning methods. Such methods today are inextricably linked with the development of technology, the emergence of technical capabilities for in-depth structural analysis of territories, as structurally interconnected systems of various components of a single natural and anthropogenic environment. Under these conditions, opportunities have increased for the introduction of analytical models that can provide a more informed and high-quality spatial solution. The increase in the volume and complexity of urban planning solutions is associated with a large number of difficulties in the context of a formal approach to the development of project proposals

**Problem:** The need to make management decisions to minimize risks in the development of urban planning projects in modern conditions is due to the constant growth of both the scale of documentation being developed and the complexity of socio-economic calculations for the implementation of project proposals. As the scale of design increases, the overall risks of making decisions that can ultimately turn out to be a source of negative processes in the territory under consideration also increase. In such conditions, the need to develop database systems and expand the range of data considered when designing, introducing the practice of using mechanisms for studying territories using modern technologies becomes an urgently necessary preparatory stage of work. The lack of a clear regulatory, legal and technical database makes it difficult to develop, coordinate and implement balanced urban planning solutions as a system of comprehensive measures with minimal risks.

**Hypothesis:** The formation of a deeper system of analysis and development of a system of urban planning frames (Green frame, water-green frame and others) taking into account the characteristics of both urban and natural areas will create a balanced dynamic model of the development of urban and natural spaces, determine the hierarchy of territorial development as a city, and settlement systems. This approach is based on the consolidation of spatial solutions in accordance with the conditions and characteristics of the functioning of hierarchically and organizationally different territories located in a single system. Such an approach will allow us to talk not only about the creation of comprehensive models for the modernization of local populated areas, but also to determine the urban, economic and environmental strategy for the development of macro-regions of Russia.

**Methods:** Determination of the fundamental provisions of the proposed methodology is based on a combination of methods for comprehensive data synthesis

and their ultimate organization. Thus, a certain algorithm of actions is identified, aimed at developing a comprehensive strategy for the development of territories, including: the formation of a unified GIS model, the development of a dynamic analytical model, the identification of key reference points of the system, the identification of indirect and direct factors influencing the system, the selection of optimal experience, spatial -mathematical solution, optimization of the model in accordance with resource capabilities, regulatory and legal coordination, development of the necessary legal documentation and transition to implementation. Each stage involves the use of its own individual methods that determine local aspects of the development of city territories. Thus, individual stages of developing a model of this scale must be considered as full-fledged sections that require appropriate detail. The methodologies being developed today make it possible to determine the optimal vector for the development of urban areas. The city -ecological model is based on a number of strategic factors that ensure comprehensive spatial development. Each of the factors includes a set of principles that determine its organizational structure. Thus, the hierarchy of the system presupposes the presence of both a vertical system of continuity of spaces connected into a single system, and a horizontal model of their interaction - a functional hierarchy that determines the priority of territories and methods of working with these territories. This development method involves relying on several key systems of the city: natural complex, social, logistics and economic -production. The model considers the human environment as a system of spaces that determine the possibility of realizing basic needs. Each complex is presented as an urban or natural framework, which has both specific problems and features, and the ability to change the scale of the implemented provisions depending on the hierarchical level of consideration. We note that the urban -ecological model as a model for generalizing and collecting information is extremely effective for adjusting large-scale decisions at the regional and agglomeration level, and identifying frameworks at all hierarchical levels will help to obtain predictive models for the development of agglomerations and regions while maintaining biological and environmental balances. Thus, the introduction of the concepts of frames in the Russian Federation was continued by the studies of V.V. Vladimirov [ 3], E.E. Krasilnikova [6], D.V. Bobryshev [1], M.N. Divakova . and Gushchina A.N. [eleven]. The connection of frames at different levels forms not only systems of their horizontal interaction, but also makes it possible to ensure the availability of analysis of their vertical interaction, to assess how higher-order characteristics affect lower-level systems. This method involves developing stains using a buffer method. In other words, it is based on a system of the highest rank, which summarizes the data in large quantities, but is detailed in areas of further elaboration at lower levels. To designate such territories, it is proposed to introduce the term “development zone”. These territories

require comprehensive and detailed study, but their strategic basis is largely based on the provisions of a higher-order strategic development plan. The current methodology for developing documentation does not allow us to consider the regional-strategic level in the system of local projects otherwise than as an “approved sketch”, a preliminary solution, superficially based on the actual situation and developed more substantively only at the next stages. In the course of such development, it is difficult to say that it is possible to take into account all important factors, which inevitably leads to “de-synchronization” of the designed system and the actual situation, which can manifest itself in fundamentally different and sometimes indirect connections, invisible to the local developer. Modern technological capabilities provide us with the opportunity to specify the decision options we make. The parallelism of strategy formation allows for the centralized formation of a unified documentation system, aimed not only at solving local problems, but also allowing us to find growth points necessary for the active development of regions, as well as immediately determine the possibilities for their implementation. The master plan today needs to be changed, to create an alternative form of existence for such a document, replacing it with a more advanced and dynamically changing system. At the same time, the structure of territorial planning documents can be completely preserved and transferred to a similar system without significant changes, becoming more accessible both for approval and for coordination of various participants in the formation of a unified development strategy of a higher level.

	
<p><i>An in-depth model of the micro-level urban -ecological framework using the example of Yekaterinburg</i></p>	<p><i>Fragment of the improvement scheme based on materials from the master plan of the city of Yekaterinburg</i></p>

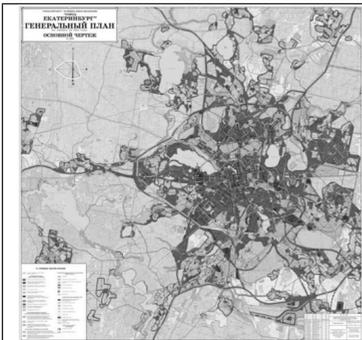
The authors propose a model that includes only three levels of design: a microterritorial level, offering systems of solutions at the level of individual districts, blocks, microdistricts. Taken together, the resulting system of frames includes solutions for landscaping areas, considers public areas from the point of view of space optimization and works in conjunction with city planning and development projects, both introducing individual solutions and proposals, and adapting the environment to these objects, integrating them as complexes. This level allows for a more substantive integration of higher-level strategic decisions into the actual environment, determines development zones and implements natural urban areas as a system of green spaces and infrastructure facilities. In fact, representing the level of urban green infrastructure. In a limited form, a similar scheme is presented in the master plan of Yekaterinburg for 2035. This diagram, however, shows only approximate work areas on a city scale and minimally differentiates the type of these areas. Of course, this level of elaboration is focused on promising investment projects, but its detail remains at a low level, and upon detailed analysis it reveals that there is no need to talk about any single framework, since the promising development includes only a small part of barely interconnected fragments of street - road network. This approach has nothing to do with the urban planning model, but is a model that rather takes into account the needs of the developer and the prospects for the work of housing and communal services.

The mesoterritorial level considers systems of urban and non-urban spaces, acting as a connecting unit between local decision systems and directly strategic spatial systems. In fact, we can say that this level allows us to consider the connection between the external territories of the city and the system of internal ones, the interaction of their individual frames within the framework of one development zone at the urban level.

The natural limit of this level of design remains the territory of the urban district and adjacent territories, in some cases a system of several urban districts. At this level, methods for identifying agglomeration boundaries, boundaries of economic territories and actual settlement systems are laid down, a strategy for the development of a “regional area” and the integration of urban spaces into it are formed. At this level, the factor of agricultural and industrial infrastructure of the development zone also acquires key importance.

Taking into account the specifics of the natural complex at the meso-territorial level makes it possible to develop a system of natural and urban landscaping in the system of urban planning frameworks. In the studies of G.L. Lukin and M.N. Divakova, the role of modern park spaces in a unified green frame system is noted [9], and the system of green frames at the mesoterritorial level functions as a complex and self-sustaining system. In many ways, natural areas of this level remain today in the field of consideration only from the point of view of core systems

- forest parks and, occasionally, natural frameworks. However, the lack of both systematicity of this level of design and detail does not allow us to ensure adequate accuracy when identifying territories for further development of development zones, while remaining a conceptual scheme for justifying the natural framework. However, it is at this level that the system of spatial organization of territories is revealed. With proper detail and comprehensive analytics, it is possible to identify fundamentally more detailed natural-ecological systems, as well as the formation of a qualitatively new development strategy based on large-scale transformations in the region, optimizing and balancing both the natural complex and the urban planning one. Such a strategy may make it possible to form more justified zones of promising development and to lay down the necessary restrictions in these areas in advance. In fact, it implies the creation of a system of detailed natural spatial, engineering and technical functional zoning, defining both settlement systems and zones of industrial and agricultural development, as well as how these systems should function to minimize the negative impact on natural areas, ensuring their connectivity and stability. Only the presence of detailed and high-quality systems of comprehensive analysis can make it possible to identify promising areas for the development of territories and ensure their organic development. The use of integrated models will allow us to reach a fundamentally new level of development of urban planning documentation, ensuring the proper implementation of national projects and truly implementing the principles of sustainable development



*Master plan for Ekaterinburg until 2025*



*GIS model of the Ecological urban planning framework using the example of Yekaterinburg*

In turn, the systematic development of such strategic documents can make it possible to reach a qualitatively different level of development strategy for the entire country. The third level of design, macro-territorial, considers the devel-

opment of similar systems of local strategies and generalizes them into a single vector of development of both the region and the country. Provided that there are developed design systems of similar depth and integrity, it is possible to generalize databases of individual cities and agglomerations into regional and federal systems, and their analytics, of course, in a more enlarged embodiment, indicating the identified dynamics of changes in natural and urban planning on a macro scale. In the early stages, such detail will remain “focal” or buffer. In other words, the detailing of databases in the early stages is limited by the territory of the actual availability of initial data and possible research, representing a conditional buffer zone around individual “development zones.” Such an organization will not take into account poorly developed regions. However, gradually, it will be possible to fill out the federal macro-level of strategic development, identifying both areas that require in-depth analysis and those that require updating . The macroterritorial level involves the formation of a unified comprehensive strategy not only from the point of view of the natural complex, but can also make it possible to determine the overall vector of socio-economic development of the regions. Identification of promising zones for industrial development, optimization of agriculture, identification of zones for restoration or depreciation of natural territories, detailed planning of federal and regional industrial and logistics infrastructure in full synchronization with all data of each territorial entity, each source of resources, identification of hidden sources and a more systematic search for them - this is what a given level of design can reveal, subject to a system analysis. The approach under consideration is capable of restoring the role of strategic planning for the country’s development, defining goals and objectives, and providing the opportunity to find the necessary resources to achieve them. Such a directed approach to design will allow for the utmost systematization of existing data at the initial stages, concentrating them into a single information system, and then identifying areas for further research and determining an economic strategy for achieving them. In the key to the formation of a new development strategy for the country, the concept of a new city model may also emerge. The catalyst for such changes can be the alternative model of planning the country’s spatial development itself. Thus, the emergence of mechanisms for forecasting and implementing a directed, mobilization development strategy creates conditions for a new round of growth in the country’s “ resource-generating ” systems. The active growth of transport and logistics infrastructure, the identification of new growth points for territories can ensure intensive and extensive industrial and economic growth, the basis of which will be a unified development strategy built on the basis of an environmental and urban planning model of sustainable development of territories.

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描繪大流行期間的患者流動狀況

## DELINEATING THE FLOW OF PATIENTS DURING A PANDEMIC

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抽象的。冠狀病毒感染，是人類在2020年底面臨的一種新疾病，它已經奪走了大量生命，對大批人的健康造成了難以彌補的傷害。本文討論了區分大流行期間患者流動的方式以及各州為對抗 COVID-19 大流行而採取的各種活動。

關鍵字: COVID-19、大流行、冠狀病毒感染、病患分割、冠狀病毒控制。

**Abstract.** *Coronavirus infection, is a new disease that mankind is facing at the end of 2020, it has claimed a large number of lives and caused irreparable damage to the health of a large number of people. This paper discusses the way of differentiating the flow of patients during the pandemic and the various activities undertaken by the states to combat the COVID-19 pandemic.*

**Keywords:** *COVID-19, pandemic, coronavirus infection, delineation of patients, coronavirus control.*

### Introduction

One of the challenges of the 21st century is the emergence of new diseases. The pandemic of coronavirus infection is one of the manifestations of this challenge;

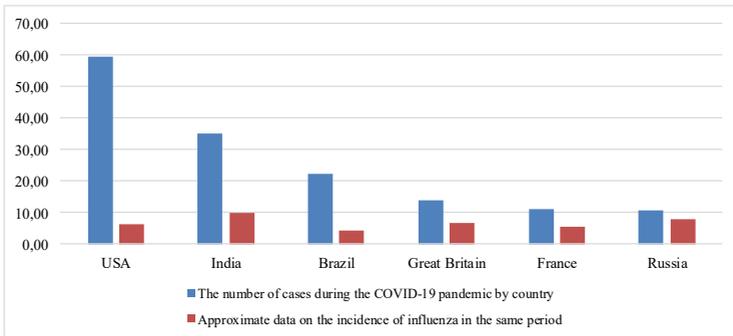
this pandemic has highlighted the imperfections of the health care system in almost all countries of the world.

Under these circumstances, it was necessary for the governments of various countries to effectively allocate and manage their economic and human resources in order to stop the pandemic with minimal losses and in a short time and to overcome its consequences. Despite all the measures taken, the number of victims is in the tens of millions worldwide and the economic damage is estimated at hundreds of billions of dollars.

One of the aspects of effective resource management is the competent differentiation of the flow of patients arriving at different medical institutions, how it happened in the Russian medical practice will be described in this article.

**Materials and Methods.**

Personnel management during the pandemic had certain peculiarities. During the pandemic, every country with a developed medical system faced a large number of problems with the organisation of clinics, health centres and, in general, difficulties in providing medical care to COVID patients, as well as to other patients whose diseases also needed to be treated during the pandemic.



*Figure 1. Influenza incidence data during the pandemic.*

According to the data obtained from open sources, it can be concluded that diseases such as seasonal influenza also occurred during the pandemic, also during the pandemic it was necessary to provide care and monitoring of seriously ill people, as well as to limit this type of patients from contact with patients with COVID-19, as well as in this case overlapped with various seasonal outbreaks of diseases and fevers characteristic of different regions of Africa and Latin America, which imposed on the local health system and staff B

Due to these factors, the medical departments of different countries took various measures to solve these problems. In Russia, the staff of polyclinics whose

main activity was specialization in diseases and illnesses not related to COVID-19 was decided to be additionally trained and sent to assist the staff dealing with the pandemic, thus increasing the number of medics who were engaged in the elimination of the pandemic. One of the methods of increasing the staff was also the tendency to involve undergraduate medical students in this work.

In the United States, timely and effective measures were also taken to increase the number of health professionals involved in pandemic control. During the COVID-19 pandemic, states in which there was an increase in the number of cases were restricting the activities of ambulatory surgical centres and allowing only life-sustaining procedures. Cases that fit these guidelines were: acute trauma, acute infection that would worsen without surgery, presence of potential malignancy, and uncontrolled pain that would require hospitalization of the patient, and another parameter was a condition that could be significant if treatment was delayed.

### **Organization of medical care in outpatient settings**

The heads of various medical organizations providing medical care in outpatient settings urgently needed to ensure: organization and replenishment of the stock of various consumables for sampling for laboratory tests and disease tests, disinfectants and PPE, which includes the following list: goggles, disposable gloves, respirator of the appropriate protection class, first-type anti-plague suit, shoe covers. It was also necessary to ensure rapid hospitalization of patients with atypical and unusual course of acute respiratory infections and out-of-hospital pneumonia. The next step was to ensure admission of patients with various signs of acute respiratory infections through reception and examination boxes and filter boxes, as well as schemes and their further routing and rapid delivery to medical organizations providing medical care in inpatient settings.

One of the ways of dividing the sick during the pandemic was first of all the practice of identifying the sick among the population of cities and towns, for this purpose a number of measures were carried out, which included rapid sampling for analysis in stationary and mobile laboratories, with the subsequent identification of the sick, or people who had already suffered COVID-19, but were the spreaders of the disease, also in crowded places and various places where people congregated there were special people engaged in temperature measurement, for the rapid determination of the incubation period. The tests had a special character, namely, they were repeated after 2-3 days before the expiry of the two-week incubation period.

In order to differentiate the flow of patients, a number of measures were taken and special methods and algorithms developed during the pandemic.

Thus, absolutely all patients with acute respiratory infections, as well as those with an unfavourable epidemiological history, including those with clinical signs

of pneumonia, who arrive by routing to designated or reprofiled hospitals, should be considered as potentially infected, regardless of previous testing. All medical organizations independently make preparations for the start of work on the placement and treatment of patients, including with the involvement of specialists from the Federal Service for Supervision of Consumer Rights Protection and Human Welfare, obtaining the appropriate conclusion, determining the list of premises where infected patients will be located, as well as their movement within the organization, and where the flow of “conditionally uninfected” and “infected” patients will be separated.

General principles of patient triage based on clinical presentation:

1. Initial assessment of the likelihood of infection as well as the severity of the patient’s condition. Collection of an epidemiological history.
2. Assessment of HR and BP, respiratory rate.
3. Pulse oximetry.
4. Thermometry.
5. Measures of nasal and oropharyngeal swabs for COVID-19.
6. Organization of compulsory blood sampling for OAC with calculation of leukocyte formula and biochemical blood analysis: urea, glucose, CRP, ALT, creatinine.

If there is a mass admission of different patients, these activities can be performed in specially designated rooms for initial examination and check-up, also bottom rooms can be located outside the hospital and performed by nurses, trainee doctors. A specially designed checklist is filled out for each patient.

Based on the tests performed, a conclusion is made about the patient’s allocation; if there is a mild form of coronavirus infection, this is not an indication for hospitalization. If there are no indications for hospitalization, the patient will be referred for outpatient treatment. If severe coronavirus infection is detected, the patient will be sent for inpatient treatment to a designated part of the health center, where he/she will be isolated from interaction with other patients.

## **Results**

In order to organize the differentiation of the patient flow, it is necessary to carry out a number of special measures, and for their successful implementation, it is necessary for the state to have certain financial and human resources, which will enable it to stop the pandemic and contain its consequences as soon as possible. In order to achieve these goals, it is necessary to constantly modernize medical hospitals, expand the base of ambulances and emergency vehicles, as well as to constantly work on the competences of future medical professionals, as in such situations a large number of lives depend on them, it is also necessary for the effective treatment of patients who have been separated, thus reducing mortality and saving more patients.

## Conclusion

The differentiation of patients during a pandemic is important because it allows the skills of health-care workers to be used most effectively and economic and human resources to be used efficiently. For example, patients who do not have acute COVID-19 can be transferred to outpatient care, thereby focusing attention on patients with severe COVID-19 who require the most attention and ongoing professional, skilled care.

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各種顛顎關節疾病的臨床表現特點  
**FEATURES OF CLINICAL MANIFESTATIONS IN VARIOUS  
DISEASES OF THE TMJ**

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抽象的。 本文介紹了使用基本臨床研究方法治療顛顎關節疾病的結果。 研究目的：提高顛顎關節疾病的診斷效率。 確定了年輕患者中該關節疾病的優勢。 女性比男性更容易受到顛顎關節病理變化的影響。 根據主要的診斷方法，描述了各種顛顎關節疾病的症狀特徵。

關鍵字：咬合障礙，顛顎關節，研究顛顎關節的基本方法。

**Abstract.** *The article presents the results of using basic clinical research methods for TMJ diseases. Purpose of the study: to increase the efficiency of diagnosing TMJ diseases. The predominance of diseases of this joint in young patients was determined. Women are more susceptible to pathological changes in the TMJ than men. Based on the main diagnostic methods, symptom complexes characteristic of various TMJ diseases are described.*

**Keywords:** *occlusal disorders, temporomandibular joint, basic methods for studying the TMJ.*

Introduction. TMJ diseases remain a hot topic in the modern dental community [2,9]. Currently, pathological changes in the TMJ are considered as a consequence of the influence of various etiological factors, the main part of which are occlusal disorders [1,4]. The polyetiological nature of the manifestation of TMJ diseases in a number of cases makes it difficult to correctly interpret the data obtained about the patient at the diagnostic stage [5,8]. Domestic and foreign sources describe various methods for conducting a comprehensive examination of patients with TMJ diseases, requiring only certain manipulations within the framework of a certain concept [3,7]. Thus, the correct interpretation of the data obtained at the stage of clinical diagnostic methods is relevant.

Purpose of the study: to increase the efficiency of diagnosing TMJ diseases

Materials and methods: A clinical examination of 64 patients aged 18 to 74 years with various TMJ diseases was conducted.

In the process of studying patients, the main research methods were used: collection of complaints, life history, history of the development of the present disease. An examination of the maxillofacial part of the skull was performed with palpation of the masticatory muscles, the temporomandibular joint at rest and during articulation. Examination of the oral cavity was accompanied by assessment of occlusal relationships.

Results.

To distribute patients by age, the recommendations of the World Health Organization were used. A significant predominance of TMJ diseases was revealed in young patients; to a lesser extent they were diagnosed in the middle-aged group; the smallest number of patients were in the elderly group (Table 1).

**Table 1.**  
*Distribution of patients with TMJ diseases by age*

<b>Age group, years</b>	<b>Number of persons</b>
Young (18-44)	48
Medium (45-59)	13
Senior (60-74)	3

At the gender level, there was a tendency towards a higher incidence of pathological changes in the TMJ in women (89%) than in men (11%).

A “clicking” jaw (K07.61) was diagnosed in 25 patients. The main complaints upon treatment were: painless one- or two-sided clicks in the parotid region when opening and closing the mouth, chewing food, and periodic blocking of the movements of the lower jaw. This group of patients had a history of previous dental prosthetics, after which clicking occurred. In some cases, patients previously noted the presence of clicks, the intensity of which increased at the time of treatment. There were patients with intact dentition.

At the stage of examination of the maxillofacial part of the skull, in most patients, facial asymmetry was determined due to displacement of the lower jaw, hypertonicity of the masticatory muscles, deviation of the lower jaw, accompanied by a click in the TMJ area when opening or closing the mouth.

An examination of the oral cavity and dentition showed the presence of orthodontic pathology in the form of non-physiological types of occlusion, a violation of the position of both groups of teeth and individual teeth. When manually positioning the lower jaw into a more physiological position, a number of patients experienced a decrease in the intensity of clicks or their absence when opening or closing the mouth.

TMJ pain dysfunction syndrome (K07.60) was identified in 20 patients. As a rule, at the time of treatment, patients had complaints of pain of varying intensity in the parotid region when opening or closing the mouth, as well as during articulation, tension and discomfort in the masticatory muscles.

The history of this group of patients included previous orthodontic treatment, a long stay with an open mouth at a dentist's appointment, wound prosthetics of the dentition, removable and non-removable orthopedic structures or a combination thereof, as well as the lack of replacement of missing teeth with these structures.

At the examination stage, the majority of patients were determined to have limited mouth opening due to pain symptoms, deviation of the lower jaw at the time of opening or closing the mouth. Palpation of the masticatory muscles revealed pain, accompanied, in some cases, by hypertonicity or asymmetry of tension in the masticatory muscles.

When assessing occlusal relationships, a displacement of the central line by a certain amount was revealed. A number of patients had various orthodontic pathologies, irrational orthopedic structures, and increased wear of hard dental tissues. On the occlusal surfaces of the chewing teeth, large area fillings were observed that did not restore the anatomical shape of the tooth.

In the remaining cases (19 patients), concomitant TMJ pathology was observed.

Conclusions. The most common TMJ diseases were K07.61 - "clicking" jaw, K07.60 - TMJ pain dysfunction syndrome. Each of these diseases was characterized by a specific symptom complex. It should be noted that quite often the disease manifested itself after dental procedures.

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衝擊試驗台  
IMPACT TEST STAND

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抽象的。現代衝擊機器、支架和設備可以足夠準確地確定衝擊力。影響的本質是在短時間內（最多 10<sup>-5</sup> 秒）將一種能量轉換為另一種能量，因此需要能夠記錄計算所需參數的儀器。 [1.p. 12, 2] 在看台上，有必要排除前鋒飛出並落入撞擊登記區的可能性。為此，我們開發了煞車部分並將其引入衝擊裝置的設計中，從而可以有目的地將撞針的出口定向到衝擊記錄區域。

文章提出了一種用於衝擊測試的支架，其中煞車部分製成凹槽的形式，這確保撞針從支架延伸到裝置的錐體中。煞車部分在裝置本體中的準確位置已經確定。考慮了用各種材料製造煞車部分滑槽的選擇以及該因素對衝擊速度大小的影響。

關鍵字：前鋒； 衝擊速度； 衝擊試驗台； 煞車距離； 衝擊力。

**Abstract.** *Modern impact machines, stands and devices make it possible to determine impact force with a sufficient degree of accuracy. The nature of the impact is the transformation of one type of energy into another in a short period of time (up to 10<sup>-5</sup> seconds), therefore, instruments are needed that allow recording the parameters required for calculations. [1.p. 12, 2] In stands, it is necessary to exclude the possibility of the striker flying out and falling into the impact registration zone. For this purpose, a braking section has been developed and introduced into the design of the impact device, which makes it possible to purposefully orient the exit of the striker to the impact registration zone.*

*The article proposes a stand for impact testing, in which the braking section is made in the form of a groove, which ensures that the striker extends from the holder into the cone of the device. The exact location of the braking section in the device body has been determined. Options for manufacturing the braking section chute from various materials and the influence of this factor on the magnitude of the impact speed are considered.*

**Keywords:** *striker; impact speed; impact test bench; braking distances; impact force.*

Having analyzed the currently available impact machines, stands and devices according to the main parameters: impact speed and impact frequency, an additional device was proposed [2, 4], which allows to increase the efficiency of work. When designing and creating an impact device, one should adhere to the principle of manufacturability both at the manufacturing and testing stage, and during its use.

Basically, most developments in this direction are based on the principle of transmitting complex impulses of translational and rotational motion, which contributes to the creation of simpler, more productive and reliable mechanisms. [1, p.228] The main disadvantage of such devices existing today is the low specific energy per unit weight of the machine and the small speed range of the working body, which entails an increase in the weight and dimensions of the device, as well as the use of complex drives and devices, ensuring that the specified impact parameters are obtained.[3]

In addition, installations and stands for studying processes and testing for mechanical overloads must be: reproducible, reliable and able to compare results. [1, p.286]

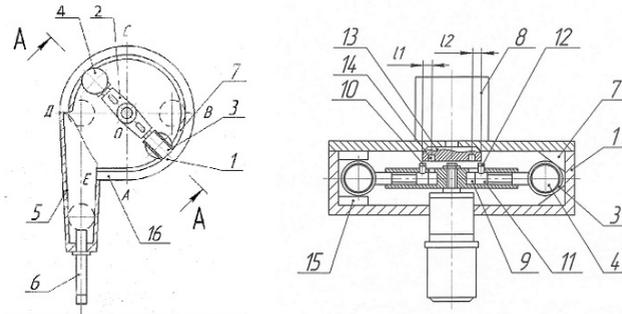
Devices that use the energy of rotating masses can solve this problem. The principle of kinetic energy accumulation, which is used over a long acceleration path of the working body over several revolutions and protects the device body from impact, has a number of advantages over analogous machines with other methods of energy storage.

In impact mechanisms and devices, to obtain translational and rotational movement of the striker, the method of forming a shock-rotational pulse is used by means of a constant-action motor. The calculation of parameters describing shock-rotational pulses is based on the laws of the modern theory of impact of solid bodies.

One of the important tasks when creating a stand is the development and calculation of its braking device, which ensures that the striker flies out at a certain point and enters the cone of the catching device to record the impact parameters. [2] Taking into account the basic requirements, a principle has been proposed for braking products by creating friction forces between the object and the accelerating device. The stand consists of two units, the main ones being: the firing pin acceleration mechanism and the braking unit (Fig. 1).

The principle of operation of the stand is as follows: before testing on the device, the drive is turned off, and the fingers of the holders (12) enter the sockets of the clamp (13). In this case, the rods (11) enter inside the radial channels (9) of the rotor so that the rings (3) do not touch the walls of the brake devices when the rotor rotates. Upon reaching the specified rotor rotation speed, the axial movement drive (8) is turned on, which raises the clamp. The fingers are released and the rods with

rings and strikers (4) move under the action of centrifugal forces to the periphery of the rotor, where one striker strikes the test object. (Fig.1)



**Figure 1.** Impact test stand with braking section (AB)

The ESD section is made in the form of a guide (15) with vertical walls, which do not touch the ball when it leaves the holder; section AE (16), located between the cone 5 and the brake section AB, is made as a straight section, smoothly extended by a curved brake chute 7 in the section AB. One of the balls 4 is fixed in the holder 3 without the possibility of flying out of it and is welded. Moreover, this ball with a holder and a rod has such a stroke that the holder is braked when the drive 8 is activated; and for the other holder of a freely flying ball, the holder does not touch the walls of the chute 7 and guide 15, because it has a short stroke. At the moment the welded ball stops at point B, the ball will fly out of the holder and will then be directed tangentially into the cone.

Thus, by adjusting the angular velocity of the striker, at the moment of passing point B of the braking section welded to the ball holder (counterweight), the striker flies out from the opposite side along a tangent to the trajectory, which ensures that it hits the cone (5) and registers the impact parameters.

In this section, braking is achieved due to friction against the side guides of the body and bottom.

The force acting on the firing pin at the moment of braking is determined by the expression:

$$F_{mp} = \frac{F}{\sin \alpha}, \quad (1)$$

where  $\alpha$  – gutter taper angle. For example, when  $\alpha = 30^\circ$  we have  $F_{mp} = 2F$ , where  $F$  – The friction-sliding force of the ring along the plane is determined by the formula:

$$F = f \cdot N, \quad (2)$$

where  $f$ – sliding friction coefficient,  $N$  – support reaction force,  $N$ .

The determining factor when calculating the friction force is the sliding friction coefficient  $f$ , i.e. the selected material from which the braking section is made and the condition of the surface layer (surface roughness). The quality of the surface layer of interacting bodies also has a significant impact on the friction force

In order to regulate this parameter, the material of the braking section is assigned (Table 1)

**Table 1**  
*Values of sliding friction coefficients for various materials*

№	Materials	Friction coefficient
1	Metal to metal without lubrication	0,15-0,18
2	Sharpening stone for steel	0,94
3	Rubber on metal	0,35-0,45
4	Metal on wood	0,2-0,5
5	Rubber on plastic	0,2
6	Chrysotile asbestos	0,8

As can be seen from Table 1, when assigning a material for the manufacture of a braking section, the state of the surfaces of interacting objects is taken into account - the magnitude of the friction force.

Thus, the braking device of the stand in the form of a curved groove allows you to regulate the direction of the speed of the striker, protects the machine body from impact and destruction.

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住宅小區室外照明控制系統  
**OUTDOOR LIGHTING CONTROL SYSTEMS OF THE  
RESIDENTIAL COMPLEX**

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抽象的。本文討論了戶外照明的遠端控制，並提供了戶外照明的手動和自動開關。露天停車場、兒童和運動場、道路、人行道的照明均採用 LED 燈。從經濟角度來看也有重大好處。

關鍵字：戶外照明、功耗、能源效率。

**Abstract.** *The article discusses remote control of outdoor lighting and provides for manual and automatic switching on of outdoor lighting. Lighting of the territory of open parking lots, children's and sports grounds, roads, sidewalks is provided with LED lamps. There are also major benefits from an economic point of view.*

**Keywords:** *outdoor lighting, power consumption, energy efficiency.*

The infrastructure of any residential, industrial or administrative facility requires the presence of outdoor lighting. The system must operate safely and smoothly. External lighting control is aimed at fulfilling this task. [1]

In practice, three methods of lighting control are used: manual, remote and automatic. [2]

Manual control: The street lights are turned on and off manually. Each light source or its group is controlled by the operator directly on site.

Remote control: over time, technology has evolved - instead of lamplighters, lighting began to be controlled by employees of energy distribution networks. Service employees did this remotely, turning on or off the switch. As a result of the actions, voltage is supplied to the network or, conversely, stopped.

Automatic control: the most advanced way to control lighting. The lighting is turned on and off using sensors that operate according to a specific algorithm. As a result, the lighting system operates without direct human intervention. [3]

Design documentation for the facility’s power supply system is carried out on the basis of:

technical specifications for the development of design and estimate documentation for the project “Construction of an apartment building”

architectural and construction part of the project;

technical conditions for connection to electrical networks (for legal entities or individual entrepreneurs for the purpose of technical connection of power receiving devices, the maximum power of which is over 150 kW and less than 670 kW)

The design scope of this project includes:

external lighting of the local area;

laying power lines for the house and boiler room.

The external power supply scheme for the complex of objects on the land plot from the power system meets the requirements of category II for the reliability of power supply to electrical receivers in accordance with the technical conditions for connection.

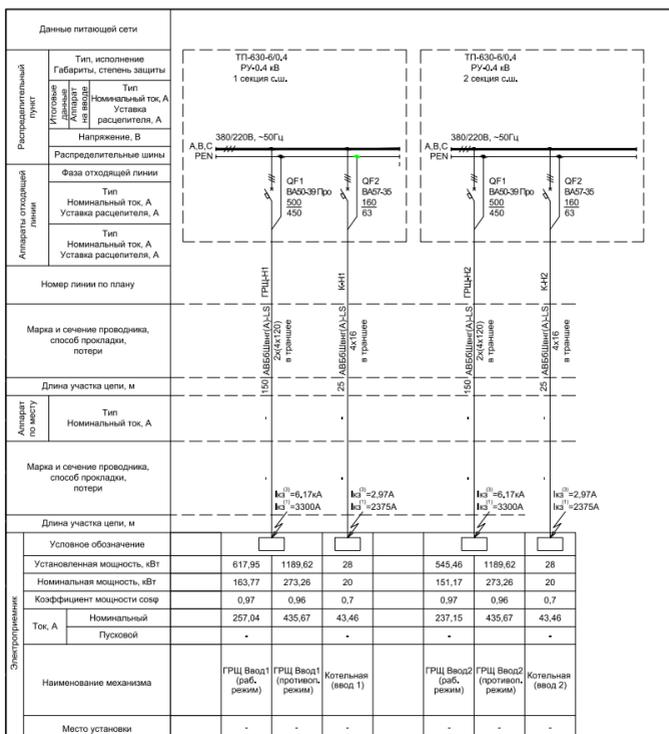


Figure 1. External power supply diagram

The permitted load according to the technical conditions of the power system is 325.0 kW.

To supply power to the complex of facilities, a new two-transformer substation TP-630/6/0.4 kV, with power transformers with a capacity of 630 kVA each, is being installed. The project provides for the laying of cable lines from TP-630/6/0.4 kV to the main switchboard of a residential building and the main switchboard of the boiler house. The power supply to each main switchboard is carried out from different sections of TP-630/6/0.4 kV by two mutually redundant lines laid in different trenches. [4]

Solutions for providing electricity to electrical receivers in accordance with the established classification in operating and emergency modes:

The most important component of emergency response measures is to ensure guaranteed protection of human life and health, preserve and increase the production potential of enterprises, as well as increase the safety of facilities taking into account the risk of natural and man-made emergencies.

Electrical receivers of fire protection systems are supplied with power from the designed PPU panel.

Distribution and power boards are equipped with input three-pole load switches and single-pole or three-pole circuit breakers on outgoing lines with protection against overload and short circuits.

External lighting lines entering the building are made with flame retardant cables, with low gas and smoke emission, with a fifth grounding conductor, with aluminum conductors of the AVbBShvng-LS type, feeding lines with aluminum cables of the AVbBShvng-LS type. Cables are laid:

in the ground in a trench;

mutually redundant supply lines are laid along different routes.

External lighting control is provided from the SCHNO external lighting panel, which is supplied complete with a time relay and light sensors.

Lighting of the territory of open parking lots, children's and sports grounds, roads, sidewalks is provided for:

- LED lamps of the Magnolia LED type with a power of 55W, installed on faceted conical supports of the SAL-60H type, 6 m high, manufactured by Rosa.

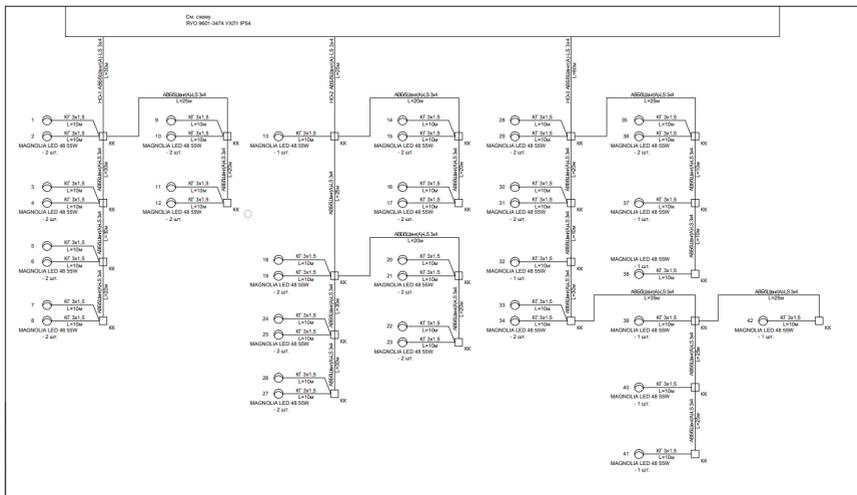


Figure 2. Layout diagram of outdoor lighting fixtures

Standardized illumination levels and quality parameters of the lighting installation are adopted in accordance with SP256-1325800.2016, SP52.13330.2016 and are no less than:

- open parking lots – 6 Lux;
- children’s playgrounds and recreation areas in courtyards – 10 Lx;
- sidewalks separated from the roadway of the streets - 4Lk.

All electrical receivers (luminaires) for outdoor lighting are designed for power supply from a single-phase network of 0.22 kV with a solidly grounded neutral with a frequency of 50 Hz. [5]

Lighting calculations were performed using the Dialux automated program.

Lamps with LED lamps are used to illuminate the surrounding area.

The lamps are installed on supports.

Group lighting network cables are laid:

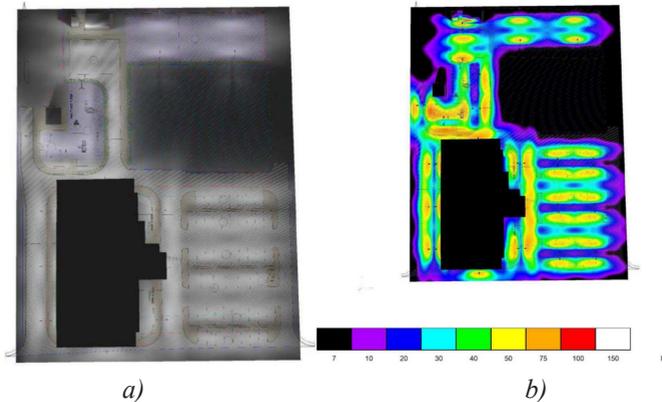
-from the outside of the building in the ground to the lighting supports.

Manual and automatic switching on of external lighting is provided.

Automatic remote control of external lighting is carried out from a twilight relay provided in the dispatch section.

The dispatch section provides for interactive control over the operation of the lighting system from the dispatcher’s workstation.

In addition, it is possible to manually control external lighting (testing) locally using a switch installed on the door of the external lighting control cabinet.



**Figure 3.** Outdoor scene, a) 3D visualization, b) Fake colors – visualization.

The article examined all types of outdoor lighting control, as well as solutions for providing electricity to electrical receivers in accordance with the established classification in operating and emergency modes.

The effectiveness of the DIALux software package was tested for calculating the illumination of industrial premises using luminaires with LED and DRL lamps. The complex allows you to eliminate errors in the design and calculation of lighting installations, as well as increase the efficiency of lighting calculations taking into account the characteristics of specific objects.

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關於俄羅斯北極西段海域微塑膠的出現

## ON THE OCCURRENCE OF MICROPLASTICS IN THE SEAS OF THE WESTERN SECTOR OF THE RUSSIAN ARCTIC

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註解。 VNIRO 收集了大量水樣，以評估過去五年俄羅斯北極西部地區地表水中的微塑膠 (MP) 污染。 所進行的研究使得更新關於MP、合成纖維和其他人為污染物的發生和分佈特徵的數據成為可能。 觀察結果表明，MPs 的分佈性質及其在調查水域範圍內的出現情況每年都在變化。 關於 MP 存在本地化和異常濃度的假設尚未得到證實，這間接表明它們通過北極盆地的洋流和冰進行運輸，以及它們被移出其邊界。 我們認為，由於持續暖化趨勢、北極地區運輸和航運的發展，對海洋生態系統造成的人為壓力增加，包括塑膠污染，需要採取預防行動來保護北極生態系統。

關鍵字：微塑膠、人為污染、巴倫支海和喀拉海。

**Annotation.** *VNIRO has collected a significant volume of water samples to assess microplastic (MP) pollution in surface waters of the western sector of the Russian Arctic over the past five years. The conducted studies made it possible to update data on the occurrence and distribution characteristics of MP, synthetic fibers and other anthropogenic pollutants. Observations have shown that the nature of the distribution of MPs and their occurrence within the boundaries of the surveyed water areas changes annually. The assumptions about the existence of localizations and anomalous concentrations of MPs were not confirmed, which indirectly indicates their transport by currents and ice in the Arctic basin, as well as their removal beyond its borders. In our opinion, the increase in anthropogenic pressure on marine ecosystems, including plastic pollution, as a result of the continued warming trend, the development of transport and shipping in the Arctic region, requires the adoption of preventive actions to protect Arctic ecosystems.*

**Keywords:** *microplastics, anthropogenic pollution, Barents and Kara Seas.*

## Introduction.

Generalization of information about MP pollution of biotopes of the Arctic region [1], discussion of questions about the presence of zones of its accumulation, directions of particle drift and modeling of their transport to the Arctic basin [2] demonstrate the concern of scientists and society about possible serious consequences for the health of natural ecosystems, and the ever-growing need in more efficient management of plastic waste [3, p. 194].

In 2023, VNIRO continued research into the distribution of MP in the Arctic region. In the Barents Sea, these observations have been carried out by specialists of the Polar Branch of VNIRO since 2021 during the joint Russian-Norwegian ecosystem survey (BESS) using an agreed grid of stations [4], which involves obtaining objective and comparable assessments of MP water pollution based on the use of uniform collection and processing methods samples In the Kara Sea, similar observations were carried out by VNIRO specialists in its central and southwestern parts using a unified method using the Manta neuston network in 2019 and 2020 [5, 6].

## Materials and methods

In 2023, 83 samples were collected in the western sector of the Russian Arctic, of which 47 were collected in August-September in the Barents Sea and 36 in October in the Kara Sea.

MP sampling in the waters of the Russian part of the ecosystem survey in the Barents Sea was carried out along route 122 of the R/V Vilnius (expedition leader P.V. Krivosheya), including distribution areas of the most abundant species of commercial fish. During the expedition, materials were collected on the northern, northeastern and eastern borders of the sea, as well as on standard oceanographic sections that cross the main flows of Atlantic currents.

In the Kara Sea, observations were made during the scientific expedition 92 of the Institute of Oceanology RAS (head of the expedition, Academician M.V. Flint) during the period of autumn cooling of waters and the beginning of ice formation. MP samples were collected within the boundaries of the river runoff water distribution, in the Gulf of Ob, at the mouth areas of several bays on the eastern coast of the Novaya Zemlya archipelago, on a tack from the northern part of the island of this archipelago to the ice edge at  $81^{\circ}15'N$  through the St. Anna Trench, as well as along the edge of young ice in the eastern part of the Kara Sea.

Sampling of MPs on the surface of Arctic waters was carried out using a unified method. Trawling was carried out along the direction of the vessel's movement (in circulation only if necessary in the bays and lips of the Kara Sea) at a speed of 2.0-2.5 knots, in the surface layer of the sea using a Manta neuston net with a mesh of 335 microns, equipped with a meter for measuring the volume of passing water through its 600x150mm frame and calculation of the trawling

distance. This made it possible to carry out representative sampling of MP in the surface layer and obtain data on its quantity per unit volume.

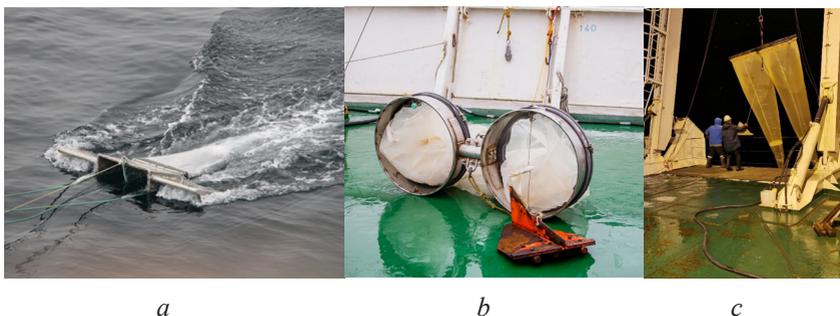
The total number of observations in the seas of the western sector of the Russian Arctic was 180 neuston samples (Table 1).

**Table 1.**

*The total number of MP samples collected by FGBNU “VNIRO” using Manta neuston nets in the western sector of the Russian Arctic in 2019-2023.*

Year	Observation areas		
	Barents Sea (eastern part)	Kara Sea	Total samples
2019		8	8
2020	2	eleven	13
2021	43		43
2022	33		33
2023	47	36	83
Total samples	125	55	180

Carrying out such assessments of anthropogenic pollution is very important in the context of an increase in the content of MP fragments and synthetic fibers in the seas of the Northern Hemisphere, their constant transport to the Arctic basin by Atlantic and Pacific currents, which is aggravated by climate change, the intensity of shipping and growing cargo transportation along the Northern Sea Route. Therefore, in addition to collecting MP samples on the sea surface using a Manta net, samples for analyzing pollutant content in the water column of the Kara Sea were collected using plankton nets Bongo 60 and DNS (double square net) with a 500 µm mesh size, equipped with water flow meters (Fig. 1).



**Figure 1.** Equipment for collecting MP samples: on the sea surface - Manta neuston net (a), in the water column - Bongo 60 plankton nets (b) and DNS (c)

Detailed processing and full analysis of materials collected in the Russian part of the western Arctic are still ahead. It is necessary to sort microplastic particles and fibers to obtain objective, comparable quantitative assessments of pollution of surface waters of the seas in accordance with published methods [7], adapted to the characteristics of the laboratory base, as well as their density separation by flotation, filtration, centrifugation and purification of samples from organic material. At the final stage, the size and mass of particles, fibers and other pollutants, as well as their chemical composition, will be determined using infrared microscopy (IR) and spectrophotometry methods.

### **Results and discussion**

An initial analysis of the collected MP samples using microscopy on board research vessels allowed us to obtain a general idea of its distribution in the research area in 2023.

In the Barents Sea, in contrast to previous years, MP particles were detected sporadically at almost all observation stations. Their highest occurrence in samples was recorded within the boundaries of the distribution of Atlantic water masses and above warm currents, which was also noted during the analysis of materials from joint ecosystem surveys in 2021 and 2022 [8].

A detailed survey of the Kara Sea waters made it possible to obtain new data on the occurrence and distribution of MPs. A distinctive feature of this year was the absence of MP particles on the shallow shelf of the Kara Sea, within the boundaries of desalinated waters of the river runoff, with the exception of the waters of the Ob Bay. As in previous years, they were noted over the deep southwestern part of the sea. For the first time, MP particles were observed in the surface waters of the bays on the eastern coast of the Novaya Zemlya archipelago, which is likely due to tidal phenomena. The detection of MP particles over the deep-sea part of the St. Anna Trench before the onset of ice formation confirms the author's assumption that pollutants enter the Kara Sea from the north from adjacent areas of the Arctic Ocean. A very important result of the observations was the acquisition of new data on the occurrence of MP particles in water samples taken at the edge of the ice during the period of intensive formation.

Quantitative estimates of MP content obtained during VNIRO expeditions showed that the average number of their particles per unit volume in the seaward part and coastal part of the Kara Sea did not exceed 0.025 and 0.002 units/m<sup>3</sup>, respectively. Similar studies by the Institute of Oceanology RAS in August-October 2019-2022 showed that the average MP concentration per unit volume in the water area of expeditionary work varied from 0.003 to 0.015 units/m<sup>3</sup> depending on the number of observations and study areas [9, 10]. The average MP concentration in the waters of the Kara Sea in 2023, according to preliminary calculations, was

0.0104 pcs./m<sup>3</sup>, which does not exceed the quantitative estimates obtained using similar equipment (Manta net) during research in 2019-2022.

Observations in the main biotopes of the Barents and Kara Seas during the expeditions did not reveal areas of localization or concentration of plastic particles (including MP with sizes <5 mm), as in previous years. This indirectly indicates the validity of the assumption [2] that the uniform distribution of synthetic particles across water masses covers a wide time interval of anthropogenic impact, and is due to the circulation of MPs through Arctic ecosystems.

The detection of MP particles in the surface layer of water at the edge of young ice during the period of intense ice formation suggests that after the formation of ice cover, their movement within the boundaries of the Arctic region will be determined by the movement of ice fields. The number of particles in such areas is largely determined by the characteristics of atmospheric circulation in the Arctic region.

High rates of occurrence of particles of synthetic ship paint in neuston net catches, almost throughout the entire study area, indirectly indicate a possible increase in anthropogenic load on the Kara Sea ecosystem, which could have serious consequences. We can agree with the statement [11] that ions entering seawater from coloring additives pose the greatest ecotoxicological hazard. Considering that both the content and mobility of harmful additives in most paint fragments is higher than that of MP particles of the same size, the study of this type of water pollution is no less important. Noted [12, p. 168], that the increase in anthropogenic pressure on marine ecosystems, including plastic pollution, as a result of the continued warming trend, the development of transport and shipping in the Arctic region requires the adoption of preventive measures to protect Arctic ecosystems through the approval of new regulatory documents aimed at minimizing these impacts .

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