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

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Foreword

We thank all participants of our conference "Scientific research of the SCO countries: synergy and integration" for the interest shown, for your speeches and reports. Such a wide range of participants, representing all the countries that are members of the Shanghai Cooperation Organization, speaks about the necessity and importance of this event. The reports of the participants cover a wide range of topical scientific problems and our joint interaction will contribute to the further development of both theoretical and applied modern scientific research by scientists from different countries. The result of the conference was the participation of 83 authors from 7 countries (China, Russia, Uzbekistan, Kazakhstan, Azerbaijan, Tajikistan, Kyrgyzstan).

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

I hope that the collection of the conference will be useful to a wide range of readers, will help to look at interesting questions for the reader under a new point of view, and also will allow to find contacts among scientists on common interests.

Fan Fukuan,

Chairman of the organizing committee of the conference

"Scientific research of the SCO countries: synergy and integration"

Professor, Doctor of Economic Sciences,

member of the Chinese Academy of Sciences

前言

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

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

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

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

知識型員工對創新型工業企業的資源管理
Intellectual employees' resources management of innovative industrial enterprises

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證明了創新型工業企業員工智力資源管理系統的結構模型；它以管理模塊的形式和員工智力化的生殖過程的戰略要素為代表。該模型揭示了管理系統元素之間最重要的聯繫，這是由於在外部，內部和egofactor影響下實現目標管理結果的任務，它還允許：1) 確定員工智力資源管理系統在總體管理中的位置企業製度；2) 評估企業內外部環境的影響因素，以達到管理的目標效果；3) 正式確定創新型工業企業內部員工智力資源管理系統的要素及其相互作用的特點。

關鍵詞：人才，管理，智力資源，創新發展，產業，創新型企業。

Annotation. *A structural model of employees' intellectual resource management system of innovative industrial enterprises was proved; it was represented with strategic elements in a form of management module and a reproductive process of employees' intellectualization. The model reveals the most important connections acting between the management system elements due to the task of achieving target management results in external, internal and egofactor influences and it also allows: 1) to determine the location of employees' intellectual resource management system at total management systems of the enterprise; 2) to assess the impact factor of internal and external environment of the enterprise to achieve the targeted results of the management; 3) to formalize elements of in-house employees' intellectual resource management system of innovative industrial enterprises and their interaction peculiarities.*

Keywords: *personnel, management, intellectual resources, innovative development, industry, innovative enterprises.*

The article aims to address actual for modern international and Russian industry practice problem of human resources innovative processes in priority areas of modernization and technological industrial development on the innovation base.

The fact is that currently a new postindustrial technological way of the sixth generation is forming, its driver is the integration of nano-, bio- and information technologies, and it inevitably entails global structural economic changes and forms entirely new models of production and management. Resources are updated differently under conditions, first of all resources that are accumulated within human intellectual capacities; they are soundly viewed as intellectual-resource basis of technological modernization of the economy on the innovation base.

This stage of technological evolution is both as a challenge as a "window of opportunities" determining strategic vector of modern industry development in the international scope including national spheres of human resources, where there is a hard problem of insufficient number of high intellectual and innovative competent employees in many developing industrial areas. Under circumstances, the sought result of industrial human resources management is the qualitative employees' development aimed at innovative result, i.e. to improve connected with operating activities knowledge, skills, experience integrated into qualification level determined with professional competencies in the innovation sphere.

As a result, there is a necessity to revalue targets of industrial enterprises management, particularly in terms of personnel management on the basis of innovative development priorities raising management interest to the intellectualization of personnel and employees' innovative competencies development on the basis.

It should be noted that international and Russian theory and methodology of human resource management, though being presented by a variety of concepts including concepts focused on modern aspects of management due to technological and structural changes in the economy on the innovation basis, but they do not give a sufficiently clear idea of the specific administrative problems in the area of innovation competencies development and employees' intellectualization addressed to the problems of diversification and technological modernization of the industry, and it is an actual scientific problem.

Thus, impossibility to ensure effective human resource management of industrial enterprises in new economy based on traditional approaches developed for the conditions when the present-day industrial enterprises of innovative types already cannot implement their activities, so it determined the central idea of the article, concluding at employees' intellectual resource management simulating of innovative industrial enterprises on the basis of infrastructural-reproductive approach.

Findings allow to investigate, to design and to implement appropriate management systems and mechanisms into the management practices of industrial and production human resources, with their help to develop employees' innovative competences targeted to positive attitude towards the renewal and creative destruction in the interests of diversification and technological modernization of the industry.

In addition, findings can be used in the development of "*lifelong learning*" concept, in particular in elaboration of organizing aspects of using "*lifelong learning*" elements at the enterprise level. "*Lifelong learning*" education is known to include all targeted educational activities (formal and informal) implemented on a continuous basis for the development of employees' general cultural and professional competences formed in the process of educational skills obtaining. *Lifelong learning* is significant, for example there is 89.2 % of population in Austria, 82.0 % of population in Slovenia, 81.9 % of population in Luxembourg, 79.7 % of population in Dane and so on [1].

The relevance of the scientific problematic, the lack of employees' intellectual resource management research of innovative industrial enterprises have determined the choice of the theme, goals and problems to be investigated, their findings are presented in this article.

A distinctive feature of competitive innovative industrial enterprise today is orientation to produce in-depth intellectual required products by implementing innovative process in active mode. Consequently, more and more crucial meanings for effective functioning of innovative industrial enterprises acquire the development of innovative employees' competencies due to the need of focused intellectual perfections of employees. The main prerequisites for defining needs of in-house employees' intellectual resources management development in the system of corporate management of innovational industrial enterprises are:

- necessity to develop strategy and tactics for employees' intellectual resources management;
- quite a wide range of specialized functions for employees' intellectual resources management;
- need to improve information-analytical support of process of employees' intellectualization;
- necessity dictated by economic expediency, to raise management decision quality in relation to employees' intellectualization process;
- possibility of reducing the degree of uncertainty and risk when implementing innovative projects in the enterprise;
- necessity to coordinate interactions of many different enterprise units; their activity is connected with employees' intellectual resources;
- specificity of tools and methods of employees' intellectual resources management;
- possibility of increasing the efficiency of distribution and usage of employees' intellectual resources;
- real opportunity of multiplication of enterprise income from efficient use of employees' intellectual resources in innovative processes.

It should be emphasized that for the industrial enterprises adequate conditions

of innovative economy systems of employees' intellectual resources management are not just necessary, but become into life-support system, they are a source of intellectual energy - the most productive of all forms of energy in conditions of current innovative industrial enterprise.

Obtained during the study notions on the specifics of employees' intellectual resources management of innovative enterprise allowed to propose principles of classification and to identify the basic characteristics of the employees' intellectual resources management system (EIRMS) (Table 1).

Table 1. The basic characteristics of the employees' intellectual resources management system of innovative industrial enterprises

Kind of characteristics	The system characteristics
1. Significance and content	Infrastructural-reproductive system of employees' intellectual resources management in the priorities of the enterprise innovation development
2. Stage of development	Forming
3. The degree of interaction and dependence from the environment	Open: the operation involves using of certain resources of the environment for development of employees' intellectualization, causes the release of innovative products into the external environment
4. The adaptation degree to the environment	Adaptive (flexible): structure, the inter-system organization of management, resources
5. The organization level	Complex, structural
6. The level of management	Managed (management depends on the comprehensiveness of employees' intellectualization with management functions)
7. The response to environment conditions	Reflective (functioning is relatively poorly amenable to formalism)
8. Dependence of the functioning on random events	Probabilistic (it functions under the action of a large number of random factors, it is necessary to have a relatively clear view of the sources of random impacts)
9. The behavior nature in time	Dynamic (dynamic is due to the possibility of transformation into a qualitatively new state)
10. Discontinuity during time	Continuous (state of controlled management parameters can be estimated at any time point)

Employees' intellectual resources management system (EIRMS) of innovative industrial enterprise (Fig. 1) has been designed on the basis of infrastructural-reproductive approach [2, 3].

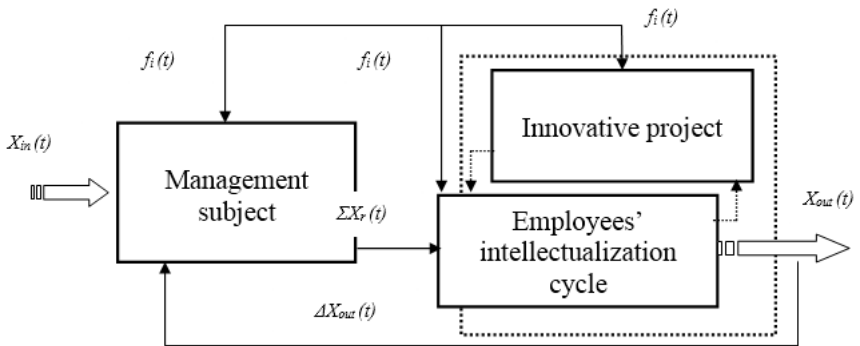


Fig. 1. Model of employees' intellectual resources management system: infrastructural-reproductive approach

- $X_{out}(t)$ – result of employees' intellectualization management – output index as a complex assessment of economical parameters of employees' intellectualization potential;
- $X_{in}(t)$ – tested (input) impact to the management subject (reference management parameters);
- $f_i(t)$ – factor impact of inner and outer enterprise environment causing not planned changes of output index $X_{out}(t)$;
- $\Sigma X_r(t)$ – managing (regulating) impact to the employees' intellectualization process;
- $\Delta X_{out}(t)$ – deviation $X_{out}(t)$ from reference management parameters

EIRMS model design aim is to develop logical structure of employees' intellectual resources management of innovative industrial enterprises. A number of stages preceded the development of this model:

- formalization of employees' intellectualization process as a management object;
- justification of functions and definition of employees' intellectualization management principles;
- identification of the content and algorithmization of consecutive stages of employees' intellectualization management as a nontraditional management object;
- definition of the functional range and structure of the subject of employees' intellectual resources management system;
- systematization of the impact factor in the field of employees' intellectualization management and determining of factor interaction characteristics in this area;
- establishing criteria for effective management;
- identification of possible tools for management implementation.

The structural model of employees' intellectual resources management of innovative industrial enterprises being presented with backbone elements in a form of a module of management and reproducing process of employees' intellectual-

ization, it opens the most substantial connections acting between the subject and the object of management due to the task of achieving the target management results in terms of external, internal and egofactor influences.

In the developed management model the external management parameters are set by command impact $X_{in}(t)$, and it is as strategic aims and tasks of the enterprise in the sphere of employees' intellectualization, it contains the parameters of economic indicators of employees' intellectual potential; they are reference to the subject of management reflecting positive management experience both as of the enterprise as of the leading companies in this sphere (region, country, world economy).

Management index value $X_{out}(t)$ determined with actual combination of parameters of quality, quantity, usage of employees' intellectual resources, is a result of employees' intellectualization management in the current period describing the management efficiency.

The presented model of employees' intellectualization management system combines internal management of perturbation $f_i(t)$ - factor influence of internal and external environment of the enterprise including egofactors, as well as economic indicators parameters deviations of employees' intellectual resources from the reference value $\Delta X_{out}(t)$, i.e. parameters of intersystem operative management are determined with elements of main feedback $X_{out}(t)$, and also impact factor $f_i(t)$.

Thus, the total management impact $\Sigma X_r(t)$ to the employees' intellectualization is formed under the influence of the perturbing factor impact $f_i(t)$, also because the observed deviations state of the management object from the reference trajectory. The components of the total managing impact ΣX_r to employees' intellectualization are:

$$\Sigma X_r = X_{rpl} + X_{rj} + X_{rd} + X_{ryu} + X_{rrr},$$

where X_{rpl} , X_{rj} , X_{ryu} , X_{rd} , X_{rrr} are respectively regulating influence on the planning, formation, development, usage, transforming of employees' intellectual resources.

A comprehensive economic evaluation of employees' intellectualization management results in a form of regular monitoring allows to set precision in motion within EIRMS along «planning, formation, development, usage, transforming of employees' intellectual resources» relative to selected reference values to develop and to apply necessary corrective actions of managing nature.

A comparison of the level of achieved indexes of employees' intellectualization management to the reference level identifies fluctuations from a predetermined management program that can be negative. These findings make it possible to identify problem areas of system functioning of employees' intellectual resources management to recommend a complex of corrective actions to eliminate them.

Integral indicator of employees' intellectual resources management effective-

ness is an indicator of actual profitability of employees' intellectualization (I_{apei}):

$$I_{apei} = P_{us.eir} / C_{eid}$$

where $P_{us.eir}$ is profit from the use of employees' intellectual resources in the innovation process in the reporting period; C_{eid} are costs for employees' intellectualization development in the reporting period.

In total, offered by the author model of employees' intellectual resources management system can have an impact on the management orientation of modern industrial enterprises and the range of acceptable from the innovative development interests point of view variants of organizational decisions in the field of employees' management, namely:

- to establish a communication between the employees' intellectual resources management system and the general system of management at the enterprise;
- to take into account the factorial influence of internal and external environment of the enterprise;
- to specify the elements of the in-house employees' intellectual resources management system;
- to form the criteria of effective employees' intellectual resources management;
- to identify tools of regulating impact to the process of employees' intellectualization of enterprise to achieve the targets management indexes.

The initial term of employees' intellectual resources management with a view to subsequent implementation of this process, is awareness of economic nature of employees' intellectual resources including their reproductive specificity, terms for the effective implementation of reproductive process, principal standards of management organization. The main types of resources regulating conditions of organization and management implementation of employees' intellectualization are: employees' intellectual potential (human resources), investments (material resources); information, objects of intellectual property (intangible resource component).

These conditions cause the strategic goal, objectives, principles of employees' intellectual resources management, interconnected with common strategic position of innovative industrial enterprises. Next management stages are connected with development or improvement of in-house employees' intellectual resources management system: management functions forming; selecting of the organizational decisions option; substantiation of regulating impact measures to employees' intellectualization process; determining of service instructions and regulatory documents; methodical technologies to economic assessment of employees' intellectual resources and innovative competencies; assessment and analysis of employees' management effectiveness.

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精益生產利潤的金融流調節器模型

Model of the regulator of a financial stream of profit of lean production

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Candidate of Economic Sciences, Associate Professor

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本文還介紹了對精益生產利潤金融流量調節係數計算基礎的理解，生產推拉系統利潤流的形成差異以及精益生產的優勢。

關鍵詞：利潤，精益生產，拉動系統，模型。

Annotation. *The understanding of basis of calculation of coefficient of regulation of a financial stream of profit of lean production, difference of formation of a stream of profit of the push and pull system of production, and also advantage of lean production is covered in article.*

Keywords: *profit, lean production, pull system, model.*

At present, the interest in lean manufacturing in the Russian economy is growing, but at the same time relevant financial and economic issues are relevant and significant.

The preliminary research conducted by the authors, according to Russian companies, of the problem of determining the financial flow of profit and the growth of the profit of lean production, showed that its solution is transferred to a different plane, namely, to develop a system of indicators for lean production, demonstrates achievements and results by months, results of the year, while various options are envisaged. For example, the effectiveness of introducing lean production of an industrial enterprise can be obtained on the basis of expert assessments and a group of indicators of the fulfillment of the objectives of the production system, while the economic effect is due to savings, namely, the cost difference [3].

Another option is to assess the economic efficiency of projects for the introduction of lean manufacturing technologies [4]:

$$E_{unit\ cost} = \left[1 - \frac{AC1}{AC0} \right] \cdot 100\%, \quad (1)$$

where ACI - average unit cost of production in the current period;

$AC0$ – present average unit cost of production in the base period.

If the value of the indicator is greater than zero, then the introduction of lean manufacturing technologies can be considered cost-effective, if less than zero, then an additional analysis of unit cost is necessary to exclude one-off costs that are independent of the process of introducing lean manufacturing technologies.

In addition, often in a generalized form, the advantages of using and applying the lean manufacturing system in Russia and abroad, as well as improvements in the sectoral aspect, are disclosed [5].

In this paper, lean manufacturing is viewed as a business system according to the internationally recognized terminology Lean Enterprise Institute [2].

This logic is due to the development of a model of the regulator of the financial flow of lean production. The research is focused on revealing the basis of the financial flow of profit and the growth of the profit of lean production.

At first glance, a view can be formed that lean production is a low level of unfinished production. On the one hand, it is correct that surplus stocks are incompatible with lean production, on the other hand, simply reducing stocks does not at all mean the creation of a system of lean production.

The production system must be efficient in terms of productivity, time and reserves, should reduce the variability or variability of processes to be a lean manufacturing system.

The experience of Toyota demonstrates that the company's long-term work organization was focused on eliminating key sources of process variability, which, in fact, provided a long-term competitive advantage and a basis for increasing the financial flow of profits, profit growth.

The transition of a system from mass production to lean manufacturing can include the following stages and specific actions:

1. Reduce losses: eliminate typical sources of losses, for example, unnecessary operations, equipment outages, expectations due to personnel errors, and others.
2. Ensure replenishment of short-term storage (sufficient for supermarkets) sufficient for production.
3. Reduce the variability of processes.
4. Optimize resources, allocate resources near production.

The final stages of eliminating process variability and optimizing resources require constant and cyclic execution.

On the basis of this, the following advantages of lean manufacturing are achieved:

1. Reduction of costs due to reduction in work in progress.
2. Quality improvement in connection with the emphasis on internal, built-in quality.

3. Improved customer service due to the reduction of cycle time and the certainty of the results obtained.

4. Increase flexibility, not volatility, according to the fact that the operating activities are drawn into the system when required.

The result is a system of lean production and scientific organization of labor, which can then be transformed into flexible production.

It is known that a low level of work in progress reduces the cycle time. In this connection, it is required to limit the work in progress with an allowable interval. This provides a predictable result of production, allows you to shorten the lead times for customers. Limitations of the work-in-progress interval or its constant value allows the company to remain flexible in order to make changes in orders or products.

In this connection, the advantages of the pulling system in relation to the pushing system are obvious:

1. In the pulling system, it is sufficient to simply visualize and regulate the work in process.

2. The pulling system achieves a given level of throughput with minimal investment in the stock.

3. Pulling system has a minimum sensitivity to errors in the regulation of the level of work in progress.

The pull system is able to achieve higher throughput (throughput) for the same average unfinished production level than a similar push system, provided processes are identical in both systems.

To determine the regulator of the financial flow of profit, we use the well-known dependence [11]:

$$H_{3n} = \Pi_c \cdot T_c, \quad (2)$$

where H_{3n} – work in progress;

Π_c – productivity (throughput), pcs / hour.;

T_c – cycle time, hours.

This dependence reflects Little's law. Little's law states that for any given productivity, the average time of a production cycle is directly proportional to the amount of work in progress that is being processed [11].

The profitability of production can be considered as the ratio of profit to the amount of costs due to its receipt. Profitability of production is the most important indicator, which usually characterizes mass production.

At Russian enterprises, the profitability of individual products and the profitability of the entire production are taken into account.

The total profitability of production is defined as the total profit of the enterprise to the sum of the average annual value of fixed productive assets and the average annual standard of the company's current assets.

The profitability of individual products is the ratio of the difference in the market price of the product and the total cost of the product to the total cost of the product.

In the transition of production from the mass production system to the lean manufacturing system, it is important for the manager to know, not simply the fact that the system will be profitable or profitable, but also what is its ability to increase financial efficiency, which is determined by the regulator of the financial flow of lean production profit

The ability to increase the efficiency of lean production is expressed in the growth of profit per unit of output, depending on the throughput of the value stream, as well as the reduction in costs per unit of output that did not pass through all the manufacturing stages provided for by the technological process, which has not been tested, technical acceptance located in an uncompleted component a form not ready for implementation.

Then, following the logic discussed above, the model of the regulator of the financial flow of profit of lean production has the form:

$$K_{\phi n} = \frac{\Pi_c \cdot a}{H_{zn} \cdot c}, \quad (3)$$

where $K_{\phi n}$ – lean factor, %;

a – profit per unit of output, as the difference in the selling price and all expenses, except for the expenses associated with the temporary replenishment of the components necessary for the production of the product (unit of output), their short-term storage in the places of placement (supermarkets), rub.;

Π_c – productivity (throughput), pcs / hour.;

H_{zn} – work in progress, pcs.;

c – the flow of costs due to the temporary replenishment of the components necessary for the production of the product (unit of output), their short-term storage in the locations (supermarkets), $c \neq 0$, rub / h.

Varying the financial flow of lean production is due to changes in productivity (throughput) and work in progress.

We will express the regulator of the financial flow of profit of lean production, using the values of formula (2) in formula (3), we obtain:

$$K_{\phi n} = \frac{a}{T_c \cdot c}, \quad (4)$$

As a result, the regulation of the financial flow is also determined by the cycle time. This is a clear illustration of the fundamental thought of Taiichi Ohno: "Everything we do, look at the time line from the moment the client gives us the order, until the moment when we get the money. And we shorten this time line,

removing losses that do not have value "[9].

From the theoretical point of view, the pulling system is capable of providing a financial flow of profit of a larger volume than pushing, since For any level of bandwidth when pulling out, there will be less stock costs.

From a practical point of view, methods and tools of line management are usually not used by companies for 100%. If the cycle time is significantly varied in the production system, then the introduction of methods and tools for line management will not be optimal.

Thus, knowledge of how the system works cyclically in time is of significant practical importance in order to use the methods and tools of line management in the most optimal way.

Figure 1 shows a comparison of pushing and pulling production systems, taking into account the impact of work in progress with productivity growth.

The standardization of processes, alignment, the release of small batches to order, the reduction of the level of work in progress leads to the fact that the lean manufacturing system is completely focused on constant continuous improvement.

On the one hand, it is possible to recognize a lean manufacturing system as effective if it has a low level of work in progress, a high level of throughput and a short cycle time.

On the other hand, if we are talking about the transformation of the pushing system into a pulling system, or about the supply chain, where there is a combination of pushing and pulling systems, then in this case it is necessary to take into account the variability of processes, which is also reflected in the cycle time.

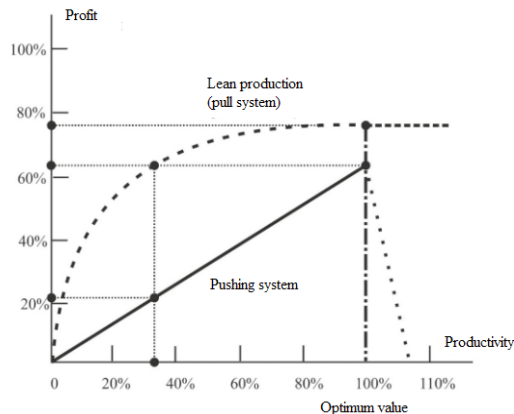


Fig. 1. The ratio of profit growth with increasing productivity growth for mass production (pushing system) and lean production (pull system)

The cycle time can be considered as consisting of two components:

$$T_c = O + T_n, \quad (5)$$

where T_c – cycle time, hours;

O – time of no value to the consumer;

T_n – time of value to the consumer.

To reduce time, which has no value, it is necessary to reduce the variability of processes, standardize processes, and equalize the flow.

Proceeding from the consequence of Little's law, i.e. principle of waiting in line, time that does not have value is determined:

$$O = \frac{1}{1-m} \frac{\sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2}}{\bar{x}} T_g, \quad (6)$$

where $\frac{1}{1-m}$ - the utilization factor, as soon as the load m approaches 100%, the waiting becomes unlimited, which is impossible, therefore $m \neq 1$;

$\bar{x}$ - sample mean;

x_i - i – sampling element;

T_g - average execution time of the process.

Then, the cycle time:

$$T_c = \frac{1}{1-m} \frac{\sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2}}{\bar{x}} T_g + T_n, \quad (7)$$

Taking into account (7) the regulator of the financial flow of profit of lean production in the transformation of the pushing system into a pulling system will have the form:

$$K_{\phi n} = \frac{a}{\left[\frac{1}{1-m} \frac{\sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2}}{\bar{x}} T_g + T_n \right] \cdot c}, \quad (8)$$

A high level of variation will have negative consequences in the most loaded points of the system, in bottlenecks. Therefore, it is logical to reduce the variation

and the optimal combination of operational, process activities.

The developed model allows to estimate financial possibilities of lean production on generation of profit and regulation of a stream of profit, and also promotes development of lean production and adaptation of a lin-management.

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在製裁限制的條件下，俄羅斯經濟領先的企業競爭力的關鍵組成部分
Key components of enterprise competitiveness leading sectors of the Russian economy under conditions of sanctions restrictions

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制裁限制的啟動不僅對俄羅斯經濟主導部門企業的競爭力產生了負面影響，而且還迫使它們在明顯不利的條件下為其存在而戰。制裁限制範圍的不斷擴大導致競爭力概念在企業競爭鬥爭中獲得了新的本質和經濟特徵。本文的主要目的是闡明競爭力概念的本質，以及與俄羅斯經濟主要部門企業組織相關的經濟成分。為實現這一目標，我們採用了分析和綜合經濟信息的方法，以及系統化外國和俄羅斯科學家的出版物。該研究的結果是澄清了企業競爭力概念的本質及其在製裁限制條件下的經濟成分。

關鍵詞：俄羅斯經濟，主導產業，企業，制裁限制，競爭力及其組成部分。

Annotation. *The initiation of sanctions restrictions not only had a negative impact on the competitiveness of enterprises in the leading sectors of the Russian economy, but also forced them to fight for their existence in obviously unfavorable conditions. Constant expansion of the range of sanctions restrictions has led to the fact that the notion of competitiveness has acquired a new essence and economic characteristics in relation to the competitive struggle of enterprises. The main purpose of this article is to clarify the essence of the concept of competitiveness, as well as its economic components in relation to the organization of the enterprises of the leading sectors of the Russian economy. To achieve this, we used methods of analyzing and synthesizing economic information, as well as systematizing publications of foreign and Russian scientists. The result of the study was the clarification of the essence of the concept of competitiveness of enterprises and its economic components in conditions of sanctions restrictions.*

Keywords: *Russian economy, leading industries, enterprises, sanctions restrictions, competitiveness and its components.*

Introduction

The initiation of sectoral and financial sanctions was for many enterprises of the leading sectors of the Russian economy an additional factor of the negative impact of the external environment on the development of production, which led to a significant dynamics of the instability of the national currency and problems with obtaining foreign loans to maintain liquidity in the short term. Since over the past two decades, the practice of applying sanctions restrictions in modern international economic relations has significantly expanded, it is quite natural there is a need to determine the possibility of adapting enterprises of leading sectors of the Russian economy to these restrictions. This study will attempt to highlight these issues from the perspective of the need to take into account their impact on the competitiveness of enterprises in the leading sectors of the Russian economy, as well as their reflection in the refined formulations of the research concepts.

Main part

In economic theory, the notion of "competitiveness" is used to characterize different economic categories, from the competitiveness of the enterprise and its products, then to the competitiveness of industries, and ending with the competitiveness of the country's economy. Based on the systemic hierarchy of relations between different economic categories, to which the notion of competitiveness is applied, the interrelations between individual economic entities can be represented in the following form: "country-industry-enterprise-production". To disclose the essence of these relationships, individual scientists use the so-called "pyramid of competitiveness" [1, p. 55].

In this regard, our further research will be aimed at revealing the essence of the concept of competitiveness in relation to the activities of enterprises of the leading sectors of the Russian economy, as direct producers of products, as well as to the composition of economic characteristics that determine its essence.

The first packages of sanctions restrictions against the development of the Russian economy had different purposes, structural composition, implementation mechanisms and the objectives of their implementation. But after a certain period of time they acquired a clearly defined point orientation. It manifested itself most fully after the introduction of sectoral and financial sanctions restrictions. At the same time, it is customary to understand these and other long-term or short-term measures aimed at creating unfavorable conditions for the normal development of the country's economy as a whole, and also the disruption of the normal operation of enterprises of the leading industries and products produced by them under the sanctions restrictions [2, p. 107].

Naturally, the enterprises of the leading sectors of the Russian economy could not but take counter-measures to minimize the negative impact of sanctions restrictions on their production activities and the strategic development of indus-

tries. At the sectoral level, more than twenty strategies of import substitution were developed, within which enterprises were to implement separate plans and programs aimed at carrying out their comprehensive modernization, localizing the production of replaced equipment, components and technologies on the territory of our country, ensuring the quality of products at the level of world standards [4, p. 41]. Only such an approach could ensure the country's complete security in terms of economic development, as well as maintaining proper combat readiness and reliable military protection.

The complex modernization of production at the enterprises of the leading branches of the Russian economy is carried out today in three main directions.

1. Updating the material and technical base and replacing the fixed assets of production with modern equipment.

2. Increase in the structure of the economy of the share of production of machine-building products, machine tools, as well as high-tech products. Change in the structure of exports in the direction of reducing the share of raw materials and increasing the share of finished high-tech products with high added value of domestic production.

3. Increasing production volumes at enterprises of high technology and high-tech industries, which are not only the basis, but also the sources of the country's economic growth.

Thus, the comprehensive modernization of enterprises of the leading sectors of the Russian economy becomes the main direction of ensuring their competitiveness. In conditions of negative impact of sanctions restrictions, the criterion of assessing the economic state of enterprises was the level of their competitiveness in the world and domestic markets, and as a determining condition for the strategic development of domestic enterprises, the opportunity to competently manage their competitiveness was used. The level of competitiveness of enterprises in the leading sectors of the Russian economy had a decisive influence on the quality of the products produced in the country, the possibility of obtaining additional revenues and profits, their adaptation to functioning under conditions of sanctions restrictions, and the prospects for their economic growth [3, p. 46]. This complex indicator is determined depending on such factors as the competitiveness of the industry in the country's economy, the competitiveness of the products produced by the enterprise, the share of products in the total market volume, the possibility of entering the market, the availability of competing enterprises on the market, the market homogeneity by types of products sold, in the production process and a number of others.

On this basis, it can be concluded that the concept of enterprise competitiveness should be viewed as a relative category that characterizes the characteristics of its activities and economic development, depending on the directions of its

competitors' economic activities. The main criteria that determine the competitiveness of an enterprise are the efficiency of its production activities and the degree of satisfaction of the needs and requirements of potential users with the functional, quality, cost and other parameters of the products it produces. The concept of enterprise competitiveness includes the ability to adapt and dynamically take into account in its activities existing and the possibility of the emergence of new sanctions restrictions, as well as the ability to fight against competitors in these conditions.

The concept of "enterprise competitiveness" can not be considered as a constant value, because it undergoes certain changes depending on the time, as well as on the conditions under which the enterprise operates. It seems quite clear that this concept is influenced by a large number of objective and subjective factors of the external and internal environment that have different economic characteristics that vary with time. The totality of these factors, in essence, directly affects the formation of the competitiveness of the enterprise. Conditionally, all factors can be combined into three groups: economic, business and regulatory. As these groups of factors exert their influence simultaneously, they can both increase the competitiveness of an enterprise and reduce it.

Among the economic factors include such as the quality of manufactured products, the cost of its implementation, the costs associated with the operation of the product or its consumption. Obviously, these factors depend on the productivity of labor, the level of innovation in the methods of production, management and organization of their use in the activities of the enterprise.

Entrepreneurial factors determine the conditions for the realization of the products produced by the enterprise in foreign and domestic markets. This group of factors includes indicators that characterize:

- the level of competition, the ratio of supply and demand to the products produced by the enterprise on the market, etc. ;
- the level of service maintenance of the products produced by the enterprise in the process of its operation in terms of the availability of warranty and maintenance items, the quality of their services;
- the degree of influence of advertising produced by the enterprise products on potential consumers;
- the business reputation of the enterprise, the presence of its image or a well-known brand, brand, etc.

Regulatory factors combine mandatory for all enterprises requirements for the safety of consumers using products produced by the enterprise. This group of factors include patent and legal requirements. In case of revealing the fact of non-compliance of the enterprise's products with the requirements of existing norms, standards and legislative acts, it is subject to culling.

The concept of enterprise competitiveness extends not its potential capabilities, but also dynamic adaptation to the negative impact of sanctions restrictions. The presence of the material, technical, innovative and other potential of the enterprise will promote the production of competitive products that can meet the needs and requirements of consumers in established volumes. In addition, the availability of capacity will determine the competitiveness of the enterprise in the short- and long-term periods. The potential of the enterprise's competitiveness can be represented in the form of a complex of its reserves and opportunities, on the basis of which additional competitive advantages of the enterprise can be formed that ensure the achievement of its strategic development goals. As a part of the enterprise's competitiveness potential, the following elements can be distinguished:

- the production capacity of the enterprise and the real possibilities for increasing its utilization;
- the structure of capital and the possibility of increasing its use to strengthen the financial position of the enterprise;
- business reputation of the enterprise, strengthening its image;
- opportunities to increase the production of high-quality innovative products for the company to obtain additional competitive advantages;
- qualification of the personnel of the enterprise and creation of conditions for management of professional growth, modern organization of production.

In such conditions, the increase in the competitiveness of the enterprise will be determined, on the one hand, by a targeted impact on various elements of its potential, and on the other hand, by finding new opportunities for managing the enterprise's productive activity, with maximum use of the available potential.

The enterprise is able not only to support, but also to increase its competitiveness in the event of the fulfillment of certain conditions, namely: constant detection of changes in consumers' preferences and prompt reaction to them; constant research of competitors' actions; operative correction of the strategy of its development depending on changes in the impact of the external environment; changing consumer preferences in favor of the enterprise due to the availability of potential for production of products with better quality characteristics, in comparison with the main competitors; the search for new opportunities and tools for their use in competition in the face of sanctions restrictions.

The constituent elements of the concept of enterprise competitiveness considered by us are complex multifactor characteristics that can act as independent control objects. To ensure its competitiveness, an enterprise can only with an operational response to dynamic changes in environmental factors. An important role in this process can be played by the company's capacity and reserves to improve competitiveness. The main condition for success in this case should be the ability to effectively use competitive additional advantages in the competition.

Conclusion

At present, the world economy has developed a complex situation, characterized, on the one hand, by the continuous improvement of international economic cooperation and the need to defend national interests, and on the other hand, the expansion of the practice of imposing sanctions restrictions.

Based on the results obtained during the research, the following conclusions can be formulated:

1. The introduction of sanctions restrictions entailed the appearance of additional factors of the negative influence of the external environment on the development of production of many enterprises of the leading sectors of the Russian economy.

2. New features of the notion of competitiveness were determined, which resulted from the influence of sanctions restrictions on the definition of this concept in relation to modern conditions. These include the possibility of obtaining quantitative and relative assessments of competitiveness, managing it as one of the key parameters of the strategic development of enterprises in the leading sectors of the Russian economy, the dynamics of its change over time, the contradictoriness of the interests of producers of products and services and their potential consumers.

3. The economic components of the concept of enterprise competitiveness are revealed, which are complex multifactor characteristics and can be independent objects of management. To maintain and increase the competitiveness of enterprises in the leading sectors of the Russian economy, it is necessary to use new approaches to the organization of production and management, primarily in the development of investment policy, the implementation of comprehensive modernization and the introduction of new production technologies.

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使用兩用空間技術的優點

Advantages of using dual-purpose space technologies

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在製裁限制的條件下，增加創造新一代空間技術用於雙重用途的成本的做法對我國的預算來說是不可接受的。正如發達國家的經驗所表明的那樣，通過將兩用技術傳播到社會生活的其他領域，可以成功解決這一問題。本文展示了這種空間技術應用的一些有希望的領域。此外，它證明了評估在社會發展的某些領域使用兩用空間技術的益處的一些方法。

關鍵詞：信息經濟，衛星系統，兩用技術。

Annotation. *In conditions of sanctions restrictions, the practice of increasing the cost of creating a new generation of space technologies for dual use is unacceptable for the budget of our country. As the experience of developed countries shows, a successful solution to this problem can be achieved through the spread of dual-use technologies to other spheres of society's life. Some of the promising areas of this use of space technologies are shown in this article. In addition, it justifies some approaches for assessing the benefits of using dual-use space technologies in certain areas of social development.*

Keywords: *information economy, satellite systems, dual-purpose technologies.*

Introduction

Despite the fact that at all times knowledge was one of the determining factors of economic development, their importance in increasing labor productivity and ensuring economic growth was not well understood by all. The recent results of analytical and empirical justifications for the "new growth theory" or "theory of endogenous growth" have made it possible to unequivocally solve this issue in terms of determining education and training as key factors in the creation of investment development and research and development (R & D) new management structures capable of using new information technologies and knowledge in their

activities.

The conducted studies also showed that the dissemination of knowledge through formal and informal information networks is an important element of economic development in modern conditions. Knowledge is increasingly coded and transmitted through information and communication technologies (ICT). However, the effective use of codified knowledge requires the availability of highly skilled professionals with the necessary skills to adapt and use codified knowledge. This circumstance predetermines both the need for further development of the information economy and for continuous training and education by highly qualified specialists (educational, production, etc.).

This article will show the advantages of applying modern trends in the development of the information economy using the example of dual-purpose space technologies for solving some problems of the life of the world community.

Main part

The creation and dissemination of information technology and new knowledge is greatly facilitated by space activities. Considering the volumes of R & D that are necessary for the development of modern space systems and dual-use technologies, this fact clearly confirms the considerable volumes of creating new knowledge in this field [1, p. 658]. For example, the use of remote sensing technologies (RS) has contributed to the formation of significant new information on the ecological status of the planet and various parameters that affect climate change. The understanding of the need to take into account the influence of natural phenomena and anthropogenic factors on the formation of the foundations of environmental policy in the scales of individual countries and the world economy has grown. Also, the use of information technologies for remote sensing in agriculture gives agro-industrial enterprises and farmers new knowledge that they can use to apply more effective methods of farming.

At the same time, R & D, which does not directly reflect economic and social goals, can have a major impact on society's livelihoods. For example, space-based navigation systems, which were originally designed for military purposes, are now finding an increasingly wide range of applications for civilian purposes.

There is also a range of space technologies that can also provide access to new knowledge, as in the case of various satellite communication systems that are hasteningly complementary and competing with existing terrestrial communication systems. Digital television, mobile devices of the fourth and fifth generation of communication and the Internet are also examples of useful platforms for the deployment of such information systems that can contribute to the development of space technologies.

For example, direct television broadcasting (DBS) services are a relatively recent use of information technology in television. The DBS system uses special

powerful Ku-band satellites that send digital and television signals to fixed satellite dishes. DBS services, which are carried out by a part of a wider family of satellites, offer many advantages over traditional analogue services, such as analog cable television. They usually offer better image quality, more channels and other advanced features such as the on-screen menu, digital video, new recorder functionality, a higher-definition television picture (HDTV), and lower pay-per-view.

Satellite information technologies are often the only way to provide educational services in those regions of the world that are remote and / or do not have a land infrastructure. Although distance learning is not an ideal substitute for traditional education, it can be considered as an effective way to help spread knowledge and skills to a wider audience. However, there are certain limitations, because the electronic educational resources (EER) are used mainly to establish the relationship between trainees and teachers. For effective work, EER should be well thought out and take into account the diversity of the country's dialects. The experience of India shows that EER can be useful for promoting education through the use of space technologies in large population populations. The main difficulty in creating such technologies is the costs of developing EER and economical use of communications of satellite systems.

Информационные космические технологии также могут использоваться для расширения медицинской поддержки в развивающихся странах. Так, еще в 1990-е годы, индийским правительством была запущена программа телездравоохранения, направленная на оказание медицинской помощи жителям удаленных деревень и поселков через космические технологии и спутниковую сеть, как часть стратегии по использованию космических технологий для устойчивого развития общества.

The above data clearly show that dual-use space technologies and satellite networks have already benefited from a number of significant problems and have a significant potential to become even more useful in the future for the life of society. In this regard, it is important to consider the extent to which the proposed solutions are effective, and how to measure the gains achieved compared to costs, as well as comparing dual-use space technologies with alternative ground technologies. These questions are often difficult to answer. Basically, the problem is that a full cost-benefit analysis is difficult to do even under normal conditions, not to mention the fact that the operation of satellite networks and the use of dual-use space technologies increase the probability of unforeseen risks by at least an order of magnitude.

Thus there are difficulties both with an estimation of expenses, and with an estimation of benefits. First, the costs of using dual-use space technologies are difficult to assess, as many development costs are often not taken into account

or unknown to ordinary users because of the lack of information. In addition, a significant share of the cost of operation of satellite systems is recorded at the stage of their development. This means that in the case of multi-purpose use of dual-purpose space technologies, it is almost impossible to allocate the costs that are incurred in ensuring the operation and operation of each of them [4, p. 95].

From the perspective of assessing the benefits, it is very difficult to determine the overall social benefits of using dual-use space technologies and satellite networks. This can include really saved human lives or property, the prediction of natural disasters when using space data, the public benefits of providing remote areas with quality satellite communications. Experts estimate that the value of space assets is quite high, although they very often constitute only a small fraction of the entire social and economic value chain of dual-use space technologies as a product or service.

Another difficulty in assessing the use of dual-use space technologies is that modern technological solutions can influence the determination of both costs and benefits in the future. Therefore, the cost / benefit ratio is rapidly becoming obsolete, since dual-use space technologies are developing at an accelerated pace, and their economic efficiency and system use capabilities are only improving over time. For example, recent years have been marked by significant progress in the field of satellite communications and remote sensing technologies. This circumstance can be interpreted as follows: using the latest generation of satellites, it was possible to obtain more benefits at lower costs. From this it can be concluded that when using future-generation satellites, the results may be even more effective.

Even in cases where reliable data on costs and benefits can be obtained, the question always arises whether all types of resources spent on the development and operation of dual-use space technologies have been covered, and whether they will account for more substantial payments. However, practice shows that it is always difficult to compare space and terrestrial technologies. Moreover, in some cases, such a comparison is simply impossible, when the use of dual-use space technologies opens a unique opportunity that can not be duplicated by other means. In addition, dual-use space technologies can very rarely be considered in isolation from a number of other technological solutions, since in most cases they are closely related to ground objects in order to be really useful. These difficulties explain well enough why relatively little cost research and cost analysis has been conducted in relation to the use of dual-use space technologies. Although, in most cases, a positive response was obtained, confirming the existence of greater benefits compared to costs.

Weather satellites are another of the few cases where the cost effectiveness of dual-use space technologies can be clearly defined. It is well known that space technologies and satellite systems used to improve weather forecasts bring

significant benefits, as they enable them to better cope with natural hazards, such as torrential rains, fires, hurricanes, and thereby reduce human casualties and save property. Improving weather forecasts can also bring significant benefits to the industry. For example, they allow you to determine the maximum consumption of electrical energy, which arise when satisfying the needs of consumers. So, the annual electricity costs in the US will decrease by at least \$ 1 billion, if the accuracy of weather forecasts is improved by one degree Fahrenheit [3].

The cost-benefit analysis is sometimes conducted as a guide for decision-making, as is the case with the European global navigation satellite system Galileo. To decide on its deployment, the advantages of this system were estimated in the form of the present value of the future revenue stream that would be generated using commercial space technology applications, for example, based on location of services, as well as the public benefits resulting from the expected reduction in external costs to regulate the movement of air and road transport. For example, in car navigation systems using satellite signals, traffic control is provided to facilitate the control of its flow.

The benefits derived from the use of dual-purpose space technologies and satellite networks sometimes become more visible if they do not work in regular modes, forcing users to look for alternative solutions.

An interesting example is the effect of the hardware failure of the Landsat 7 satellite in monitoring the fire hazard situation in May 2003. It was designed to produce digital maps for soil specialists and hydrologists who then reacted to changes in fire zones. The failure in the normal mode of the scanning correction of the Landsat 7 satellite line, which compensates for the direct movement of the satellite, caused the reception of images with long spaces in the data from space vehicles, doubling the actual time for obtaining useful images up to 16 days. This was unacceptable in duration, since it takes much less time to respond quickly to emergencies.

As a possible way of replacing images from the Landsat 7 satellite, a reflective radiometer (ASTER) was used onboard the NASA Terra satellite. Since both satellites were on the same orbital path and could provide coverage of the study area in tandem in a shorter time. However, although ASTER offers similar infrared data, it does not control the landscape, as Landsat 7 usually does, and has a narrower bandwidth for image capture. Replacing images Landsat 7 images obtained from other commercial satellites, led to high costs when obtaining the necessary data and caused a number of other unforeseen difficulties [2].

Consequently, the studies carried out to date on the costs and benefits of using dual-use space technologies partially confirm their overall positive potential contribution to improving the livelihoods of society. In the short term, it is necessary to determine the possibilities for realizing this potential contribution,

taking into account the conditions under which space activities are carried out.

Conclusion

Based on the results obtained in the course of the study, we formulate the following conclusions:

1. Modern trends in the development of the information economy and their practical application for solving certain tasks of the life of the world community can most clearly be represented in the framework of the creation and operation of dual-use space technologies.

2. A number of practical examples of the use of dual-purpose space technologies in certain spheres of society's life, for example, such as climate change control, ensuring environmental safety, agriculture, the use of space navigation systems for civil purposes, education, telemedicine, satellite communication systems, etc. .

3. Despite the general positive potential of using dual-use space technologies, it is rather difficult to determine the cost-benefit ratio for specific information applications. On the one hand, this is facilitated by the closure of some information, and on the other - the rapid development of the technology itself, when one equipment can simultaneously use several information applications.

Thanks

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兩用空間技術轉讓的現代特徵

Modern features of the transfer of dual-purpose space technologies

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文章揭示了將兩用空間技術轉移到生產基礎設施的一些現代特徵和基本機制。已經確定，雙用途空間技術主要與先前在各種工業部門中已知的技術過程的集成相關聯，其實際用途是用於航天工業的發展。雙用途空間技術的發展意味著不僅在外層空間，而且在俄羅斯經濟的許多工業部門中，它們的使用效率顯著提高。獲得的結果對直接實施兩用空間技術轉讓的專家感興趣。

關鍵詞：空間技術的雙重目的，轉移，工業基礎設施，提高管家的效率。

Annotation. *The article reveals a number of modern features and basic mechanisms for the transfer of dual-purpose space technologies to production infrastructure. It is established that dual-purpose space technologies are mainly associated with the integration of technical processes previously known in various industrial sectors, with their practical use for the development of the space industry. The development of dual-purpose space technologies implies a significant increase in the efficiency of their use not only in outer space, but also in a number of industrial sectors of the Russian economy. The obtained results are of interest for specialists directly implementing the transfer of dual-purpose space technologies.*

Keywords: *space technologies of dual purpose, transfer, industrial infrastructure, increase in the efficiency of the housekeeper.*

Introduction

Over the past 20-30 years, the use of space technologies has been reoriented from the solution of complex problems in outer space to their possible practical

application in order to solve the current problems of a number of industrial sectors of the economies of many developed countries. As a result, space technologies began to be used in several fields of application and were called space technologies of dual purpose. In most industrial countries (USA, Japan, EU countries, etc.), space agencies are actively developing and using new approaches to the transfer of dual-purpose space technologies to the production infrastructure of a number of industries in their economies [9, p. 51].

However, the practice of transfer of dual-use space technologies has revealed a number of rather complicated problems caused by the following reasons:

1) for many years space technology developers were oriented only to their application for the needs of this sector of the housekeeper and in fact excluded the possibility of using their scientific and technical functionality in other potential sectors of the economy;

2) during the Cold War, the development of space technologies was "closed", since it was often associated with state secrets, which prevented any interaction between military organizations and industrial enterprises;

3) technologies used in outer space, usually represented the most complicated scientific and technological complexes, requiring a high level of knowledge from their operators to process the information received. In other words, they were intended for specific use and, therefore, their transfer to other industries required significant work for their readjustment and / or adaptation;

4) in modern conditions, space agencies play an important role in the transfer of space technologies for dual-use purposes, which direct the development of space activities in their own countries and can apply new approaches for their transfer to other industries through numerous specialized agencies.

Some of the modern approaches that are quite successfully used by the space agencies of developed countries to transfer dual-purpose space technologies to the industry, as well as the features of their practical implementation will be considered in this paper.

Main part

The implementation of research programs on the development of dual-use space technologies is usually coordinated by space agencies. They also conduct and support their financial support. Space agencies can also be focused on expanding the knowledge base and integrating advanced technologies or at their diffusion level in order to raise the level of scientific and technological developments to the boundaries corresponding to modern and promising areas of application of innovations in various industries. In the latter case, the development of dual-purpose space technologies is aimed at increasing their productivity and spreading to specific industries [8].

For the transfer to the industrial infrastructure of dual-use space technolo-

gies, the space agencies of developed countries selectively apply the following approaches:

- companies involved in creating conditions for the use of dual-purpose space technologies in industrial infrastructure must meet very high technical requirements and standards, and also have appropriate qualified personnel whose knowledge and skills will enable companies to use these technologies competently for the development of production.

This approach is clearly observed in the activities not only of the space agency NASA (USA), but also of other developed countries, for example, CNES (France) and JAXA (Japan) [9, p. 56].

- the transfer of dual-use space technologies for use in industrial infrastructure involves the organization of cooperation with other, including international companies, which facilitates the mutually beneficial exchange of knowledge and skills, as well as the creation and receipt of additional profits;

- reservation of some functional characteristics for the transfer of dual-use space technologies for small and medium-sized enterprises (SMEs).

This condition is usually stipulated in contracts for the transfer of dual-use space technologies between space agencies and SMEs that assume their use in their production activities. The conclusion of such contracts with SMEs is actively practiced by the Italian Space Agency (ASI).

Despite the undoubted advantages of the transfer of dual-purpose space technologies for use in the industrial infrastructure and the generation of useful services, products and technologies in both the industrial sector and the life of society as a whole, the technological features of this process have not been sufficiently studied in the scientific literature. Some studies focus on the issues of "obtaining an effect" and other benefits for the country from the development of its space industry [2; 3; 11, p. 341]. Other researchers give priority to the development of a national policy regarding the transfer of dual-use space technologies for use in industrial infrastructure [5, p. 352]. A number of researchers consider that the most important issues are the development of strategies for the transfer of space technologies and the direct participation of space agencies in their implementation [1, p.209; 4, p. 53; 6, p. 327; 7, p. 346]. Despite the availability of research on certain areas, it should be noted that in this area there are still quite a lot of questions that have not been studied at all. These include the organization of the process of the transfer of innovative technologies to the space sector from universities and research centers, small enterprises and medium-sized companies from other industries that are clearly not focused on the production of technologies for the exploration of outer space.

As a rule, the process of transfer of dual-use space technologies from the space sector is the possibility of its adaptation and the subsequent transfer of the com-

pany to one of the industrial or service sectors of the country's economy. Dual-purpose space technologies are understood as a set of functional characteristics and specialized know-how that can be used to better organize production processes in the industrial infrastructure and create products or services whose functional characteristics far exceed their counterparts. At the same time, by many researchers the notion of "technology transfer" is perceived in a narrow sense, which limits this process by simply transferring technological innovations from the organization of one industry (in our case - the space industry) to the organization of another industry. The transfer of dual-use space technologies is considered complete when technological innovation is fully integrated into the production processes of a product or service that is ready for market entry and subsequent sale. That is why the essential issue of the transfer of dual-purpose space technologies is the need for additional training for the company's personnel, who will use the technology in their production activities. Often in the studies of different authors the concept of the transfer of space technologies is reduced to the creation in private research laboratories of a prototype of an innovative product or service and the subsequent development of its industrial production. In this case, the transfer of dual-use space technologies is the ability to produce specific prototypes ("spin-off") of products or services.

When creating dual-purpose space technologies, two different types of technological innovations are usually used:

- 1) radical innovations, often representing real breakthroughs in different fields of knowledge;
- 2) innovations that are the result of integration or processes for improving the efficiency of technologies obtained from other industries, except for the space industry itself (spin-in innovations).

Both types of innovation relate to the satellite payload in terms of data acquisition sensors, motion subsystems and data processing subsystems and instructions. A typical example of radical technological innovation is the use of ionic engines for satellite transmission. An example of a spin-in innovation is a CCD detector, which has been used in space research as a result of their evolutionary development in industrial sectors. To do this, they have been greatly reduced while improving the quality of work. A miniature version of CCD detectors is successfully used in commercial video cameras.

Of the two types of technological innovation discussed above, the spin-in innovations of the dual-use technology are more influenced by the use of existing technologies that have been improved for space applications. In the future, as a result of this process of improvement, industrial companies can return to their use for their production purposes.

In general, the process of transfer of dual-purpose space technologies usually

occurs in a certain sequence, beginning with the initial idea for the new application of technological innovations, subsequent experiments and adaptation associated with new opportunities for their use, and ending with their application for real production and marketing research. This sequence is shown in the diagram (see Fig. 1). In this process, the focus is on the relationship between research on the direction of development of an organization that receives innovative technologies and their actual inclusion in the production process [10].

1. Idea and development of the concept of technological innovation
2. Search for opportunities to use them in production
3. Experiments and adaptation of technological innovations
4. Application of technological innovations in real production
5. Carrying out of marketing researches

Fig. 1. Sequence of the process of dual-purpose space technology transfer

Other elements that characterize the technological process of transfer of dual-purpose space technologies are distinguished by a higher degree of complexity of technology transfer, uncertainty of its conduct and behavior of agents involved in this process [9, p. 13]. For example, for new technologies to determine the types of behavior and performance of specialized equipment, it is not always possible to clearly define their real scientific and technical level. Therefore, their use in various industries can lead to relatively high risks.

Regarding agents interested in the process of transfer of dual-use space technologies, the greatest difficulties arise in the process of organizing interaction between research laboratories and SMEs, which will have to bring the prototype or technology to industrial use. Research laboratories can create prototypes and / or innovative technologies, but often they do not have the necessary management skills and funding to implement the entire sequence of industrial production of an innovative product and / or service (research, development and prototyping, organization of industrial production, advertising and distribution etc. But, on the other hand, SMEs also have limited technical skills and insufficient financial resources to solve the problem of the organization. The approach is more justifiable when the transfer of dual-purpose space technologies takes place through an intermediate consulting company that performs the transfer in the interests of an average or a large company. Some advantages also have a reverse approach when the transfer of dual-use space technologies begins with a large company which, as a rule, owns this technology), and as a recipient is SME. In practice, in such cases, most of the time, a number of functional characteristics of the transferred technology are reduced, which a large company usually copes with easily.

Since our research is aimed at improving the processes of interaction between participants in the transfer of dual-use space technologies, and involves the de-

velopment of policies, and in its framework, clear proposals and procedures for transferring, summarizing the conclusions made earlier, it can be stated that:

1) in the transfer of dual-purpose space technologies, the most significant influence is not on radical innovative technologies, but on innovative technologies such as "spin-in", which are known and available in different industries, but can also be used in the open space due to modernization;

2) the greatest difficulties in organizing the process of transfer of dual-use space technologies arise when SMEs are used as their recipients;

3) successful implementation of the process of transfer of dual-use space technologies is determined by the ability of the host company to change and adapt this technology to the needs and requirements of production;

4) in most cases, this requires an increase in the level of knowledge of the personnel of the host company, and often a significant effort in integrating technology into the actual process of producing an innovative product and / or service.

For these reasons, the processes of transfer of dual-purpose space technologies are most successful with the participation of medium and large companies that have sufficient and necessary financial and technical resources to solve the problems of production organization.

Conclusion

Based on the results of the studies, the following conclusions can be drawn:

1) the practice of transferring space technology has revealed a number of rather complex problems caused by the presence of a set of specific reasons, some of which were disclosed on the basis of the results obtained;

2) it is established that in most developed countries, space agencies coordinate the development of space technologies for dual-use and their transfer to industrial infrastructure; To achieve these goals, they can selectively apply different approaches, some of which are described in this paper;

3) two types of technological innovations were identified and it was established that spin-in innovations are most influenced by the transfer processes of dual-purpose space technologies, which are based on the use of existing technologies improved for space applications;

4) the general sequence of the process of transfer of dual-purpose space technologies.

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提高高等教育機構的競爭力

Improving the competitiveness of higher education institutions

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本文致力於確保俄羅斯聯邦高等教育機構在現代條件下的競爭力的熱點問題。考慮改善發展大學競爭力機制的方向。以“阿斯特拉罕國立技術大學”為例，提出了提高大學競爭力的主要方向。

關鍵詞：競爭力，高等教育機構，教育服務市場。

Annotation. *The article is devoted to the topical problem of ensuring the competitiveness of higher educational institutions of the Russian Federation in modern conditions. The directions of improving the mechanism for developing the competitiveness of universities are considered. The main directions of increasing the competitiveness of the university on the example of "Astrakhan State Technical University" are developed.*

Keywords: *competitiveness, institutions of higher education, the market of educational services.*

In the market of educational services of higher education (HE) of Russia, which forms the human potential for the development of the national economy, there are stable trends in demand and the decrease in the number of students, accompanied by the optimization of the university network.

High volatility of the market of educational services aggravates the competition and, accordingly, the urgency of the problem of ensuring the competitiveness of universities. A rational solution to this problem depends both on an effective state policy in terms of creating a modern infrastructure, educational standards, so from implementing the competitive potential of the educational institutions themselves.

In this article, we examine the directions for improving the mechanism for developing the competitiveness of universities.

A schematic representation of the mechanism for developing the competitive-

ness of universities in accordance with Figure 1 allows us to identify possible directions for applying efforts to improve it.

In the context of the subject of the research, an important role is played by a clear definition of the mission, purpose and objectives of the university, which are largely formed under the influence of environmental factors.

The mission of the university can not be focused solely on the needs of the basic region. It should reflect the needs of society in the innovative nature of development, without closing in the framework of a specific industry, to assume satisfaction of the individual's needs for self-realization. [1]

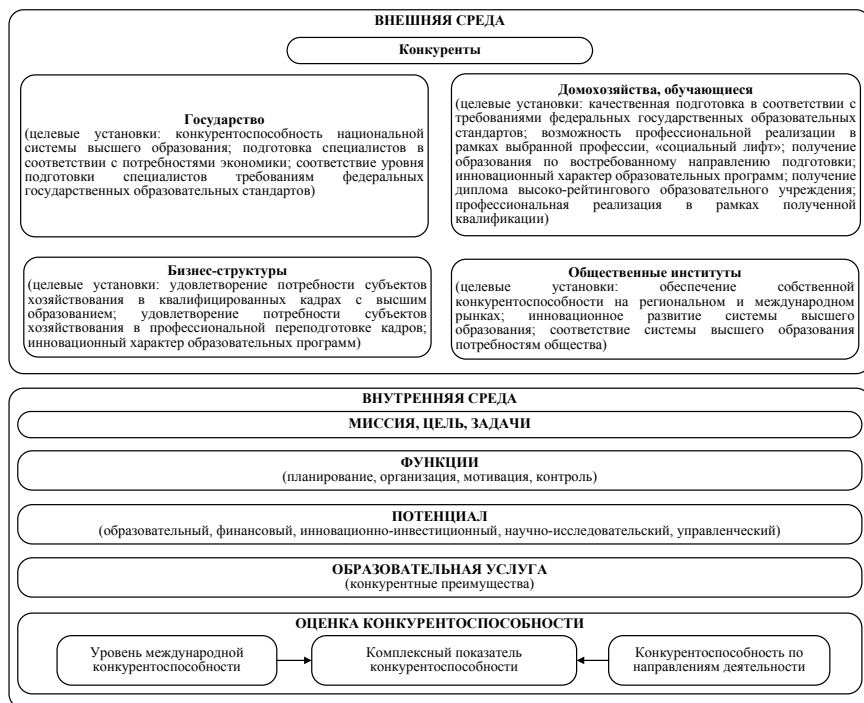


Figure 1 - Mechanism of increasing the competitiveness of the university in the market of educational services

The purpose of the university should be formulated within the mission unambiguously and exhaustively; is aimed at increasing competitiveness and meeting the needs of society, the national economy, customers of educational services. It must be determined achievable, having unambiguous indicators and evaluation criteria.

The objectives of the university should reflect the vector of the application of efforts to achieve its goal on the principles of specificity of functional areas of activity, structuredness, focus on innovative research and educational activities, aspirations for leadership in specific areas of knowledge. The solution of these problems should contribute to the formation of a scientific, educational and technological base for the social and economic development of the country, industry, region and ensure the balanced development of the educational organization itself. [2]

Achieving the mission and goals, as well as solving the problems of the university, find their embodiment in its functions.

A quality educational service that meets the standards and possesses unique competitive advantages is formed as a result of a balanced implementation of the educational, research, innovation, investment, managerial, commercial and financial potential of the university in specific areas of its activities.

It is important at the same time to establish the contribution of individual structural units, specific educational programs in the formation of a generalizing indicator of competitiveness. As part of providing feedback, the tasks of the university are being adjusted.

Thus, the formation of a mechanism for increasing competitiveness, taking into account the influence of external and internal factors, and periodically assessing the potential for growth in competitiveness, will improve the activity of the university and create the prerequisites for its international competitiveness.

Consider the practice of ensuring the growth of competitiveness of the sectoral HEIs operating in the regional markets for educational services, characterized by relatively weak involvement in the regional economy. A striking example is Astrakhan State Technical University (ASTU), the basis of the mechanism for increasing competitiveness of which are the following conceptual provisions: ASTU is the largest HEI of the «FAR» system, the list of training directions is sufficient to form a stable contingent of students, including through attracting potential students from other regions and countries; a high degree of integration with industry production, allows to meet the needs of the «FAR» in the staff with observance of the principle of the unity of education and science; ASTU activities are aimed at promotion in the international sphere; sustainable development of the University as a training and research and production complex is carried out within the framework of educational and scientific and technical activities of the full cycle "research-development-manufacturing-introduction" on the creation of science-intensive products for the Russian fisheries complex. [3]

The ASTU mission defines it as the center of education, science, social activity, culture, realizing adaptive, innovative education in the fishing industry in Russia and in the Caspian region, satisfying the needs of the state, society, the individual

in an accessible and quality education throughout life on the basis of integration of educational programs , scientific research and innovations in the field of solving technical, technological, socio-economic problems.

Hence, the issues of ensuring international competitiveness are not focused in the mission, and, accordingly, are not embodied in its purposes and tasks.

Astrakhan State Technical University as the leading technical university in the industry and the region, provides the needs of organizations of various forms of ownership in highly qualified personnel. [3]

Graduates successfully work in all organizations of the fisheries sector of the country and beyond. ASTU for many years of its active, progressive development has provided advanced positions in the scientific, educational, cultural space both in Russia and far beyond its borders (over 13,000 specialists for foreign countries have been trained during the period of its existence). A striking testimony to the recognition of merit by the scientific and educational community is that it was ASTU on its platform that ensured the unification and successful cooperation within the Association of Higher Educational Institutions of the Caspian states. Leading positions of the university are confirmed by high ratings. So, according to the rating agency "Expert RA" ASTU for the second time entered the TOP-100 of the best universities in Russia, which underlines the high quality of training of specialists. [3]

At the same time, ASTU is the successor to Astrыbvtuz - the university, at the mention of which there always appeared associations with the high quality of training of engineering personnel and scientific achievements of the world level in the fishing industry, unfortunately de facto losing grado and regional status, ceases to be the leading educational, scientific and a cultural center, attractive for talented and gifted youth. The authorities of the region show an interest in the problems of the university mainly during the pre-election periods, while the obvious preference and constant attention are demonstrated in relation to other universities. [3]

Undoubtedly, there are objective reasons for the current situation, but a number of reasons are subjective. First, a critical situation is observed in the field of the most important qualitative indicators of the life of the university. The reproduction of scientific and pedagogical personnel is insufficiently provided, as evidenced by the existing age discontinuities in the faculty as a whole, which become more noticeable in analyzing the age structure of higher educational qualifications. Secondly, the average score of the EGE of first-year students says that the university is confidently moving toward mass work with students "trinity". Third, the university is poorly integrated into the external environment: there is no systematic and thoughtful work with the media, corporate and state partners, there are only a few cases of applying marketing approaches to the positioning of ASTU in the education and labor markets.

For these and a number of other reasons ASTU ceases to be perceived in the region as a system-forming link, the center of crystallization of education, science and culture in the Astrakhan region. There is reason to believe that if the existing methodology of management is maintained, the university can significantly lose its viability in the face of severe financial constraints and the transformation of the education system.

Ensure the transition of the university to a phase of sustainable growth is possible only with one basic condition - preservation, strengthening and development of the human capital of the university.

In our view, to increase competitiveness, ASTU should focus on the following main areas of development.

a) Development of educational activities. In the conditions of transformation of the regional economy and, accordingly, the labor market, it is necessary to provide prompt response to changes in demand for qualified personnel. For this purpose, it is advisable to systematically monitor the labor market and employment of graduates based on a new level of corporate and administrative relations with a wide range of employers, including along with the classical partners - enterprises of fishery, shipbuilding, oil and gas, investment and construction complex - and small business enterprises. The results of monitoring the labor market should form the basis of the marketing approach in managing the educational activities of the university. This will allow to change the range of educational programs in the field of higher, secondary and additional education in a timely manner. Since in the long term only those universities where master's training is conducted will be attractive for applicants, it is necessary to continue licensing master's programs for all the major groups of specialties and directions of training that are being implemented at the university. In this direction, the university has achieved certain successes, but they need to be consolidated and give new impetus to development. The formation of the system "education through life" along the chain "secondary - higher - secondary - postgraduate (including second higher)" will allow the university to increase its attractiveness in the education market, significantly expand opportunities for employment and financial incentives for teachers and employees.

Within the framework of improving educational activities, the following areas are promising: development of a range of training directions and additional education programs in accordance with the needs of the industry and the region; the implementation of an agreed mutually beneficial educational policy with regard to the implementation of the existing specialization of the universities in the region by abandoning non-core, low-yielding training areas; formation of conditions for accessibility and competitiveness of the education provided by the university.

b) Development of the human capital of the university. The existing vector of development of ASTU is a vector of strengthening and improving the material and

laboratory base. A lot of things have been realized in the framework of this direction: large-scale repairs have been carried out, registered audiences have been set up, new training and research laboratories have been opened, including those related to research institutions.

However, there is a significant imbalance in the development of the material base and human capital. The result of an unbalanced approach to the management of the university is the staff hunger that is present practically in all divisions and at all levels of the organizational structure of university management. Let's note, human resources, unlike equipment, are difficult and long to resume, and sometimes, they can not be reproduced in principle. Therefore, in the conditions of existing restrictions and changes, the priority for the management of the university should be the care of teachers, employees, students.

Proceeding from this goal, we formulated a list of measures to preserve, develop and ensure the reproduction of the human potential of the university: the introduction of effective contractual pay for the leading employees that determine the achievements and indicators of the work of the university; allocation of the fund of incentive payments on the basis of an understandable and transparent system of indicators reflecting the dynamics of capacity development of the teacher; a direction of teachers for training in postgraduate study and preparation of dissertations under the contract in leading high schools of Russia at the expense of means of university; co-financing of publications of teachers in leading peer-reviewed and international scientific publications and publishing houses; the development of programs to support young teachers and scientists with the aim of developing and strengthening the university's human resources; enlargement of individual laboratories to the level providing for the needs of an enlarged group of directions.

In parallel with the implementation of these activities, it is necessary to continue the development of systematic social and extracurricular work, building and expanding a set of measures for the social support of employees and students. It is necessary to train personnel with new competencies capable of producing innovative ideas and technologies, including by involving students in research and innovation activities in the process of implementing the university development program in the sectoral NRU.

Support for sports and mass work, the development of a healthy lifestyle culture should become the norm of the university's internal policy.

c) In order to improve the organizational structure of university management, it is necessary: to carry out a comprehensive assessment of the functions of departments and services to meet current and strategic development objectives. In the current financial constraints and new mechanisms for financing the university's activities, it is expedient to allocate structural units with undefined functions, departments and services whose functions are not vital for the university. Such

units are proposed to be transferred to the category of temporary working groups performing one-off work on a contract basis. It is necessary to develop clear and adequate quantitative performance criteria for departments and services and to stimulate their employees by analyzing the actual values of these criteria; improve the quality of strategic planning for the development of the university on the basis of an objective analysis of resources, with the participation of staff and teachers; optimize the structure of university management by organizing the interaction of structural units; improve the quality management system of education by clearly allocating responsibility and authority at all levels of university management; optimize in time the decision-making processes.

d) Development of the productivity of applied research and scientific directions.

In order to activate scientific and innovative activities at the university, it is necessary to implement the following set of measures: creation of an effective infrastructure for the implementation of scientific activities; the development of conditions for increasing the productivity of research activities; the introduction of a system for assessing scientific activities that affect the level of remuneration of scientists at the university; development and implementation on a permanent basis of a program of targeted contract training of scientific and pedagogical personnel of higher qualification at the expense of the University; organization of advanced training of the university's NDP for the preparation of applications for grants of the Russian Foundation for Basic Research, the Russian Humanitarian Scientific Foundation and foreign scientific foundations; creation and development of scientific and scientific-pedagogical schools.

e) Social policy and corporate relations: implementation of the program for developing the traditions of the university, corporate culture aimed at consolidating the efforts of all members of the team to achieve the goals and objectives of the university; improving the conditions and safety of living in hostels; creation of working conditions for all teachers and employees, attestation of workplaces; formation of a monitoring system on the problems of students.

f) International and cross-border cooperation: expansion of cooperation with educational and scientific institutions in the field of education and applied research; activation of the practice of concluding long-term agreements on cooperation with foreign educational institutions and scientific institutions; creation of conditions for the development of joint educational master programs; the development of a system for enhancing academic mobility; production and translation of cultural and scientific values of Russian society in foreign countries.

g) Resource support for the university: diversification of funding sources through participation in international, federal and regional educational projects, research programs, grants; increase in income from research and development, R

& D, paid services, participation in the activities of small innovative enterprises using public-private partnership tools; progressive development of financial support for a separate subdivision and branches; expansion of the range of educational services for different age and social groups based on the results of marketing research; strengthening of interaction of the university with public authorities, local self-government bodies, public organizations, business structures; effective use of internal reserves, increase of its educational, personnel and scientific-research potential; increasing the investment attractiveness of the university; creation of conditions for the development of a system of paid services provided by the university; perfection of the instrument and educational-laboratory base for the educational process and research work; continuation of work on the harmonious development of the student campus as the head university and branches.

Activities in all areas should be carried out in accordance with the current legislation and the development strategy of the university.

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評估質量管理的績效

The evaluation of the quality management's performance

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文章探討了當代企業質量管理的發展方向。 作者定義了質量管理績效評估的主要領域。 應用方法有助於揭示質量管理髮展的來源。

關鍵詞：質量，管理，績效，制度。

Annotation. *The article observes the directions of development of quality management of contemporary companies. The authors define the main areas of quality management’s performance evaluation. The applied approach contributes to revealing of the sources of quality management development.*

Keywords: *quality, management, performance, system.*

Today managers of industrial enterprises understand that a high-performed QMS is source of competitive advantage in future. The lack of the generally accepted methodology of evaluation of the QMS’ performance leads to certain difficulties for managers.

Most popular approaches to the QMS evaluation consist of the following criteria: a. the extent to which quality objectives achieved; b. the extent to which strategic objectives achieved; c. the conformity of the QMS to the requirements of international and national standards in the quality; d. the effectiveness of the processes of the QMS; e. the customers’ satisfaction degree; f. the conformity of the products to the requirements established; g. the quality of their suppliers’ products.

International companies also use the assessment tools of national quality

awards for QMS evaluating, among which the Malcolm Baldrige National Quality Award and the Deming Prize are well-known over the world.

The authors' approach of the QMS's performance evaluation is based on the assessment of achievement of quality objectives systemized into five groups: a. customers' satisfaction; b. product quality improvement; c. operational performance; d. effectiveness of processes; culture of continuous improvement (CI). We suggest to evaluate the effectiveness of the QMS by counting the extent to which quality objectives are achieved.

The first group of objectives related to customers' satisfaction represents the highest level of QMS objectives, because it is a main point of QMS development. «The quality of an organization's products and services is determined by the ability to satisfy customers and the intended and unintended impact on relevant interested parties (ISO 9000-2015, clause 2.2.1)». We define three major aims of this group: customers' satisfaction; customers' loyalty; number of reclamations and complaints from customers.

The second group of QMS to objectives is related product quality improvement. The aim of QMS to ensure maximum compliance of the key product characteristics to customers' requirements. It is necessary to identify and monitor not only characteristics of product function and performance, but also perceived value and benefit to the customer. This group of objectives can overlap the customer perspective of Balanced Score Card Strategy Map. This is a point of integration of strategy and quality management.

The needs and requirements of customers are the starting point for improving the key characteristics of the products and their value. The understanding of the value of products to customers represents the enterprise's ability to hear "voices" of its clients. This contributes to identification of necessary directions of created value improvement. The identified key product characteristics have the significant impact on the customers' satisfaction.

The third level of aims represents the operational performance. This group includes three categories of objectives: 1) operational efficiency; 2) innovation; 3) safety.

This objectives' group includes objectives representing the results of QMS functioning in increasing the efficiency of enterprise value stream. The interrelation of the concepts of quality and operating efficiency have been proved in theory and practice. The lean manufacturing concept has become the inherent part of the quality management systems of many successful enterprises. The core of lean manufacturing concept is an efficiency of value stream. The revealing of wastes and their elimination in future allows to improve significantly the operating efficiency of the enterprise.

The assessment of value stream efficiency can include following indicators:

execution time of order; productivity; processes cycle efficiency; cycle time and value-added time; availability of machines and processes; overall equipment efficiency; improvement of work safety etc.

The analysis of current efficiency of the value stream and its processes will contribute to reveal trouble spots and to define appropriate objective. Value stream optimization and wastes reduction shouldn't create any type of risks for a company.

Such indicators as low variability, cost reduction, speed and productivity improvement are the main results of efficient operational performance and can be used for its assessment.

Innovation of product and processes contributes to success of enterprises in the future. Companies should create a proper environment for innovation enhancement. The ties between innovation and quality management are continually discussed and proved by many scientists and practices.

High effective QMS is based on securing environment and the safety of operations and products. Organizations have to ensure that there is no negative impact on safety of workplace and environment while improving quality and increasing operational efficiency. Environmental protection, resources and energy savings are the necessary social aims of enterprises.

The fourth group of objectives includes the effectiveness indicators of the processes.

QMS processes are a set of interrelated activities of an enterprise which contribute to achievement of quality objectives. Product quality is created by different enterprise's processes. Operating (primary) processes which are involved in value creation have the significant impact on product quality. But other processes such as support and managerial facilitate high performance of operating processes as well.

The previous group of objectives is focused on efficiency of value-added processes. They can be deployed into sub-processes. In its turn, QMS processes include operating, support, managerial processes which facilitate to achieve enterprise's quality objectives.

The assessment of effectiveness of QMS processes implies the evaluation of the extent to which the objectives of QMS processes has been achieved. The objectives of QMS processes can include the following dimensions:

- the requirements to the outcomes of the QMS process;
- the customers' (another process or external client) satisfaction with the QMS process outcomes;
- the efficiency of the QMS process;
- the degree of the process compliance with appropriate standards.

The fifth group of objectives represents the degree of the organization culture

of continuous improvement. Each enterprise has its own culture, which represents its habits, beliefs and practices. Quality management requires special organizational climate contributing to employees' aspiration to improve each operation and process. The engagement of the management in the implementation and fulfillment of the QMS requirements is a necessity (Midor, 2013). If the quality policy is not clear or managers are not engaged in QMS development the quality management achievements are poor (Zajarskas & Ruževičius, 2010). High employee involvement in continues improvements is also the foundation of effectiveness of QMS.

We define follow criteria of high quality organizational culture:

1. The leaders readiness for continuous improvement:
2. High intensity of knowledge sharing:
3. The employee readiness for quality policy implementation:

The five evaluation items are the basis of the method proposed by the authors. The evaluation should include the analysis of goal achievements according to the items indentified, their comparison with the results of competitors and industry leaders, and company's indicators of previous period.

The applied methodology directed on the focusing of managers' attention on the sources of QMS improvement and high performance of the whole company.

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分析“產品競爭力”類別的定義以及在製裁限制條件下增加產品競爭力的方法

Analysis of definitions of the category «product competitiveness» and ways to increase it under conditions of sanctions restrictions

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美國，歐盟成員國以及澳大利亞，加拿大，日本等一些國家開始實施制裁限制以防止俄羅斯經濟正常發展，對競爭力產生了負面影響。國內企業生產的產品，與主要的，主要是外國的交易對手相比，處於明顯不利的狀態。擴大製裁限制範圍，將其應用於整個行業和個體企業，導致企業競爭的條件發生了巨大變化。這種情況需要轉變企業“產品競爭力”經濟範疇的本質，同時考慮到製裁限制的影響。在這方面，本研究的主要目的是澄清“產品競爭力”的經濟範疇的本質及其與企業和產品組織相關的經濟成分。為實現這一目標，我們使用了分析和綜合經濟信息的方法，以及關於本研究主題的外國和俄羅斯科學家的出版物。研究結果表明，企業在各種制裁限制條件下產生的“產品競爭力”經濟範疇的本質得到了澄清。

關鍵詞：俄羅斯經濟，制裁限制，競爭力及其組成部分，企業，產品。

Annotation. *The initiation of sanctions restrictions to prevent the normal development of the Russian economy by the United States, the EU member states, as well as a number of countries such as Australia, Canada, Japan, etc., had a negative impact on the competitiveness of products produced by domestic enterprises, putting them in obviously disadvantageous conditions in relation to the main, primarily foreign, counterparties. Expansion of the range of sanctions restrictions,*

their application in relation to whole industries and individual enterprises has led to the fact that the conditions for enterprises to compete have changed dramatically. This circumstance entailed the transformation of the essence of the economic category of "competitiveness of products" of enterprises, taking into account the influence of sanctions restrictions. In this regard, the main purpose of this study is to clarify the essence of the economic category of "product competitiveness" and its economic components in relation to the organization of enterprises and products produced by them. To achieve this, we used methods of analyzing and synthesizing economic information, as well as publications of foreign and Russian scientists on the subject of this study. As a result of the study, the essence of the economic category of the "competitiveness of products" produced by enterprises under the conditions of various sanction restrictions was clarified.

Keywords: *Russian economy, sanctions restrictions, competitiveness and its components, enterprises, products.*

Introduction

An additional factor of the negative influence of the external environment on the development of production for many Russian enterprises was the introduction of sectoral and financial sanctions restrictions. These destructive actions led to a significant dynamics of the instability of the Russian national currency rate and problems with obtaining foreign loans to maintain liquidity of enterprises of the leading sectors of the Russian economy in the short term. Under the sanctions restrictions in this article we will understand various measures aimed at creating unfavorable conditions for the normal development of the Russian economy as a whole, its individual industries, as well as enterprises and their products in the long or short time periods [8, p. 117]. To maintain their competitiveness on a global scale, countries facing negative impacts of sanctions restrictions are forced to look for new ways and take additional efforts to minimize their influence. The same can be attributed to the enterprises of the leading sectors of the Russian economy, which, under the negative influence of sanctions restrictions, are forced to actively search for internal reserves to maintain the competitiveness of their products in the world and domestic markets. In addition, they will have to modernize their production in a short period of time and restructure their relationships with potential counterparts with a view to replacing purchased foreign products, products and components, as well as technologies and equipment with domestic counterparts that would not be inferior in quality and functional characteristics to foreign models.

In this research, an attempt will be made to highlight these issues from the viewpoint of the need to take into account the impact of sanctions restrictions on the competitiveness of products produced by enterprises, as well as its reflection

when clarifying the formulations of the essence of the economic category under study.

Main part

The concept of "competitiveness" in economic theory is used to characterize different economic categories, from the competitiveness of the enterprise and its products, then to the competitiveness of regions and industries, and ending with the competitiveness of the country's economy. Proceeding from the systemic hierarchy of relations between different economic categories, to which the notion of competitiveness is applied, the interrelations between individual economic entities can be represented in the following form: "the economy of the country - the industry - the enterprise - the products". To disclose the essence of these relationships, individual scientists use the so-called "pyramid of competitiveness" [9, p. 47].

In the economic sphere, the notion of competitiveness and various competition relations between economic entities that are associated with it can be conditionally detailed in levels as follows:

- The microlevel, which includes specific types of products and manufacturing enterprises, and its characteristics reflect the functional, quality, price and some other indicators of these products;

- meso level, which includes individual industries, cluster structures and other kinds of enterprise associations, and its characteristics reflect the efficiency of the use of all types of resources and the development of industries through a system of relevant indicators;

- The macrolevel, which includes large national and international corporations, individual countries and their associations for economic interests, and its characteristics reflect a balance of interests, equal investment conditions, the effectiveness of development of such associations through a system of relevant indicators [3, p. 9].

In this regard, our further research will be aimed at revealing the essence of the concept of competitiveness in relation to enterprises as direct producers of products, as well as to the product itself and the composition of functional and other characteristics that determine its competitiveness.

The concept of enterprise competitiveness should be viewed as a relative category that characterizes the features of its activity and economic development with respect to the directions of its competitors' economic activities. The main criteria that determine the competitiveness of an enterprise are the efficiency of its production activity and the degree of satisfaction of the requests and needs of potential users of the products they produce based on its functional, quality, value and other parameters. The concept of competitiveness of an enterprise in conditions of sanctions restrictions includes the ability to dynamically adapt its activities to existing ones and take into account the possibility of emerging new restrictions in

the conduct of competition for markets.

The concept of enterprise competitiveness can not be considered as a constant value, as it undergoes certain changes depending on the time and conditions in which the enterprise's production activities are carried out. In addition, this concept is influenced by a large number of objective and subjective factors of the external and internal environment, which also can change over time. The totality of these and a number of other factors directly shapes the competitiveness of the enterprise. Conditionally, all factors can be combined into three groups: economic, business and regulatory. Since these factors have their effect simultaneously, they can both increase the competitiveness of the enterprise and reduce it.

It is obvious that in modern conditions, to maintain and increase competitiveness, enterprises need to use new approaches to the organization of production and management, primarily in the development of investment policy, the implementation of comprehensive modernization and the introduction of new production technologies.

Let us turn to a more detailed study of the economic essence of the concept of product competitiveness in the context of sanctions restrictions. It should be noted that there are a lot of definitions of this concept in the economic literature. However, the economic meaning of most of them does not involve taking into account the negative influence of sanctions restrictions, and the concept itself does not undergo significant changes in the interpretations of different authors. Most of them, under the competitiveness of products, understand a set of certain characteristics, the presence of which creates opportunities for better satisfying the needs and requirements of potential consumers [2, p. 59]. Moreover, these characteristics are so important that they allow potential consumers to uniquely identify these products with respect to similar products of other enterprises. In addition, these characteristics allow the enterprise to receive additional profit from its implementation. Thus, the determining condition for the competitiveness of products in the long term is the availability of functional characteristics that are significant from the point of view of potential consumers.

V.M. Muromtsev defines the concept of product competitiveness as "its ability to match the current market demand in a certain period of time" [4, p. 31]. At the same time, it is supplemented by quality characteristics, which, like the competitiveness of products, are presented to them as independent objects of management.

Importance of quality, as one of the properties that determine the competitiveness of products, gives R.A. Fatkhutdinov. The concept of competitiveness is defined by it as "a property of products reflecting the degree of satisfaction of specific requests and needs in comparison with similar products" [7, p. 69]. The competitiveness of products this scientist considers the basis of the enterprise's competitiveness, especially in the context of the negative impact of sanctions re-

strictions.

Another Russian scientist, E.P. Glukhov, believes that the competitiveness of products is determined by obtaining additional competitive advantages for the enterprise [1, p. 87]. They are formed due to the effective use of resources and the quality of products that are in high demand and satisfy the needs of potential consumers. At the same time, the production of competitive products provides the enterprise with revenue and additional profit.

In the work of N.N. Pavlova the concept investigated by us is opened through a set of consumer properties and functional parameters of production defining presence of constant and steady market demand for it. This demand is largely based on the preferences and requests of potential consumers who prefer to use this product, despite the availability of similar products from other manufacturers [5, p. 35].

Similar definitions of the concept of product competitiveness are available in the works of other researchers. Thus, H.A. Faskhiev believes that under the competitiveness of products, it considers that the availability of superior quality characteristics of a particular type of products produced by the enterprise in a specific time interval in a specific market segment over competitors, which was achieved without a loss to the manufacturer, is considered by many potential consumers. At the same time, it is determined by the enterprise's potential and the volume of sales of a specific type of products produced by it. Perhaps, this is the most complete and complex definition of the concept of product competitiveness, which takes into account the time, the demand of potential consumers in the market, the "price-quality" ratio for a particular type of product, the possibility of obtaining additional profit by the producer.

Summarizing the above definitions of the concept we are exploring, we can conclude that the key issue in these definitions is the set of product properties. At the same time, most economists identified such a characteristic as quality, but in all cases it was not the only characteristic that determined the existence of a stable market demand for a particular type of product. Proceeding from this, the concept of product competitiveness can be defined as the possibility of successful competition with similar products of other manufacturers expressed through a set of its individual characteristics, as well as the ability to meet the needs and requirements of certain groups of potential consumers. This definition does not set boundaries for the competitiveness of products through the "price-quality" ratio. In addition, it follows that the ability of each specific product to compete with similar products is determined by some set of individual characteristics.

Among the above approaches to determining the essence of the economic category "product competitiveness" are most common:

- an approach based on the key role of price in ensuring product competitiveness;

- a quality-based approach, as the main characteristic, designed to meet the needs and requirements of potential consumers in ensuring product competitiveness;
- an independent approach in which a key role is built on the needs and requirements of potential consumers and the ability of a particular type of product to better satisfy them than a similar product.

Based on the brief analysis of various definitions, the essence of the economic category of "competitiveness of products" of enterprises, taking into account the negative impact of sanctions restrictions, should be understood as the aggregate set of its individual characteristics that can most fully satisfy the needs and preferences of potential consumers. This ability is produced by the enterprise through a set of individual characteristics that are recognized by the target consumers as the most significant and to the greatest extent consistent with their needs and preferences. However, in the context of the negative impact of sanctions restrictions, the requests and preferences of target consumers are subject to significant and dynamic changes. Therefore, in order to maintain the competitiveness of specific types of products, the enterprise must respond promptly to any changes in environmental factors, including the impact of sanctions restrictions.

Conclusion

Based on the results obtained during the research, the following conclusions can be formulated:

1. The introduction of sanctions restrictions entailed the emergence of additional factors of the negative influence of the external environment on the development of production of many Russian enterprises.
2. New economic peculiarities of the essence of the economic category of "competitiveness of products" of enterprises, which resulted from the negative influence of sanctions restrictions, were revealed. These include the ability to manage competitiveness as one of the key parameters of the strategic development of Russian enterprises, the dynamics of its change over time, the contradictoriness of the interests of producers of products and its potential consumers.
3. The essence of the economic category of "competitiveness of products" of enterprises is clarified, taking into account the negative impact of sanctions restrictions as a set of its individual characteristics that can most fully satisfy the needs and preferences of potential consumers. However, in the context of the negative impact of sanctions restrictions, the requests and preferences of target consumers are subject to significant dynamic changes. Therefore, in order to maintain the competitiveness of the products, the enterprise must respond promptly to any changes in environmental factors.

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開發數學模型«Profitability-risk», 以形成有效的管理主體投資政策
Development of mathematical model «Profitability-risk» for formation of an effective investment policy of managing subjects

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該工作使用G. Markowitz的經典投資組合分析研究主要世界貨幣匯率的波動。在統計數據的基礎上，估算了它們之間的預期盈利能力，風險和相互協方差，構建了投資期限的價格預測模型。收到的結果可以製定經濟主體的有效投資政策。

關鍵詞：Markowitz模型，盈利能力，風險，管理，風險，財務。

Annotation. *The work studies the fluctuations in the rates of major world currencies using the classical portfolio analysis of G. Markowitz. On the basis of statistical data, the expected profitability, risk and mutual covariance between them are estimated, the models of the price forecast for the investment horizon are constructed. The received results allow to develop an effective investment policy of economic subjects of economy.*

Keywords: *Markowitz model, profitability, risk, management, risks, finances.*

Introduction

Any enterprise that plans to develop its activities in the face of the negative impact of sanctions restrictions, it is necessary to solve the issue of effective management of corporate finance. In this regard, the formation of such an investment portfolio, which would allow preserving and multiplying the assets of the enterprise, becomes especially important. In this article, a method is proposed for determining priority investment objects using the mathematical model "Profitability-Risk".

Main part

Following the classical theory of the portfolio [1; 3; 6; 8; 9; 10], we made a representative statistical sample of the exchange rate dynamics of 19 currency pairs: USD / JPY, USD / CHF, GBP / USD, GBP / JPY, GBP / CHF, EUR / USD, EUR / JPY, EUR / GBP, EUR / CHF, CHF / JPY, AUD / USD, CAD / USD, EUR / AUD, EUR / NZD, GBP / AUD, NZD / CAD, NZD / JPY, NZD / USD, USD / CAD. The period from 01/01/2013 to 31/12/2016 is considered. The time interval (bar) was one month [4]. For each currency pair, the average expected return (D_x), variance (D_{sp}) and the corresponding standard deviation (S_{ko}) were calculated (see Table 1). At the same time, the average return on the analyzed statistical sample is used as a measure of the expected yield, and the corresponding standard deviation is used as a measure of risk.

Table 1. Summary table of statistical processing of exchange rate dynamics of currency pairs

N	Currency pair	D_x	D_{sp}	S_{ko}
1	USD/JPY	0,7	9,3	3,1
2	USD/CHF	0,2	5,6	2,4
3	GBP/USD	-0,5	6,1	2,5
4	GBP/JPY	0,1	17,0	4,1
5	GBP/CHF	-0,3	8,9	3,0
6	EUR/USD	-0,5	5,5	2,3
7	EUR/JPY	0,2	11,0	3,3
8	EUR/GBP	0,1	6,5	2,6
9	EUR/CHF	-0,2	4,9	2,2
10	CHF/JPY	0,5	8,3	2,9
11	AUD/USD	-0,7	9,1	3,0
12	CAD/USD	-0,6	6,4	2,5
13	EUR/AUD	0,3	7,2	2,7
14	EUR/NZD	0,0	8,8	3,0
15	GBP/AUD	0,3	10,9	3,3
16	NZD/CAD	0,3	7,0	2,6
17	NZD/JPY	0,3	15,1	3,9
18	CAD /USD	-0,3	12,2	3,5
19	USD/CAD	0,7	6,5	2,6

Note: USD - US Dollar, EUR - Euro, GBP - British Pound Sterling, JPY - Japanese Yen, CHF - Swiss Franc, CAD - Canadian Dollar, AUD - Australian Dollar, NZD - New Zealand Dollar.

In the analyzed currency pairs, the maximum average expected yield was 0.7% (pairs USD / JPY and USD / CAD), and the minimum -0.7% - pair AUD / USD. In turn, the maximum risk - 4.1% - the pair GBP / JPY, and the minimum - 2.2% - the pair EUR / CHF.

Stage 1. From further consideration, the currency pair: EUR / NZD is excluded, since it showed zero yield. At the considered time interval 01/01/2013 - 31/12/2016. The US dollar has steadily strengthened, as can be judged from the steady growth of the US dollar index (see Figure 1) [7, p. 61]. Thus, the *US Dollar Index* shows a general assessment of the state of the US dollar.

The idea of applying the index of the US dollar and the indices of other currencies (euro, the penguin, the Swiss franc, the Japanese yen, the Canadian dollar, the Australian dollar and the New Zealand dollar) is intended to isolate the dynamics of the corresponding currency, which is impossible if only the currency steam. In the article for unification of further comparative analysis of the currencies listed above, all further calculations were performed based on U.S. Dollar Index. Namely, based on the current quotations of currency pairs *EUR / USD*, *GBP / USD*, etc., the corresponding currency indices are calculated for EUR, GBP, etc., relying on the corresponding values of the *USD*X index.

The strengthening of the US dollar led to negative yields in the pairs GBP / USD, EUR / USD, AUD / USD, CAD / USD and NZD / USD, as in these currency pairs the US dollar is in the "denominator". The Swiss franc also significantly strengthened its positions in the foreign exchange market in this time interval (see Figure 1). Therefore, the currency pairs EUR / CHF and GBP / CHF also showed negative results on profitability.

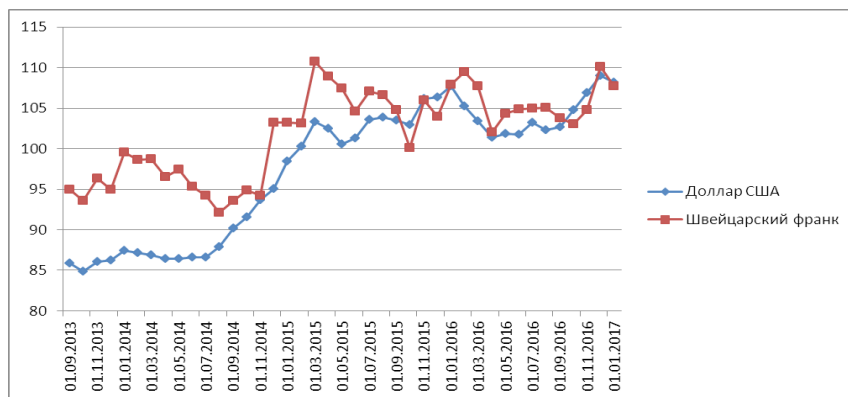


Fig. 1. Dynamics of the US dollar index and the Swiss franc index.

Stage 2. Using MS EXCEL, we will create a point diagram (see Figure 2), where we plot the root-mean-square deviations (risk-Sko) along the abscissa axis, and the corresponding average expected return (Dx) along the axis.

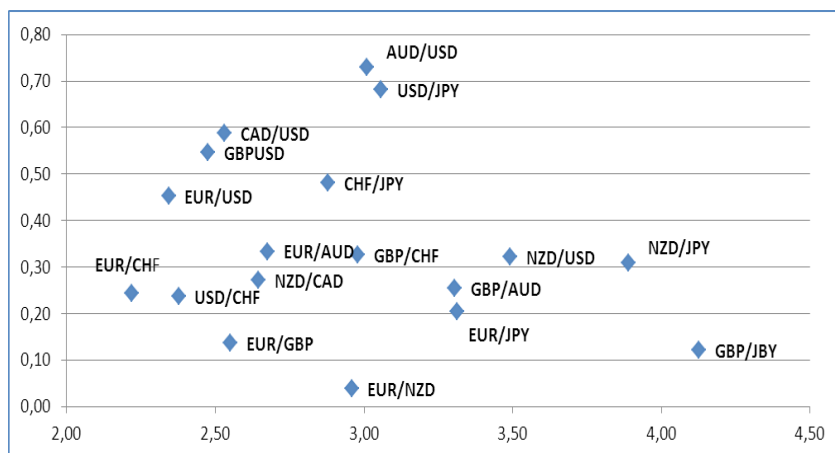


Fig. 2. The dot-graph "Yield-risk", constructed from the initial data.

In Figure 2, for currency pairs GBP / USD, GBP / CHF, EUR / USD, EUR / CHF, AUD / USD, CAD / USD, NZD / USD, the expected return values are represented by absolute values. The foregoing means that before the next revision of the composition of the list of currency pairs under consideration and before updating the corresponding expected values of profitability and risk (taking into account newly arrived historical data on quotes), the expediency of opening only *short* positions (SELL) will be assessed for this list.

A rational investor conducting a comparative analysis of various investment decisions tends to choose those that minimize the risk and maximize the expected profitability. This means that he will prefer financial instruments (currency pairs in the problem under consideration), which in Figure 2 are located to the left and higher [6, p. 368].

To this end, we compare the following pairs of pairs:

1. In terms of yield:

- a) EUR/GBP (rate of return 0,1% and risk 2,6%) and GBP/JPY (0,1% and 4,1%);
- b) EUR/CHF (0,2% and 2,2%) and USD/CHF (0,2% and 2,4%);
- c) EUR/CHF (0,24% and 2,2%) and GBP/AUD (0,25% and 3,3%);
- d) EUR/CHF (0,2% and 2,2%) and EUR/JPY (0,2% and 3,3%);
- e) EUR/AUD (0,3% and 2,7%) and GBP/CHF (0,3% and 3%);
- f) EUR/AUD (0,3% and 2,7%) and NZD/USD (0,3% and 3,5%);
- g) EUR/AUD (0,3% and 2,7%) and NZD/JPY (0,3% and 3,9%);
- h) NZD/CAD (0,3% and 2,6%) and GBP/AUD (0,3% and 3,3%);

i) USD/CAD (0,7% and 2,6%) and USD/JPY (0,7% and 3,1%).

In the above currency pairs, the first pair in terms of risk gives the best results, that is, it dominates the second. Following the main provisions of the classic portfolio analysis, the following pairs are excluded from further consideration: GBP / JPY, USD / CHF, GBP / AUD, EUR / JPY GBP / CHF, NZD / USD, NZD / JPY, GBP / AUD and USD / JPY.

2. There are no currency pairs of equal risk.

Further correlation analysis of yields showed that among the remaining currency pairs in the time interval under consideration, there are no closely related Cheddock scale [5, p. 207]. The most closely linked pairs are GBP / JPY and USD / JPY, EUR / JPY and GBP / JPY are 0.80, while the EUR / GBP and GBP / CHF pairs are the most closely linked (these are so-called mirror pairs [2, c 142]). Let's construct a point diagram: on the abscissa - risk (standard deviation), along the ordinate - profitability (average yield) (see Figure 3). The diagram is constructed after the screening of currency pairs, which are "obvious outsiders."

From the data shown in Figure 3, it can be seen that the remaining nine currency pairs can be considered as two clusters:

a) the first cluster: EUR / CHF, EUR / USD, GBP / USD, CAD / USD and AUD / USD. These pairs in the period under review showed a negative profitability, so we assume that within the nearest investment horizon, the most preferable investment strategy for them is a downgrade game, i.e. opening of short positions (SELL). In the group under review, the range of fluctuations significantly decreased compared to the original values and amounted to: by the yield from 0.24% (EUR / CHF) to 0.73% (AUD / USD), and from 2.22% (EUR / CHF) to 3.01 (AUD / USD).

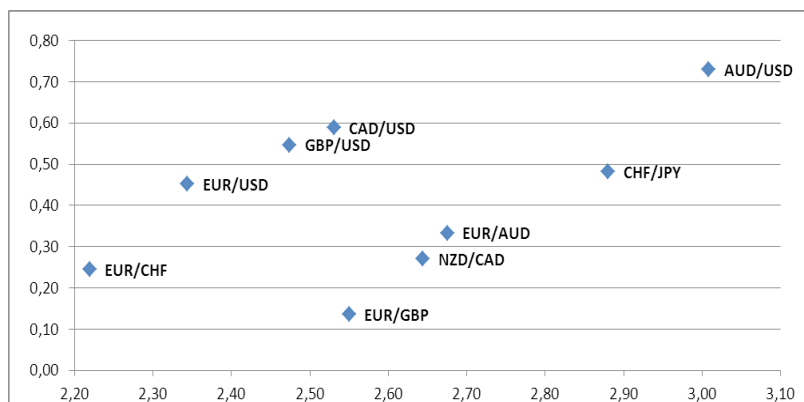


Fig. 3. A point chart after the screening of currency pairs - "obvious outsiders."

b) the second cluster: EUR / GBP, NZD / CAD, EUR / AUD and CHF / JPY. From the table. 1 data it follows that for this cluster of currency pairs, only long positions should be opened. The range of fluctuations for this cluster was: from a yield of 0.14% (EUR / GBP) to 0.48% (CHF / JPY), and from 2.55% to 2.88%, respectively.

Figure 3 shows that the second cluster of currency pairs compared with the first (SELL), on average, showed higher risk values. This means that, within the nearest investment horizon, if there is a choice, you should give preference to short positions (SELL).

Stage 3. Next, we build the "Yield-Risk" models for each cluster separately.

To build the "Yield-Risk" model for the first group (SELL), the "Data Analysis" add-in was used, the "Regression" menu. The quality of the synthesized model was estimated from the value of the determination coefficient. A necessary requirement of the model's suitability was the fulfillment of the condition that the standard errors of the empirical coefficients calculated with a 95% confidence level should be less than the moduli of their coefficients:

$$\left| \frac{\Delta x_i}{x_i} \right| < 1,$$

here Δx_i is the error of the coefficient, calculated with 95% confidence level, x_i - coefficient

Finally, the model for the first cluster constructed by the method of elimination [2, p. 92] has the following form:

$$Dx = 0,08Rs^2 = 0,08 Dsp; R^2 = 0,98;$$

here Dx - profitability (%), Rs - risk (standard deviation), R^2 - coefficient of determination.

The value of the coefficient of determination testifies to the practical suitability of the model obtained. The coefficient of the synthesized model is significant at the 95% level of the probabilistic probability. In Fig. 4 shows the results of the model calculations for the first cluster.

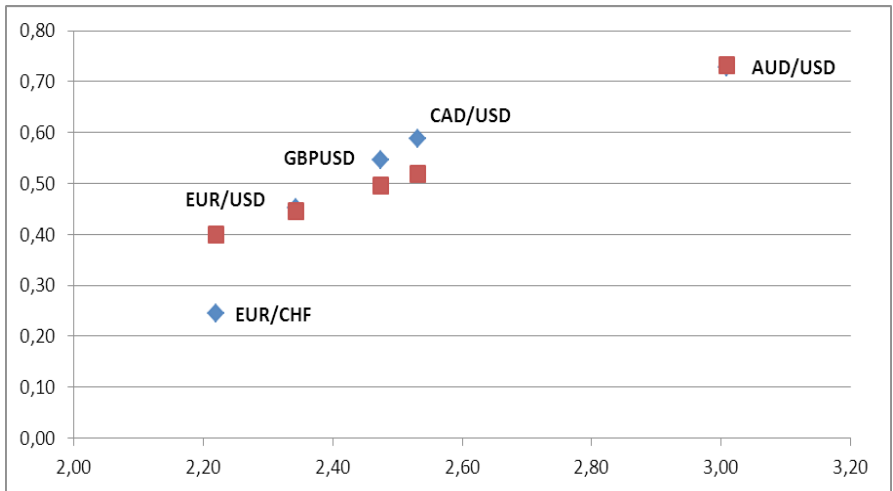


Fig. 4. Visualize the results of the forecast for the first cluster.

Note: the results of the model are marked with squares, and the expected values - with rhombuses.

The synthesized model "Profitability-risk" (for the first cluster) allows you to quantify the relationship between the quantities considered. In other words, for the considered range of standard deviation (2.3 - 3.0%) it follows that an increase in risk by 1% increases the expected return by only 0.5%. More clearly, the results of the forecast are presented in Table 3.

Table 3. The results of the forecast on the "Yield-Risk" model (the first cluster)

Currency pair	Table Dx	Predicted Dx	Remains
EUR/CHF	0,24	0,40	-0,155
EUR/USD	0,45	0,44	0,007
GBP/USD	0,55	0,50	0,051
CAD/USD	0,59	0,52	0,069
AUD/USD	0,73	0,73	-0,004

From the data presented in Fig. 4 and Table 3 it follows that the currency pairs GBP / USD and CAD / USD by the "Yield-Risk" ratio are located above the model and have positive residual values, therefore, they can be attributed to the group of leaders for the first cluster. For pairs GBP / USD and CAD / USD, short positions

(SELL) can be recommended.

b) The model for the second cluster (BUY) is as follows:

$$Dx = 0,0435Rs^2 = 0,0435Dsp; R^2 = 0,91.$$

The model obtained by structure and by suitability criteria is close to the above model for the first cluster. However, one should keep in mind the following fact: an increase in risk by 1% leads to an increase in yield by only 0.28%. The results of the "learning" of the model are reflected in Figure 5 and Table 4.

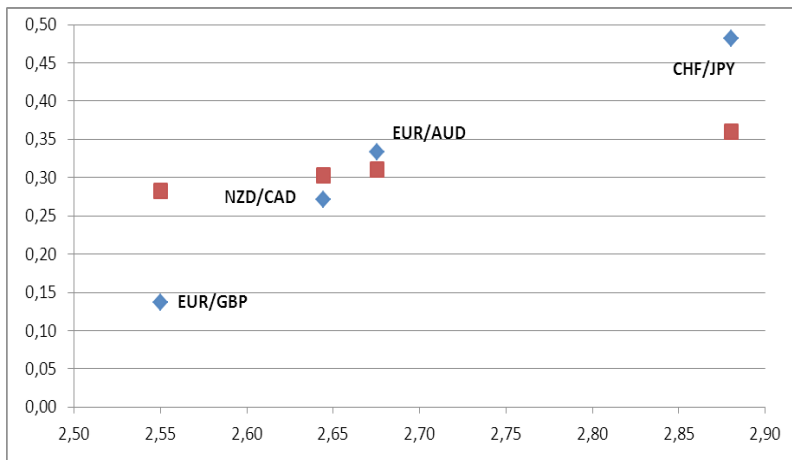


Fig. 5. Visualize the results of the forecast for the second cluster.

Note: the results of the model are marked with squares, and the expected values - with rhombuses.

Table 4. The results of the forecast on the "Yield-Risk" model (the second cluster)

Currency pair	Table Dx	Predicted Dx	Remains
EUR/GBP	0,24	0,28	-0,1457
NZD/CAD	0,45	0,30	-0,0323
EUR/AUD	0,55	0,31	0,0230
CHF/JPY	0,59	0,36	0,1216

Thus, the currency pair CHF / JPY has an advantage over other pairs and, therefore, in the near-term investment horizon for this pair, it is possible to recommend the opening of a long position.

Conclusion

The obtained quantitative relationships of currency pairs dynamics calculated on the basis of the "Profitability-risk" model for two clusters (SELL and BUY) allow:

a) assess the optimal relationship between currency pairs in growing and falling currency markets;

b) determine the priority investment objects (GBP / USD and CAD / USD currency pairs for the SELL group and the CHF / JPY currency pair for the BUY group);

c) make the final choice of the benefit of a particular currency pair, depending on the investor's preferences and on his attitude to risk.

The practical use of the developed Profitability Risk model will allow Russian enterprises not only to effectively manage the investment portfolio, but also to avoid the main financial risks in conditions of a sharp fluctuation in the rates of world currencies caused by the negative impact of sanctions restrictions.

Thanks

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評估國際企業家風險評估方法的主要趨勢

The main trends in the development of the methodology for assessing the risks of international entrepreneurship

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Joint stock company «TYAZHMASH»

本文考慮了現代企業家精神風險管理的現狀。強調了實施國際項目的一些特點以及固有風險。簡要概述了有助於製定風險評估方法的主要全球趨勢。提出了製定有效風險評估方法的主要方向。企業家可以使用擬議的方向來製定風險管理方法。

關鍵詞：國際項目，風險分析，創業，風險管理，水電，重型機械公司。

Annotation. *The current state of risk management in modern entrepreneurship is considered in this article. Some features of the implementation of international projects, as well as inherent risks, are highlighted. A brief overview of the main global trends contributing to the development of a methodology for risk assessment was made. The main directions for developing effective methods for risk assessment are proposed. The proposed directions can be used by entrepreneurs for developing risk management methods.*

Keywords: *international projects, risk analysis, entrepreneurship, risk management, hydropower, heavy machinery companies.*

Introduction – the state of risk management in modern business structures.

The modern period of development of entrepreneurship in conditions of open borders, as well as in conditions of a high level of information openness, is characterized by active participation in international projects. This is particularly evident in large infrastructure and energy projects [1]. And, despite the fact that most often the word energy in the context of state talks of the President of Russia with the heads of other states is associated with oil and gas projects, there are many large business structures implementing projects related to renewable energy sources [2]. Among such structures there are also small generating companies, enterprises that manufacture unique equipment, and construction companies.

It is no coincidence that even international leaders announce large infrastructure projects very often. For example, at the 7th Shanghai Cooperation Organization (SCO) summit in August 2018, the Minister of Finance of the Kyrgyz Republic, at a meeting with the chairman of the State Development Bank of China, stated

that "Kyrgyzstan is ready for large-scale cooperation that facilitates foreign direct investment, including Chinese, in basic infrastructure projects." At the same time, both state officials noted the need to invest in basic infrastructure projects, among which civil construction and energy are an important place [3].

In the same summit Russian leader Vladimir Putin once again confirmed the important role of energy for the development of international cooperation: "a powerful stimulus for regional projects in the interests of all members of the organization is the expansion of cooperation in the energy sector." "I am confident that the dialogue initiated, the interface of national energy concepts, the formation of the energy club will set the priorities for our further cooperation," he said. Presidents of Kazakhstan and Uzbekistan actively supported his speech and spoke about the need to adopt a new policy for the use of water and energy resources in Central Asia [3].

Of course, the implementation of international projects has a number of features, the most characteristic of which are as follows:

- ensuring the ongoing coordination and management of the supply of partner enterprises with a complete list of equipment necessary for the operation of HPPs;
- assessment of financial stability of partner enterprises (sub-suppliers);
- permanent monitoring and control of the project budget;
- the ability to quickly respond to market demands, "flexibility" in the decisions made [4].

But in addition to the most important features listed above, there are serious risks [5]. This is especially true in the modern period, when one of the main trends today is the enlargement of enterprises, especially in industrial enterprises that produce equipment in the energy sector, in general, and in the field of hydropower, in particular.

To minimize risks and increase the effectiveness of international projects, the author proposes to develop a number of solutions that will also contribute to the development of a knowledge-based entrepreneurship of Russia:

- entering of Russian enterprises' products to international markets, including through the merger with large foreign enterprises;
- increasing the volume and improving the quality of scientific research, including the exchange of international experience;
- development and creation of new technologies, the invention of new equipment;
- increasing the export volumes of unique Russian equipment.

In view of the great unpredictability of developments in international markets, as well as the high degree of emerging risks, many researchers, both domestic and foreign, are puzzled by the development of optimal risk management techniques and strategies. In itself, the phenomenon of Risk manifests itself in business in the

fact that some events occur not according to the previously approved plan. And the observed deviations depend, in the main, on the completeness and accuracy of the information available to the manager making decisions.

The main prerequisites for the development of a methodology for assessing the risks of entrepreneurial activity in the implementation of international hydropower projects.

As you know, all risks are conditionally divided into internal and external. Internal risks include all phenomena that the management of an enterprise can affect. They are present in any business structure and practically do not depend on whether this enterprise operates on the national market or implements international projects. External risks include all risks inherent in international projects, depending on the nature of the reasons for their occurrence: country, financial, political, monetary, information, etc. [5].

The occurrence of any of these risks significantly increases the cost of the project, or, other things being equal, reduces its profitability, thereby reducing the opportunity for economic growth of the enterprise. Therefore, it is quite difficult to predict the behavior of a particular subject - even in the performance of obligations of each party there is always a factor of uncertainty. And the question of their analysis, accounting and evaluation should take a serious place in the international economic activities of entrepreneurs. Only in this case it will be possible to count on the successful implementation of international projects, otherwise the consequences for the construction projects of the HPP will not be predictable. On business, this will be reflected in the increase in costs, timing of implementation, and ultimately, the deterioration of the economy of the project as a whole.

Today, the following methods of business situations assessment, most often used by entrepreneurs around the world, are known [6]:

- permanent monitoring of world events, potentially having an impact on the activities of the enterprise;
- accumulation of economic data on the economic situation of the country, the situation in the industry;
- collection and analysis of information about competitors;
- control of the company's risks;
- assessment of the current state of the enterprise and forecast of its condition for the future.

These same methods are also typical for international hydropower projects. All entrepreneurs, leading international business, understand that there is no risk-free business. And enterprise management is a complex, multifaceted process that requires a comprehensive approach in solving emerging situations, including risk situations. Each enterprise is unique, like the project that it implements. Therefore, the methodology for risk assessment can not be universal. Therefore, each

entrepreneur forms for himself his model of risk assessment and analysis, on the basis of which, in consequence, he develops for himself a model of behavior in the market. The model and methodology that will be developed will meet the interests of the particular enterprise, the particular project being implemented, with all its specific features. And the effectiveness of the ongoing risk management policy will largely depend on the experience and professionalism of the specialist who conducts this policy. As a rule, the methods developed by enterprises remain their trade secrets, and are not public property. Therefore, we note that the generally accepted methods described above can form the basis for a modern study of methodologies for assessing the effectiveness of risk management.

Conclusion.

Summing up, the author notes that the analysis and assessment of risks at enterprises of any business activity should be carried out permanently, and not occasionally. In the best case, such an analysis should be conducted not by a separate unit evaluating the risks, but by a group within the Directorate for Project Management [7, 8]. All risks must be assessed objectively, taking into account the probability of occurrence of certain events.

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管理食品行業的創新過程

Management of innovative process in the food industry

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作者的結論是，由於創新過程的創新和管理，可以提供食品工業的發展。作者對食品行業的創新進行了分類和概念。

作者提出了一些促進食品工業發展的措施。提供了食品工業創新組件的發展前景和食品工業創新過程管理措施。

關鍵詞：食品工業，創新，創新發展，創新過程管理。

Annotation. *The author concludes that the development of the food industry is possible to provide due to innovations and management of the innovation process. The author classifies and gives concepts to innovations in the food industry.*

The author proposes a number of measures for the development of the food industry. The prospects of development of innovative component of the food industry and measures for management of innovative process in the food industry are offered.

Keywords: *food industry, innovation, innovative development, management of innovative process.*

The issue of ensuring food security is always relevant for both developed and developing countries.

To achieve the interests of both consumers and producers of food products, to reduce food imports, to develop the country's food industry, to give new impetus to the development of agriculture and the main sources of raw materials for food production, to ensure the country's food security is possible on the basis of innovative development of the food industry.

According to the Oslo Manual, innovation is the end result of innovation, embodied in the form of a new or improved product (product, work, service), a production process, a new marketing or organizational method for doing business, organizing workplaces, or organizing external relations.

In the food industry, food, technological (process), marketing, organizational

innovations can be obtained.

The food innovations of the food industry are a product with novelty, obtained as a result of innovative activity, intended for mass consumption, for certain categories of individuals and groups of the population with the aim: to expand the range and nomenclature, to treat and prevent, meet the needs of the population for consumption of food products other than traditional.

Technological or process innovations are designed to facilitate, improve the process of obtaining innovation by using new technologies, improving the technological process.

Marketing innovations are aimed at researching sales markets, new marketing channels, searching for new consumers, using new methods of sales, promoting innovative products, promoting food products to markets, forming new price strategies.

Organizational innovations are a new method of conducting the food business, organizing new external relations, organizing workplaces, a new management style, and making new creative decisions.

To solve the main tasks at all levels of management, it is important to ensure an innovative process in the food industry. The need to pay attention to all stages of the innovation process is due to the fact that foodstuffs often have compressed and short storage periods, peculiarities of their storage and delivery conditions, the need for the correct ratio of the proportions of certain useful substances. In this connection, research and development is needed, since consumers are interested in: storage conditions, shelf life, quality, composition, availability of nutrients and nutrients in products, etc.

The basis for qualitative changes in the food industry is the creation of new innovative food products, new types of raw materials, new technologies should be used. It is necessary to ensure the processing of raw materials and enter the world markets with high-quality finished products.

In many respects, countries of independent states can become one of the world's largest producers of food products, especially for the production of environmentally friendly food.

Organizational innovations include agricultural cooperation. One of the main innovations in the agrarian sector is connected with the development of agricultural cooperation. Legislative and regulatory framework for agricultural cooperation defines the status of the agricultural production cooperative (APC) as a commercial organization and allows its members to distribute profits. [1] Previously, there was no such opportunity for farm associations. The adopted laws provide for a mechanism for the allocation of state subsidies to the members of the APC in accordance with their participation in the authorized capital.

Low purchase prices for agricultural products do not stimulate an increase in

their production volumes, which ultimately leads to a low share of processing of agricultural raw materials, underloading of processing capacities and ultimately to a high share of food imports.

Marketing innovations are important to develop, as the products of small and medium-sized domestic producers noticeably lose in quality and packaging, sales and sales channels and are not able to compete successfully with foreign suppliers. Affected by the absence of its own trading network, the creation and maintenance of which not every enterprise is available.

It is necessary to develop technological innovations, it is important to modernize and diversify production in the food industry, introduce innovative processes and technologies for the production of import-substituting domestic products that meet modern quality and safety requirements at the food industry enterprises, it is important to use intensive technologies, to solve the issue of marketing finished products through the development of food competitiveness industry. It is important to form the image of the countries' food as environmentally friendly, natural and quality. It is important to introduce biotechnologies on the basis of which high-tech production will be created with more effective production of the target product with reduced losses of raw materials, with the production of food products with various functional properties that will allow increasing the level of processing of raw materials, expanding the range of products and solving environmental problems.

To do this, it is important to develop the infrastructure and logistics of the food market, it is necessary to integrate enterprises into the system of interregional and world food markets, it is necessary to ensure the competitiveness of food at a new quality level.

It is necessary to create favorable institutional conditions for the development of the industry. The scientific and personnel support of the industry is important. In this case, the industry will be developed on the basis of knowledge-based approaches and innovative solutions, training qualified industrial and production personnel.

From the point of view of the innovative process of the industry under consideration, cooperation of enterprises with industry research institutes is important, which will allow us to introduce competitive ideas into the food industry, in the course of which the industry can enter a new level of development.

Innovative directions in the production of foodstuffs presuppose the creation of conditions and prerequisites for obtaining high-quality foodstuffs, in the required quantity, in accordance with established norms of consumption, the receipt of specialized products for children's and dietary nutrition, therapeutic action, products that take into account national peculiarities in nutrition of certain population groups .

Innovative developments of modern biotechnical processes of processing of agricultural raw materials are important, allowing to intensify production, to reduce their energy consumption, to expand the assortment, to increase the consumer properties of balanced easily digestible food and beverages.

Special attention should be paid to innovations aimed at developing scientific foundations for the organization of cross-cutting agro-food technologies. Also important are scientific studies of physical and biological chemistry, nanotechnology, microbiology, fermentology.

The direction of innovation should be the design and creation of multicomponent food products, at the heart of this process lies the principle of analytical combinatorics.

The innovation process involves the involvement of quality raw materials, an idea different from traditional production, new technologies, new methods of organization and production, new packaging and distribution channels, a new management style, the adoption of creative, non-traditional solutions; combining together the raw materials, personnel, scientific, technological, educational, production, commercial and marketing components, as a result of which the marketing, process, organizational, managerial innovations can be obtained and used in parallel with the achievement of the main goal - the production and sale of food innovation in the food industry .

The innovative process of creating new forms of food products, proceeding from the developments of domestic scientists, can go in three directions: the exclusion of any undesirable component from the composition of the product; enrichment of the product with the necessary component of preventive or curative action (vitamins, trace elements); replacement of the composition, in which, instead of one seized component, another analogous one with the necessary or useful properties is introduced.

It is important and necessary to create combined products with complex raw materials, including meat, dairy and vegetable raw materials in various combinations. In various combinations, the combined raw materials make it possible to give these products the required functional properties, to take into account the habits and traditions in the food culture of the population of different regions and countries.

It is important that research is carried out not only with economic expediency, for example, in order to increase their output from the raw material, but also in order to improve the quality of the food products. Unfortunately, scientists often seek replacements in the production of animal protein foods for cheaper - vegetable and methods and technologies for their joint application.

It is also important to think about the issue of cooperation and integration in the food industry.

What assumes the management of the innovation process in the food industry:

- conducting research and development, ensuring deep processing of raw materials and obtaining innovative food products;
- development of modern resource-saving methods and technologies in the production of food products;
- development of highly effective technologies for safe products of general, special and baby food using modern food design methods by creating modern polycomponent food products for different population groups;
- development of technologies for functional food products with a metabolically adequate composition, contributing to an increase in the effectiveness of pathology treatments;
- development of scientific foundations and production methods for the ecologization of the food industry with a view to reducing the technogenic impact on the environment through the development of scientifically grounded recommendations, methods and technical solutions for the greening of industrial technologies that increase the level of integrated processing of raw materials and protect the environment.

- The food industry of Kazakhstan is one of the most developed sectors of the economy with a significant segment of the domestic market and an emphasis on natural products and traditional technologies for the production of agricultural raw materials. Kazakhstan is one of the world's top 10 countries in terms of share in world flour markets, but this position limits its participation in the world market of food products. Let's present the main promising directions of production of food products.

- The first promising direction is the production of dietary foods:
 - production of therapeutic and health products of porridges, chips, biscuits, bread from whole grains, tk. humanity is committed to a healthy lifestyle, to the consumption of environmentally friendly products, products that do not contain GMOs. To date, a new fashion trend has been the right food. This indicates a high culture, growth and opportunities for the population;
 - collection and processing of nature gifts (mushrooms, berries, medicinal plants). This type of activity is currently not carried out on a scale sufficient for the organization of industrial processing, but in the future, when forming specialized procurement centers, it is possible:
 - canned products from berries and mushrooms (jams, preserves, compotes, marinades, etc.),
 - cultivation of cereals and buckwheat, the prospects of processing which are associated with the release of packaged cereals, the production of dietary bakery and pasta.

The second promising direction is the production of frozen vegetable products,

as now domestic greenhouses produce a limited set of vegetables, and in the summer time it is possible to produce, freeze, preserve and supply vegetable mixes to the market. In Kazakhstan, having analyzed, it can be concluded that there is no domestic frozen vegetable production on the market, import expensive vegetable mixes are on the market. However, the production of vegetables and the further increase in their consumption implies the construction of greenhouse complexes for growing vegetables and the development of storage systems for vegetables and root crops, which at the moment is not in sufficient quantities.

The third direction is the production of products with medium and high added value in the processing of grain: in particular bioethanol, gluten, starch, fodder yeast. This direction also requires state support and investment.

The fourth direction is the production of flaxseed, safflower and rapeseed oil. In Kazakhstan, the production of oilseeds, is a priority in the diversification of agriculture. Undisputed leader in production volumes among oilseeds in Kazakhstan is sunflower. However, promising crops are also flax, rapeseed and safflower. Safflower was drought-resistant, undemanding to soils, well tolerating low temperatures, seeds hardly crumble until maturing. There is a state support in the form of subsidies, for those who grow safflower.

The fifth direction is egg processing, because thanks to the development programs, state support, Kazakhstan has fully provided itself with this product, therefore competition is tightening inside the country. In the world there are two directions of consumption of products of deep processing of eggs:

1) for industrial purposes, especially at fat-and-oil and confectionery enterprises, separate use of egg components is required. Also, the separation of protein and yolk requires the pharmaceutical and textile industries. This is the outlook for the integration of industries.

2) a liquid egg in a convenient package minimizes losses in transportation. Potential consumers - the sphere of catering, ordering eggs in large quantities.

It is necessary to establish deep processing of eggs in Kazakhstan, because today this product is in demand. To do this, it is necessary to include this direction in the existing programs for the development of the food industry and take the following measures:

a) subsidize a partial reduction in the cost of imported equipment for the poultry industry to 50%;

b) accelerate the signing of the rules of investment subsidy, according to which the company returns up to 20% of the investment spent;

c) create your own branded products.

The sixth direction is the production and processing of fish. Kazakhstan has a relatively large area of inland water bodies. With the collapse of the Union, the previous economic ties were lost and this had a negative impact on the country's

fisheries. The fish industry consists of two directions:

1. Fishing, whereby natural stocks of fish are developed;
2. Industrial (commercial) fishing or aquaculture, in which, caught the grown artificial stock.

To reduce the pressure on the population in natural reservoirs, it is necessary to develop commodity fishing. Five years ago, the fishing industry was recognized as an agricultural commodity, so tax preferences began to spread and access to state support measures was introduced.

The country's food security depends on the level of the population's incomes, the opportunities and the conditions for the production of food products by producers. The level of development of the food industry depends on economic efficiency, social welfare, environmental security.

The development of the food industry should give impetus to the development of agriculture, biotechnology, chemistry, physics, nanotechnology.

The development of the food industry must move to a new qualitative stage of development, based on innovation and management of the innovation process.

It is important to develop and receive process, product, organizational, marketing innovations in the food industry through the competent management of the innovation process.

In such areas as the production of dietary food products, the production of frozen vegetables, frozen berries, egg processing, the production of linseed, safflower and rapeseed oils, the production of products with medium and high added value in the processing of grain, production and processing of fish, the market is still free, there is many unoccupied niches, these are promising areas for increasing the competitiveness of Kazakhstan's food industry, which must be developed.

To implement the above-mentioned promising areas, it is necessary:

- ensure the interaction of food enterprises with scientific institutions;
- coordinate the actions of scientific, technological structures and food enterprises in the joint acquisition of domestic technologies;
- Develop and move to marketing strategies, give the opportunity to obtain marketing innovations;
- to form and combine scientific, technological production, commercial potential and jointly implement the innovation process in the industry under consideration;
- develop PPP mechanisms for the development of the food industry;
- Propose mechanisms for financing priority areas;
- to form an effective infrastructure, to form new ones and to develop existing service and procurement centers to collect agricultural products from the population and small farms for its subsequent transfer to processing;

- to promote the development of cooperation of small farms for the formation of large-scale production cooperatives;
- provide farmers and farmers with low-cost credit lines with long maturities;
- subsidize through the Business Roadmap 2020, partial reduction in the cost of imported equipment to 50%;
- accelerate the signing of the rules of investment subsidy, according to which the company returns up to 20% of the investment spent;
- to attract foreign investors to the perspective export-oriented sectors of the food industry (growing and processing rape, safflower, flax, processing of mushrooms, berries, vegetables, production of frozen foods, cultivation of valuable fish varieties, etc.);
- create own branded products.

Thus, the implementation of the above-mentioned measures will create a powerful food industry in the Republic of Kazakhstan to ensure the normal life of the population, restore and preserve its health, improve agricultural production, social reorientation of the country's basic industries, and finance the state budget.

Innovation and competent management of the innovation process will allow to modernize and diversify production in the food industry, increase the competitiveness of food products and expand their sales market, create favorable institutional conditions for the development of the industry, coordinate the training of scientists and specialists in this industry, carry out their training and retraining, apply intensive technologies for the production of food products, ensure integration and cooperation th sectors and industries.

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管理哈薩克斯坦共和國製藥業的創新過程

Management of innovative process of pharmaceutical industry in the Republic of Kazakhstan

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該文章涉及哈薩克斯坦共和國製藥業創新過程的管理。 分析了製藥行業的生產動態。 顯示了哈薩克斯坦共和國各地區的主要藥品生產商。 研究了2018年藥品的消費者價格指數。 已經確定了妨礙製藥工業創新發展的許多問題，並且已經提出了消除問題的方法。

關鍵詞：製藥業，創新，SWOT分析，生物技術，製藥。

Annotation. *The article deals with the management of the innovative process of the pharmaceutical industry in the Republic of Kazakhstan. The dynamics of the production of the pharmaceutical industry is analyzed. The main producers of pharmaceutical products in the Republic of Kazakhstan by regions are shown. The consumer price index for pharmaceuticals for 2018 was studied. A number of problems that hamper the innovative development of the pharmaceutical industry have been identified, and ways of eliminating problems have been proposed.*

Keywords: *pharmaceutical industry, innovation, SWOT - analysis, biotechnology, pharmaceuticals.*

Introduction

In connection with the constant growth of production and environmental degradation, the problem of the evolution of diseases and their effective treatment becomes more widespread. The dynamic development of the pharmaceutical market is determined by its priority of life, since mankind from the very beginning of its existence needs constant consumption of medicines and medical products to maintain health at the necessary level for a full life.

The pharmaceutical market is an important sector of the economy of any coun-

try and is the criterion of its economic and social development, the level of the well-being of the population.

The relevance of the research is that the developed pharmaceutical industry of the country is considered an indicator of high innovation in its economy. In modern conditions, pharmaceuticals have become the most profitable industry, attracting investors. Analysis of the current state of the pharmaceutical market in Kazakhstan, including its development in the near future, on the basis of international and domestic organizations.

Results and discussion

Today, the pharmaceutical industry of the Republic of Kazakhstan is a dynamically developing industry, which for the years of its formation managed to attract foreign investments to the domestic market. Such large manufacturers as Pfizer, Sanofi, Polpharma, Nobel, Pharmstandard, Kelun and many others came to work in Kazakhstan. Although the formation of its own strong pharmaceutical industry is a very long, laborious and expensive process. Also, it is necessary to create conditions for import substitution of pharmaceutical and medical products on the basis of modern technologies in accordance with the international standards of GMP (Good Manufacturing Practice).

Today the domestic pharmaceutical industry is engaged in research, development, mass production and distribution of medicines, medical products and medical equipment. At the moment there are more than 200 pharmaceutical companies operating on the Kazakhstan market. Of these, about 11 production sites, 7 domestic enterprises comply with the international quality standards GMP (Good manufacturing practice) [1].

At present, the pharmaceutical market in Kazakhstan is saturated with a variety of products, but at the same time, the range of domestic products does not fully satisfy the demand of consumers. With the support of the public health development program of the Republic of Kazakhstan "Densaulyk" for 2016-2019, the Republic plans to introduce compulsory social health insurance within its framework. This will contribute to the development of the market of medical services, improving their quality and increasing the consumption of medicines [2].

The research of the pharmaceutical industry showed that the volume of production in January-May of 2018 amounted to KZT32.7 bn., this is lower compared to 2017. The volume of production in physical terms amounted to 10.7 million kg. (106.1%), Dynamics is shown in Figure 1 [3].

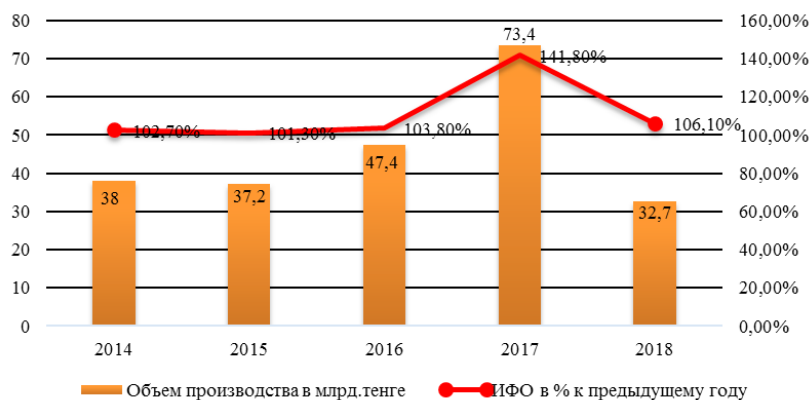


Figure 1 - Dynamics of pharmaceutical production volumes, billion tenge

The reason for the decline in the production of essential medicines and other pharmaceuticals was associated with a decrease in the production of vitamins; medicines containing pure and mixed products; masks; antiseptics.

Also, in the first half of this year the number of pharmaceutical companies increased from 10 to 11. In Kazakhstan, domestic pharmaceutical plants produce more than 800 names of medicines. Thus, in the regional context, the leaders of domestic pharmaceutical production are South-Kazakhstan oblast (46.5%), Almaty region (29.3%), Almaty (14.2%), presented in table 1.

Table 1. Major manufacturers of pharmaceutical products in the Republic of Kazakhstan and their location by region

Large manufacturers of pharmaceutical products in the territory of Kazakhstan	Regional location of production capacities
TOO «АбдиИбрахимГлобалФарм»	Alma-Ata's region
TOO «Kelun-KazPharm»	Alma-Ata's region
TOO «Dolce»	Alma-Ata's region
Almaty Pharmaceutical Factory «Нобель»	Almaty city
TOO «Авропа»	Almaty city
TOO «Cheminnova Alimor Kazpharm»	Almaty city
TOO «Rapid-Alimor Pharm Industries»	Almaty city
TOO «Dosfarm»	Almaty city
TOO «Химфарм»	South-Kazakhstan region
TOO «Зерде-Фто»	South-Kazakhstan region

Analyzing the import and export of the pharmaceutical industry of the Republic of Kazakhstan, its main feature is high import dependence, and extremely low orientation for exports. Based on this, we see that the export of pharmaceutical

products for the period of 2017 increased by 62% to \$ 12.3 million, and imports amounted to \$ 992 million, up 13% from the same period in 2016 [4]. As a result of import dependence, the cost of medicines in Kazakhstan remains higher than in countries with a developed pharmaceutical industry. So, according to the results of the first quarter of 2018, prices for pharmaceutical products increased by 2% - to the previous quarter, and by 6.6% - to the same period a year earlier [5]. The consumer price index for pharmaceuticals in the Republic of Kazakhstan is shown in Table 2.

Table 2. Consumer Price Index for the 1st quarter of 2018

Q1 2018, %

	2018		2017	
	to the previous quarter	to the same period of the previous year	to the previous quarter	to the same period of the previous year
Pharmaceutical preparations	102,0	106,6	102,4	111,4
Antibiotics	102,8	106,2	102,2	109,8
Vitamin preparations	102,1	106,0	101,8	106,0
Vasodilators	101,3	104,3	103,0	110,5
Antipyretic	102,7	105,4	102,0	115,6
Analgesics	102,8	112,7	102,5	115,7
Antiseptic preparations	99,9	107,2	103,1	108,2
Corvalol	100,8	101,5	99,1	108,4
Hormonal	102,9	120,5	105,7	115,5
Gastric	103,2	109,1	101,3	110,6
Kidney	101,4	105,4	100,6	111,3
Diuretics	101,3	105,5	102,4	117,8
Cough syrups	101,4	106,0	102,7	114,4
Ointments	101,2	105,2	103,5	116,3

The most noticeable annual price increase was recorded in the hormonal drugs segment - at once by 20.5%. Analgesics have also risen in price - by 12.7% for the year, and gastric drugs - by 9.1%. As can be seen from the above data, the republic remains dependent on imports. And this is one of the main problems, since the European countries are in the euro area and complement each other with a range, fluctuations in the exchange rate are not reflected in them. Here in Kazakhstan, we feel that any changes in the exchange rate of the tenge and the ruble immediately affect the cost of Russian and Belarusian medicines.

And to ensure national security, in accordance with international practice, it is necessary that no less than 30% of the drugs are produced domestically. In order to reduce the risks associated with import dependence in the field of medicines and thereby strengthen its national security, it is necessary to increase the share of domestic products in the state order to 50%, the Kazakh President N.A. Nazarbayev.

It is also necessary to understand the pros and cons of the development of the pharmaceutical industry in the Republic of Kazakhstan, they can be illustrated using the SWOT analysis in Table 3.

Table 3. SWOT - analysis of the development of the pharmaceutical industry

Weaknesses	Strengths
- dominant position in the Kazakhstan market of pharmaceutical companies from the EU, India, Turkey; - Lack of personnel able to work according to international standards; - problems of access to credit resources; - lack of modern production technologies; - lengthy procedure for registration of medicinal products; - the emphasis of the public procurement system on the purchase of expensive original preparations at the expense of mass generics; - The interest of a significant part of doctors to prescribe imported drugs, and the staff of pharmacies-to offer customers expensive imported drugs.	- the readiness of the industry for modernization and state support; - ensuring demand through government procurement of medicines, medical products; - export potential to the markets of the CIS countries and Mongolia; - Political stability of the Republic of Kazakhstan and favorable geographical location.
Opportunities	Threats
- production of new generic drugs after the expiration of the patents for original medicines; - guarantee of sales up to 7 years by concluding long-term contracts; - purchase (transfer) of technologies will allow the production of modern drugs; - organization of contract production with foreign companies; - transition to rational medicinal provision - increase in consumption of domestic generics.	- dependence on imports of pharmaceutical and medical products; - dependence on imports of raw materials and packaging materials; - rapid development of the pharmaceutical industry in India and China; - reduction of exports to the countries of Central Asia with the introduction of new production capacities of the pharmaceutical industry; - increase in imports of pharmaceutical products from the Russian, Belarusian and Ukrainian sides.

The SWOT analysis shows that the weak points of the pharmaceutical industry remained practically unchanged, despite all the Development Strategy of the Republic of Kazakhstan and with the support of state programs.

At all thus, the analysis shows the basic problems of development of the pharmaceutical industry:

1) the problem of import substitution and backwardness of Kazakhstan's technologies for the production of medicines. The process of import substitution under the current conditions will be quite long, as it requires a change in the legislative base, additional financing for the rearmament of certain industries and the renewal of the assortment portfolio.

2) the global problem is the lack of own innovative products. Kazakhstan is not a country of innovative products, but generics, that is, the main part of the product portfolio of domestic producers is low-profit drugs, which does not allow pharmaceutical producers to allocate more than 1-2% of their revenues for research and development.

3) the problem of stimulating foreign investment in the pharmaceutical industry. In the issue of stimulating the placement of pharmaceutical and biotechnological products by foreign companies in the territory of the Republic of Kazakhstan, there arises the problem of obtaining licenses and placing the corresponding productions.

Thus, we come to conclusions about the need for innovative mechanisms for implementing the policy of improving the pharmaceutical industry in the Republic of Kazakhstan. And to solve the above problems, we suggest ways of eliminating problems for the innovative development of the pharmaceutical industry in Kazakhstan:

- Development of production technologies for new substances and original medicines with high Kazakhstan content in accordance with the GMP standard;
- organization on the basis of innovative and digital technologies for pilot production of new domestic medicinal products;
- providing state support to scientific research at the national and international levels, with a view to achieving universal coverage of the population with medicines;
- it is necessary to solve the problem with small volumes of production of domestic producers of pharmaceutical products, increase the budget of R & D and consider the issue of tax incentives for the development of the industry;
- state support is needed in the field of training of personnel development.

In order to develop the pharmaceutical industry of the Republic of Kazakhstan, we propose to introduce "pharmaceutical biotechnology" in the field of development of completely new medicinal preparations. Since, it is one of the main drivers of today's pharmaceutical industry around the world.

Against the backdrop of today's situation, when the patent protection of many innovative products comes to an end, and new drugs are very small, large pharmaceutical companies incur large losses in the traditional sector of chemical and synthetic businesses. That is why the interest of large pharmaceutical companies in this young sector is growing and today determines the process of innovative development of the pharmaceutical industry. Thus, modern biotechnologies used in medicine use methods to influence the pathological process at the level of molecules and genes. It has two main objectives: to analyze the pathogenesis of the disease at the molecular level and to produce drugs based on genetic modifications of microorganisms and body cells. This means that biotechnology is replacing traditional drug manufacturing technologies, opening up new opportunities for the pharmaceutical industry. Biotechnologically, they produce genetically engineered proteins (interferons, interleukins, insulin, vaccines, etc.), enzymes, diagnostic agents (test systems for drugs, drugs, hormones, etc.), vitamins, antibiotics, biocompatible materials, etc.

In the total volume of manufactured pharmaceutical products, the share of medicines is steadily growing, obtained by biotechnological methods.

Consequently, as a result of the introduction of the biotechnological process, we not only solve the above problems, but also get additional positive results:

- We increase the interest of investors in biotechnology companies;
- We increase the growth rate of this sector as a whole throughout the country;
- a large pharmaceutical company will obviously strengthen its position in this sphere by buying high-quality players, various models of cooperation and joint development, financial investments in young developing companies or creating their own subsidiaries, large biotechnological offices;
- with the advent of biotechnology drugs, we are helping in the treatment of serious diseases, which will reduce the risk of deaths and diseases in the country.

Conclusion

In general, it can be noted that the positive factors of the pharmaceutical market in Kazakhstan are an increase in the state's spending on financing health care and medicines, the introduction of highly specialized medical technologies. It can be safely said that the pharmaceutical market in Kazakhstan has prospects for further development. But despite the positive development trends, Kazakhstan's industry continues to experience a number of problems, to overcome which requires consistent work.

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制定改善貿易周轉管理政策的措施
**Development of measures to improve the policy of trade turnover
management**

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在現代條件下，在提高企業間競爭力的過程中，管理貿易企業營業額的問題變得更加迫切，其解決方案是任何貿易企業不斷發展的主要任務之一。該研究的目的是對零售額進行分析，並為改善貿易企業的貿易管理政策提出建議。在文章中，以零售網絡“Magnit”為例，研究了在現代條件下管理企業營業額的問題，確定並證明了各種標準對貿易量的影響，以及引導的原因確定貿易企業的營業額減少。在本文中，我們根據所進行的分析，制定了尋找增加貿易額的方法的任務，並展示了解決這一問題的建議措施。

關鍵詞：營業額，分析，解決方案，營業額增加，改進方式，零售網絡，管理，企業，提高管理效率。

Annotation. *In modern conditions, in the process of increasing competitiveness between companies, the problem of managing the turnover of a trading enterprise becomes more urgent, and its solution is one of the main tasks for the continuous development of any trading enterprise. The purpose of the study was to conduct an analysis of retail turnover and develop recommendations for improving trade management policies for trade enterprises. In the article, on the example of the retail network “Magnit”, the problems of managing the turnover of the enterprise in modern conditions are examined, the influence of various criteria on the volume of trade is identified and justified, and the reasons that lead to a decrease in turnover in trade enterprises are identified. In this paper, we formulate the tasks to find ways to increase trade turnover on the basis of the analysis carried out, and the recommended measures to solve this problem are shown.*

Keywords: *turnover, analysis, solutions, increase in turnover, ways of improvement, retail network, management, enterprise, improving management efficiency.*

Turnover is one of the most important indicators of the living standards of the country's population. It determines the capacity of the trading enterprise, since by its magnitude one can reason about the scope of the enterprise's activity [4, p.131].

The main goal of trade enterprises is to maximize profits. The most important necessary factor, without which this goal will not be achieved, is turnover. Its structure includes the amount of sale of goods to the population through the retail trade network and public catering enterprises, as well as the sale of goods to enterprises, institutions and organizations.

Under the term turnover refers to the sale of consumer goods and the provision of paid commercial services to the population to meet their own needs in exchange for its cash or other enterprises - for the next processing or trade. Economic relations associated with the exchange of monetary incomes for services, show the economic nature of trade [4, P.132].

The main goal of managing the trade turnover of a trading enterprise is to ensure high rates of development of a trading enterprise and to meet the demand of serviced customers.

In connection with this goal, the following problems face the management of commodity turnover:

- Planning the volume of goods sold, which ensure that the company receives the required amount of profit;
- Ensuring effective use of the available resource potential in the course of commodity turnover planning;
- ensuring the planning of the structure of turnover, which is the most appropriate to the structure of demand for serviced consumers;
- planning the volume and structure of the receipt of goods and the amount of commodity stocks that ensure the smooth operation of the trading enterprise and the stability of the range of goods in the places of its sale [2].

Let's analyze the level of trade turnover of the retail network "Magnit". Public Joint Stock Company "Magnit" is one of the largest retail networks of the trade industry in Russia. As of September 30, 2017, the sales network includes 11,388 stores, of which 9,246 "store by the house" format stores, 208 hypermarkets, 127 "Magnit family" stores and 1,807 "Magnit-Cosmetics" stores. Magnit is the leading retail company in terms of sales in the Russian Federation. According to the accounting data, the company's revenue (turnover) for 2017 was 331 967 thousand rubles.

Before analyzing the structure of the retail trade of the retail chain "Magnit", we will consider the dynamics of the company's turnover for 2012-2017. (fig. 1) [3].

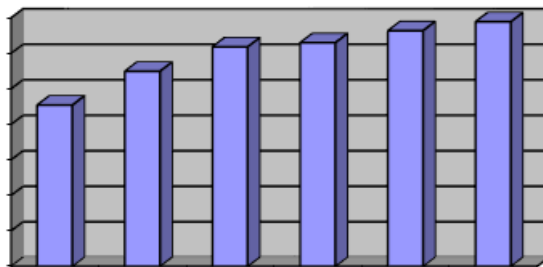


Figure 1. Dynamics of goods turnover of the retail network “Magnit” (thousand rubles)

The schedule of the dynamics of commodity turnover shows that every year there is an increase in the volume of the company’s revenue (from 222,266 thousand rubles in 2012 to 344,604 thousand rubles in 2017). The growth rate of trade turnover for the period under review amounted to 151.64%. In 2016, the revenue of the retail chain “Magnit” increased by 5.36%, however, in 2017 the growth rate of trade turnover went down, so the company’s revenue increased by only 3.81%. This trend is most likely due to the economic and political situation in the country.

The work assesses the competitiveness of the retail network “Magnit”. The position of this retail network was compared with such trading enterprises as “Auchan”, “Pyaterochka”, “Lenta” (Table 1) [1].

Table 1. Assessment of competitiveness of leading trade enterprises for 12 months of 2017

Indicators	Magnit	Auchan	Pyaterochka	Lenta
Production costs per unit of output	01,75	0,84	0,82	0,69
Capital productivity	4,67	5,49	2,28	2,68
Profitability	0,25	0,16	0,24	0,18
Relative coefficient of labor productivity	0,97	0,97	0,95	1,11
Relative coefficient of capital productivity	1,04	0,71	0,99	1,34

Having examined the data of Table 1, it can be concluded that the retail network “Magnit” occupies a middle position among competitors, accordingly is in a stable position in a competitive environment. The leader was the sales network “Auchan”.

Therefore, we can conclude that the company exists in fairly stable conditions

in order to gain additional competitive advantages, the company should take advantage of the potential for the development of Internet services, and also create a system of Internet orders on the basis of hypermarkets, which will maximize sales and attract new customers.

According to the above facts it can be understood that the work of the system of commodity supply of the retail network “Magnit” is quite well organized and quite effective, but for development it is necessary to improve the result.

Extensive growth and expansion of the range created for the company a serious problem, which is known among experts as “out-of-stock”. The store shelves really began to empty: the goods ended before they could finish ordering. And the culprits of the empty shelves (75%) were not suppliers, but the stores themselves with their non-automated ordering system and the laying out of goods.

Consequently, it can be said that inattention to personnel has had a bad effect on the company’s turnover. Due to errors that allowed personnel and insufficient control, there were losses, which only in reality can amount to about 50%. To eliminate losses, you need to automate the trade and warehouse.

In order to increase the efficiency of marketing activities, it is possible to propose the use of “RFID” technologies.

Retail network “Magnit” with the help of “RFID” system can maximize the movement of goods and reduce the impact of the human factor in all areas. The essence of the technology is relatively simple, for each product is attached RFID-tag with the necessary information about the product. The label can be considered a mobile or stationary reader, and all the necessary information is transferred to a common database on the computer.

It is advisable to analyze the operation of the RFID system step-by-step:

- at the first stage, when goods are shipped from the distribution center to stores, all goods are marked with “RFID” tags;
- at the second stage, the receipt of goods to the warehouse of the store is carried out using mobile or stationary “RFID” readers;
- at the third stage, with the help of RFID, an inventory is conducted in the trading floor. The goods are determined by the mobile reader, if necessary, the information is added or overwritten. In the trading floor, the buyers and employees are helped by a new invention - “smart shelves”: the system shows which shelf and quantity the product is in;
- In the fourth stage, the cashier quickly and unerringly reads the “RFID” tag of the goods, while identifying and deactivating the tag, so that the customer can pass through the “RFID” exit gate;
- The fifth stage, allows you to prevent theft, since the tagged product can easily be found in a bag or under clothing, when a person approaches a stationary reader. Tags can also be reactivated if, for example, the buyer decides to return the

item [2].

Based on the foregoing, it can be understood that the introduction of a new RFID system in the Magnit trade network will significantly increase the level of customer service at retailer enterprises, modernize the system of goods refunds, reduce the time spent on receiving and inventorying goods, and reliably protect the goods against theft .

Therefore, the recommended measures to improve the competitiveness of the retail network “Magnit” will increase its dignity, as well as increase the effectiveness of the company.

Thus, the process of development of commodity turnover determines the breadth and depth of the penetration of the enterprise into the consumer market, its competitiveness in this market, the overall opportunities and the pace of economic development of the organization in a strategic perspective.

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國家刑事懲戒制度的主要趨勢

Principal Trends in Criminal Correctional System of the State

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本文詳述了涉及監禁的懲罰執行製度的科學知識的演變。 提交人就刑事懲教和監獄制度所暗示的內容提出了自己的立場。

關鍵詞：監獄，監獄研究，刑法，監獄系統，犯罪學，刑事矯正制度。

Annotation. *This article dwells upon evolvement of scientific knowledge of the system of execution of punishment involving imprisonment. The author brings forward his own position with regard to what the criminal correctional and penitentiary systems imply.*

Keywords: *prison, prison studies, penology, penitentiary system, criminology, criminal correctional system.*

Over several decades, many representatives of mass media, public authorities as well as ordinary people have not differentiated between criminal correctional and penitentiary systems of the state. Therefore, media sometimes substitute a penal colony with a “prison”, and talk about a penitentiary system meaning a system which is intended to execute punishment. It appears that two concepts (“penitentiary system” and “criminal correctional system”) are confused thus confusing the institutions of different types and regimes.

This article is aimed at helping the audience to clearly realize the concept of the criminal correctional system and its components which deal with penitentiary, labor-related and repressive issues.

All these concepts are certain aspects of law and constitute a component part of the criminal correctional system of the state, yet possessing various and complementary attributes and meanings. According to Smykalin A.S.: “Fundamental concepts of any science derive from its categorical framework... An ability to accurately understand a theory or a hypothesis depends upon academic and encyclopedic support provided by the categorical framework of the relevant studies.”¹.

¹ Speech made at the all-Russia conference named “Acute Issues of Historical and Legal Science”, proceedings of the conference being held by Russian Historical and Legal Society in South Ural. – Publishing Office UMTs UPI, Yekaterinburg, 2009. – page 12.

Criminal correctional system is primarily focused on execution of a sentence being made by the court against a law breaker who committed some acts which fall within the scope of offences punishable under criminal law. The definition derives from the very name of the system and is supported by the legal regulations pertaining to this branch of law. Aim and objectives of Criminal Correctional Code are set forth in paragraphs 1-2 of Article 1 of the Criminal Correctional Code of the Russian Federation (UIK RF) that expressly define the activity typical for all components of the penal institutions: penal colonies² and prisons³. Each article refers a reader to the basic function of the criminal correctional system – execution of punishment – the essential focus of the whole system. This gives us grounds to assume that the lawmaker was primarily concerned with execution of punishment as such. It shows a concern about protection of society and suppression of recidivism in view of inevitable punishment. Punishment of a law breaker is the main target of the criminal correctional system, thus the main aspect is the retribution. Retribution of a law breaker appeared together with the rise of human society and was strengthening as the state developed; the place of execution of such retribution was the prison.

The word prison (German ‘Thurm’ — tower) means: a) in its specific sense it means the isolated and guarded *premises* for forced retention of persons subject to the confinement under the court judgment or law enforcement authorities’ decree. Since the Middle Ages the following types of prison have appeared: 1) prison in its narrow sense as the place for serving punishment for misdemeanor and minor offences, 2) prison compartments, 3) bridewells (Zuchthäuser), 4) penal servitudes, 5) remand prisons, 6) transit prisons, 7) military prisons, 8) juvenile prison, 9) prisons for disabled, ill and abnormal people (Invaliden-Gefängnisse), 10) intermediate prisons (in Irish system), 11) political prisons, 12) prisons for war prisoners (British-run concentration camps in South Africa for boers), 13) prisons for bankrupt debtors, 14) men and women prisons.⁴ – this is the interpretation of this category from Brokgauz and Efron encyclopedia. One could see a similar definition in Vladimir Dal’s Explanatory Dictionary.

Let us see an abstract from the dictionary pertaining to the word in question: “Prison, jail, pit, place of confinement of convicts, accused persons, prisoners... Prison tower, dungeon...prison is like a grave.” According to this source, the etymology of the word implies some tall tower, fortress or its part in the form of a tower based on the undercut or the root cellar, dungeon, etc.⁵ or on the under-

² Article 120 of Criminal Correctional Code of the Russian Federation as of January 08, 1997 No. 1-FZ (as amended on July 23, 2013)

³ Article 130 *ibidem*.

⁴ Brokgauz and Efron Encyclopaedic Dictionary. Publishing Office: Semenovskaya Typolitografia (I.A. Efron) – St. Petersburg, 1890-1907.

⁵ See Explanatory Dictionary of the Living Great Russian Language. Vladimir Ivanovich Dal: In 4

ground block house. This is what the archeologists found in Novgorod in the IX century. Taking into account the scanty interior of the block house, and mainly the bog hole at the center of that house, the archeologists concluded as follows: “The construction is nothing but dungeon or more simply – ancient prison.” Prisons were organized in castles and city halls, abbeys and factories, etc. A famous scholar Gernet M.N. believed the prison policy to be an important part of criminal policy which in its turn is closely connected with overall government policy⁶. Every village, town and state had a prison system with its peculiar confinement regime that immediately encouraged the researchers to study those institutions to invent new patterns of prison punishment. This gave birth to the science to study the prison phenomenon - “prison studies”. That science established a system of specialized knowledge focused on the optimal arrangement of prison-based execution of punishment implying deprivation of liberty.⁷ The new knowledge system promoted the prison confinement as the best choice to apply multiple correctional measures as compared to other known types of punishment; furthermore, the prison regime ensures the correction of the majority of convicts. This is what Lionel Fox, a well-known English researcher, dealt with in his work. He used to point out that the first measures to correct a convict's behavior were introduced in prisons,⁸ where such measures could be supported with the regime which ensured isolation from deleterious influence of other prisoners.

Detailed study of prison confinement systems as a practical part of prison studies proves that the confinement along with isolation of a law breaker from the society “either in severe or in mild conditions has occupied the central place among existing punitive systems and still holds this position.”⁹ This conclusion is due to the high punitive (repressive) effect the prison confinement has: the imprisonment deprives a person of his/her basic value – physical (and often even mental) liberty; furthermore deprivation of liberty makes it possible to apply a wide range of methods and measures to correct a convict's behavior¹⁰. Researcher Galkin M.N. pointed out the importance of duration of imprisonment. He was sure that this type of punishment “could have various duration and severity according to criminal and developmental status of a person and has the benefit of taking optimal measures to correct the behavior of a convict.”¹¹ Furthermore, Sergeevsky N.D. talked volumes – Saint Petersburg, 1863-1866.

⁶ See Gernet M.N. History of tsarist prison. In 5 volumes. Moscow. 1951.

⁷ Sergeevsky N.D. Russian Criminal Law: A handbook for lectures / Author's note – Saint Petersburg: Tipografia Kh.Sh. Gelpert, 1890 – page 191.

⁸ Fox L.W. The English Prison and Borstal Systems. – London: Routledge&Kegan Paul Limited, 1952 – page 24.

⁹ Chubinsky M.P. Criminal Policy Course. – Yaroslavl: Provincial Government Typography, 1909 – page 429.

¹⁰ Teplyashin P.V. Sources and development of British prison studies: Monograph. – Krasnoyarsk: Siberian Law Institute at the Ministry of Internal Affairs of Russia. 2005. – page 19

¹¹ Galkin M.N. Materials for studying the prison-related issues. – Saint Petersburg: Typography of the

about advantage of the prison confinement over all other types of punishment due to its “gradual” and “divisible” character, “no suffering” and “good influence on a convict”. According to the researcher, such punishment as imprisonment is fully consistent with the position of a citizen within a contemporary state as well as with present-day public morality, therefore it has superseded the capital punishment, corporal punishment, types of punishment oriented to dignity, and, finally, all other types of deprivation of liberty.

As a result the prison studies were a science with developing knowledge which was complemented with different knowledge subsystems and branches. The end of the XIX century saw the uprise of penitentiary science which was complemented with the special scientific knowledge on correctional education – penology.

Thus, prison studies have undoubtedly become a universal platform for studying “the punishment as means to fight with a crime, the punishment with its external actual use and its internal effects as derived from the facts.”¹² In this context, a famous researcher, Foinitsky, I. Ya., has fairly considered the prison studies as a special domain of political and legal studies. However, the definition he gives for the category in question is too extensive and implies the branch “based on experience and focused on philosophical and practical (positive) resolution of the problem. This branch is engaged in finding out the institutes able to influence prisoners to the benefit of community life by accurate studying of peculiarities of criminal people and the influence which the measures being applied have on those people. For this purpose, the guardian association, councils and committees have being established in Russia¹³ and in other countries to implement reformation and further resocialization. Committees of the Guardian Association supplied the prisoners with food, clothes, linen, footwear, books, established hospitals, churches at prisons and employed priests, arranged for teaching young children, opened workshops to train prisoners. Thanks to the Guardian Association the prisoners attained the right to regularly attend baths, furthermore the prisons received money for feeding the children of prisoners who lived near their parents in prisons. The Guardian Association supported making vegetable gardens at prisons. Thanks to the Prison Guardian Association the criminal correctional system became more open and socially significant.

Prison activity became the branch of public assistance and education which

Second Section of His Imperial Majesty Own Secretariat, 1868 – pages 8-9.

¹² Przhhevsky V.V. Professor Franz List and his principal views as regards crime and punishment // Legal and social science collection book: Works of Law Society at the Imperial Moscow University and its statistical department. – Sixth volume – Saint Petersburg: M.M. Stasyulevich's typography, Vasilevsky Island, 5th line, 28, 1896. – page 79.

¹³ Draft provision of the Prison Guardian Association was adopted on July 19, 1819. See Zabrovskaya, L.Yu. Organizational and managerial peculiarities in establishing the prison system of the Russian Empire in the XIX century / L.Yu. Zabrovskaya – Tambov: Publishing Office of Tambov State Technical University, 2006. – 16 pages

varies according to the peculiarities of criminal class it is applied to; that is why its success depends on strong activities in the sphere of public assistance and education.¹⁴ When describing the prison system Foinitsky, I. Ya., pointed out that people tried to use the prison studies as some “panacea” to cure all criminality-related problems. Single scientific field could not cover all aspects of criminal sentence execution.

Taking into account the foregoing it may be reasonable to conclude that the evolvement of national-wide punitive activity on the basis of religious and philosophic, social and economic and legal aspects gave rise to various theories of punishment and correction combinations. This resulted in establishing a specific discipline – penology.¹⁵ Penology is a field of knowledge on legal control over punishment execution where a law breaker acquired social and psychological treatment when serving punishment that finally resulted in adaptation of a prisoner to his/her future life outside prison.¹⁶ However, that process required a system of punishment execution institutions which could implement the resocialization program using special measures. The system was finally represented by a range of penal institutions having a certain psychological focus. According to Poznyshhev S.V., penitentiary system is a system of “social health facilities” which have a special confinement regime based on penitence of prisoners¹⁷.

Penitentiary treatment means the process of correction or the correction itself on the basis of full penitence of a person and return of the person who has previously committed a crime to the society. In the course of this process the person begins to realize that violation of laws entails punishment from public authorities and that such punishment is inevitable. The more serious the crime is, the more severe the punishment will be. Execution of punishment within the institution forms an ability to live and abide by the laws. According to researches, at the initial stage of penitentiary treatment the convicts should be retained in prisons equipped with solitary cells which should ensure penitence of a prisoner. Such institutions should have special custodial regime. Prisoners should be as much isolated from each other as possible to prevent them from influencing each other that is to deprive them of the opportunity to share with their criminal experience. The prisoners should spend all their spare time for specific socially-oriented training and educational

¹⁴ Foinitsky, I. Ya. Studies on punishment with reference to prison studies – Moscow. Dobrosvet-2000; Gorodets, 2000 – pages 291-292

¹⁵ See Rivman D.V., Smirnov L.B. Uprise and evolvement of penology and penitentiary science // Entrepreneurship in Russia: experience, problems, case studies: Materials of interregional research and practice conference (April 19, 2001). – Part II. – Saint Petersburg: Institute of Foreign Economic Relations, Economics and Law, 2001 – page 47; Smirnov L.B. Uprise and evolvement of penology // History of State and Law. – 2003 – No. 4. – pages 8-10.

¹⁶ Penology derives from Latin word “poena” meaning “punishment” and Greek word “logos” meaning “study of” that together mean “study of punishment execution”.

¹⁷ Poznyshhev S.V. Fundamentals of penitentiary science. - Moscow. 1923. - page 3.

activities. Such activities should include the issues of restoring the family ties and rendering assistance by relatives in the course of correctional education. For the period of serving the punishment, penitentiary measures enable the convict to acquire labor skills desirable for the society that helps the person to find his/her place in the society when released. Family ties should strengthen the result. When the prisoner is released the penitentiary treatment continues: special bodies help a person who has served the punishment in a prison to find a job and a place of living, to restore his/her family ties, etc.

Summarizing the foregoing it is safe to say that the penitentiary system is a set of measures being taken by the government and measures aimed at establishing and running the correctional facilities. Activities of the facilities are focused on accurate and steady execution of punishment for the sake of protection of society against criminals, as well as on correctional education of criminals using a range of measures aimed at reducing the risk for society when a person is released and at teaching the law breakers to be on the right side of the law. Therefore, the main target of such treatment is the reformation of a criminal by means of relative methods and techniques intended for placing a person back to the society after serving the punishment.

On the whole, the penitentiary system is a set of means and methods of influencing on convicts to correct their behavior; furthermore, it is a scientific-related ancillary structure based upon rule of law which ensures that the criminal after being subjected to psychological and social treatment will comply with that law.

Years of evolvement of the system gave birth to a list of principal requirements to the proper operation of penitentiary system or, according to Michel Foucault, “seven universal maxims of the good “penitential condition”¹⁸:

- correction of the criminal’s behavior (reformation);
- distribution of convicts according to the penal gravity of their act;
- alteration of the penalties according to the results that have been obtained by the convicts, progress or relapses in transformation of their behavior;
- correctional education of convicts by taking religious and pedagogical measures, general and professional education;
- work must be one of the essential elements in the reformation and progressive socialization of convicts;
- the prison regime must be supervised and administered by a specialized staff;
- imprisonment must be followed by measures of supervision and assistance until the rehabilitation of the former prisoner is complete.

Modern penitentiary system is intended for supporting and managing: penal institutions, social and psychological, legal and training activities oriented to a convict being confined in a special penal institution, and is aimed at transforma-

¹⁸ See Michel Foucault. Discipline and Punish. The Birth of the Prison / translated from French by Naumov V. / under the editorship of Borisova I. – Moscow: Ad Marginem, 1999 – pages 393-396.

tion of convict's behavior and further resocialization. The principal institution of penitentiary system is a prison with strict regime and isolation which contributes to the reformation process at the initial stage of punishment execution. Reformation process includes such components as educational work, improvement of educational level, labor training and strengthening of social relations. All the above-mentioned encourages a convict to feel regret and correct his/her behavior. Therefore, the penitentiary system may be defined more clearly as a multi-aspect integration of various components resulted from the penitentiary practical activities implying the forced confinement of law breakers in a correction facility to apply correction measures as established by special authorities pursuant to law so as to ensure the process of resocialization.

In conclusion, we could state that we should rely on the following trends of criminal correctional system. Prison was the first institution of punishment execution, therefore the national system of correctional facilities acquired a name of a "prison system" since there were no other institutions within the system. Thus, the researchers who studied that phenomenon defined a new field of scientific knowledge – the prison studies. As the knowledge evolved and the practical activities developed, the science saw a birth of such new branches as penology – the study of punishment, and the penitentiary study which was engaged in organizing and managing the process of reforming the prisoners. The studies of punishment gave birth to another field of knowledge – criminology – the study of crime and punishment. In general, however, the system of punishment execution was and still remained the basis for criminal correctional branch of legal science, while punitive, penal and penitentiary aspects are just the areas of focus within this system. In addition, these areas may be considered as self-sufficient systems.

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獨立國家聯合體在打擊有組織犯罪方面的合作
Cooperation of the commonwealth of independent states in struggle against organized crime

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本文致力於討論各國在打擊獨立國家聯合體（CIS）有組織犯罪方面的合作發展問題。

關鍵詞：獨立國家聯合體（CIS），國家合作，有組織犯罪

Annotation. *The article is devoted to the discussion of problems of development of cooperation of the states in the fight against organized crime of the commonwealth of independent states (CIS).*

Keywords: *commonwealth of independent states (CIS), cooperation of the states, organized crime*

In the beginning of the 90th of the 20th century in the conditions of new geopolitical relations before republics of the former Soviet Republic there was a whole complex of problems including connected with maintenance of public order against sharp activation of different criminal groups, whose activity began to carry not only transboundary character, but also to make serious impact on economy of the independent states and safety of citizens. In April, 1992 at meeting of Ministers of Internal Affairs of the independent states in Alma-Ata, it had been concluded and signed Agreement for interaction of the Ministries of Internal Affairs of the independent states in sphere of struggle against crime. Important stage in the field of struggle against organised crime was conclusion of Convention of about legal aid and legal relations on civil, family and criminal cases² between the Commonwealth of Independent States (CIS) countries, that has allowed more full and more carefully at multilateral level to solve questions of joint struggle against criminality. The convention has been signed in Minsk on January 22, 1993 by heads of member states the CIS [1].

In the specified Convention the special attention has been paid to the order and conditions of issue by one CIS country to another of the persons who are in territory of each of the states which has signed the Convention, for being criminally liable or for reduction of sentence in execution. Here cases when the extradition is obligatory are considered when it can be refused or when the extradition can

be delayed, and also conditions of a capture of the given out person under guards etc. are stipulated. In the Convention, it is also defined the procedure of criminal prosecution. In it, there is noticed that each contracting party according to the legislation undertakes to make criminal prosecution of the citizens suspected of commission of crime in territory of the requesting party. The Convention contains number of the regulations, concerning transfers by contracting parties of the subjects used by criminals, evidentiary and other information on the perfect and investigated crime leading to transfer of the person according to provisions of the Convention.

Approving of the Program of joint efforts about struggle against the organised crime and other dangerous kinds of crimes in the territory of the CIS countries in March, 1993 by the Council of heads of the governments of the CIS countries became following step in the field of struggle against the organised crime. In this Program especially sharp deterioration of criminogenic conditions in the majority of the state-participants of the CIS, displeasing the population and posing real threat of national safety and to process of the reforms spent in the sovereign states was marked. According to this Program there was an object in view to develop and conclude interstate agreements concerning cooperation in sphere of struggle against the organised crime, the illegal reference of the weapon, explosive and radioactive substances, about an order of interaction of investigatory-operative groups in territory of other states, about order of interaction of law-enforcement bodies, customs services and frontier troops, about cooperation in sphere of struggle against crimes in bank, credit and financial systems, commercial structures and in foreign trade activities sphere, about cooperation in sphere of struggle against a drug trafficking [2].

Acceptance in September, 1993 by Council of heads of the state-participants of CIS countries of the decision about creation of Bureau for coordination of struggle against organised crime and other dangerous crimes (BKBOP) in territory of the CIS became the important event [3]. Acceptance of this decision has been caused by proceeding expansion of zone of activity of the organised crime, growth of number of the crimes made by organised criminal groups in all former republics of the USSR that has forced country leaders of the CIS to raise the problem of creation of corresponding interstate body which could provide appropriate coordination of efforts of law enforcement bodies in struggle against the organised crime and its displays. Simultaneously with acceptance of the specified decision Position about it Bureau as about constantly operating body on the organisation of struggle against the organised crime and other dangerous crimes in territory of the CIS has been confirmed. Creation of this body was rather timely. The initial stage of activity of Bureau practically has revealed at once its necessity and efficiency. It is organised legal aid rendering on criminal cases within the limits of the Convention

on legal aid in Relations to civil, family and to criminal cases with participation operatively-investigatory actions of all Ministries of Internal Affairs of the state-participants of the CIS countries. It is carried out organisation of interaction of law-enforcement bodies of the state-participants of the CIS countries and rendering of assistance in establishment, detention and extradition of the criminals searched at interstate level. To Bureau practice of direction is applied to acceleration of search of lists of the persons who have made especially grave crimes. Single carrying out in territory of the state-participants CIS countries of complex of operatively-preventive actions for various directions of struggle against criminality remains to one of effective directions of joint activity of law-enforcement bodies. BKBOP develops as agreed with all Ministries of Internal Affairs of the CIS countries plans-schedules of carrying out of the complex operatively-preventive actions provided by interstate programs. Actions according to plans-schedules are spent on a wide spectrum of problems of struggle against criminality. These actions provide a concentration of efforts of all Ministries of Internal Affairs on the decision of pressing questions of struggle against criminality. Complex operations were generally recognised.

In November, 1995 in Moscow Council of heads of the governments of the CIS has supported the offer brought by Byelorussia on formation of working group on working out of the project of the Interstate program of joint efforts of struggle against the organised crime in territory of the state-participants CIS for the period up to 2000.

In process of cooperation expansion the understanding of necessity of closer integration of work of departments in all directions of law-enforcement activity grew also. As a result of January, 19th, 1996 Council of heads of the CIS countries makes the decision on creation of Ministerial council of internal affairs of the state-participants CIS (CMIA) [4].

Today the Ministerial council is a body of the branch cooperation, called to provide interaction of the Ministry of Internal Affairs of the state-participants CIS not only concerning struggle against criminality, but also in other directions of their teamwork. The basic form of work – sessions which serve as an original forum in which frameworks of the head of departments the coordinated decisions directed on neutralisation of new calls and threats, the CIS countries infringing on interests make. Council acts in a role of the uniform coordination centre allowing on the basis of the deep analysis developing on territory of the countries of Commonwealth of operative conditions to develop effectual measures of reaction on the whole spectrum of questions, the organised crime connected with counteraction, to terrorism, a drug trafficking and other dangerous kinds of crimes.

CMIA is the active participant of process of formation of contract-legal base and

organizational bases of interstate interaction in struggle against criminality. Within the limits of this work he co-operates with Executive committee of the CIS and Inter-parliamentary, Assembly of the countries of the Commonwealth. The majority of initiatives CMIA directed on formation of uniform strategy of counteraction to criminal activities, at interstate level find the reflection in modelling acts, and also the decisions accepted by Council of heads of the governments and Council of heads of the CIS countries. As toolkit of such decisions interstate target programs in various directions of struggle against criminality which put organizational bases act and define a vector of efforts of law-enforcement community with the account of realities of today. The applied mechanism of realisation are coordinated preventive, operatively-searching actions and the special operations directed on neutralisation of organised criminal groups, whose activity has transboundary character [5].

In April, 1996 in Moscow Council of heads of the governments of the CIS has approved already developed a Program which has included measures on strengthening of international legal base of cooperation, perfection and harmonisation of national legislations, carrying out of joint interstate target operatively-preventive operations, information, scientific, personnel, material and financial maintenance. Realisation of the specified Program has allowed to give dynamism and new quality to cooperation of the state-participants CIS in the field of struggle against criminality.

Developed conditions have demanded acceptance of the new Program of the interstate measures directed on perfection of cooperation in struggle against criminality. Therefore with a view of maintenance of efficiency of cooperation in struggle against criminality Council of heads of the CIS countries has decided to confirm on January 25, 2000 the Interstate program of joint efforts of struggle against criminality for the period from 2000 up to 2003 [6].

In this connection the base documents providing target application of available forces and means of law-enforcement structures, the interstate programs accepted on intermediate term are period according to decisions of Council of heads of the CIS countries. The interstate program of joint efforts of struggle against criminality for 2011-2013, has been directed on the further perfection of cooperation of the state-participants CIS, authorised bodies and bodies of branch cooperation of the CIS in struggle with criminal activity [7]. Primary goals of the Program: first development of international legal base of cooperation of the state-participants CIS; secondly perfection and harmonisation of the national legislation of the state-participants CIS; in the third carrying out of the complex joint and-or coordinated interdepartmental preventive operatively-search actions and special operations; in the fourth information and scientific maintenance of cooperation; cooperation realisation in a professional training, improvement of professional skill of experts.

The interstate program of joint efforts of struggle against criminality during 2014–2018, which has problems: first development of international legal base of cooperation of the state-participants CIS; secondly perfection and harmonisation of the national legislation of the state-participants CIS; in the third carrying out complex joint and-or coordinated interdepartmental preventive, operatively-of searching actions and special operations; information and scientific maintenance of cooperation; in the fourth realisation of cooperation in a professional training, improvement of professional skill of experts; development of cooperation with the international organisations [8].

The received experience of interstate cooperation allows BKBOP to realise in practice necessary administrative impulses in interests of consolidation of efforts of law-enforcement bodies of the countries of the Commonwealth in struggle against criminality against the account of modern threats. It, first of all, introduction in a life of the Concept of development of cooperation of the Ministries of Internal Affairs of the state-participants of the Commonwealth of Independent States for the period up to 20201, confirmed on gradual expansion of a coordination role of Bureau, circle of problems carried out by it and functions in the general interests of the countries of the Commonwealth. The bureau actually became the multipurpose organisation on assistance on variety of directions of interstate cooperation in struggle against criminality.

Thus, consolidation and escalating of efforts on interaction of law enforcement bodies of the Commonwealth will allow to solve more productively one of the main strategic problems of the CIS – the further development of integration processes in the Commonwealth countries.

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原子和aplit：两种形式的离散
Atom and Aplit: two forms of discreteness

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基于引入的Aplit和Atom的本体概念，考虑了使用两个离散边界形式描述周围空间的可能性。在对西方和东方哲学概念的综合和反思的基础上，协同方法使得有可能在研究真实物体的结构和相互作用时确定中间空间稳定性的条件。

关键词：原子，Aplit，本体，离散性，边界，中间空间，综合。

Annotation. *Based on the introduced ontological concepts of Aplit and Atom, the possibility of describing the surrounding space using two discrete boundary forms is considered. The synergetic approach, based on the synthesis and rethinking of the concepts of Western and Eastern philosophy, makes it possible to identify the conditions for the stability of the middle space in the study of the structure and interaction of real objects.*

Keywords: *Atom, Aplit, ontology, discreteness, boundaries, middle space, synthesis.*

As soon as a newly born person begins to distinguish external signals - light, darkness, hunger, pain, need, call, bright toy, familiar faces, etc. - his world fills the discreteness. This is our first acquaintance with the discreteness. Any signal at first has for us only two meanings: it is or is not. On the basis of these signals, for the objects observed around, we determine their boundaries. Discreteness is manifested in the selection of objects, through discreteness we separate one object from another.

Disputes over the discreteness of the microworld have been conducted since the time when Democritus introduced the concepts of the Atom [1], and until its discreteness - in the form of an atomistic theory - was not confirmed experimentally by the Dalton theory [2]. Subsequently, developing quantum mechanics proved that not only the objects themselves are discrete, but also their changes [3].

By now the Atom has long been learned to divide, which Democritus considered impossible. At the same time, atomic power stations operate on the basis of

the decay of atoms [4]. Thus, old theories lose their inviolability, change in their basis, and this generates the need to comprehend the new knowledge that has emerged as a result of mastering the technology of fission of atoms. And these new knowledge, new understanding go far beyond production technologies and physical processes. They affect and even form the very basis of life perception, philosophical comprehension of the existing reality.

Historically, Western philosophical science operates with the concepts of Atom and infinity. Although still Aristotle expressed extremely interesting comments on the infinity. Thus, in particular, in his *Metaphysics* he wrote: "And nothing unlimited can not have being; and if not, in any case, the being of the infinite (as such) is not infinite" [5]. And further: "the infinite exists in possibility not in the sense that it will later possess an independent reality, but is such for knowledge" [5].

Continuing, according to the Western tradition, to regard the Atom as absolutely indivisible, we can not find an answer to the question about the essence of what shapes the structure of things and provides the driving forces of processes. The vision and understanding of the foundation of the universe will become even more complicated if, in place of the now-divisible Atom, humanity begins to try on smaller particles, electrons, protons, bosons, quarks, etc., as the smallest indivisible particle. In search of a clue, simplicity of understanding, it makes sense to look at the eastern philosophical tradition.

The first point, which, it seems to us, is worth paying attention to, is that Eastern philosophy is based on the notion of "middle" [6]. It is based on several interpretative theses: the middle as the presence of a focus within the universe that holds all the properties; the middle is like a pause of events; the middle as the moment of the transformation of things; the middle as a space that includes its virtual dimension.

The second important point. In the work "Ancient Chinese Philosophy" S.Yu. Rykov brings sophistry Hui Shi: "Ultimately great (至大) has nothing outside itself. This is called a great one (大一). The extremely small (至小) has nothing inside of itself. This is called a small single (小一)" [7].

In its formulation, in fact, it is an attempt to cover everything that exists at one interval. But discreteness, the inclusion of some objects in others is manifested in our environment. Therefore, for the existence of a "middle" it is important to determine the ontological boundaries of its "extremely great" and "extremely small". We propose, as such boundaries, the ontological concepts "Atom" and "Aplit" synthesized by us.

The proposed new understanding of the Atom is based on the postulate of its indivisibility. The indivisibility of an Atom, considered not as a tiniest particle, but as an integral particle, is conditioned in various spheres by various conditions: it can be a physical possibility or the impossibility of division, a legal prohibition or

resolution of division, a functional destruction of the divisible object or its parts. In any case, the separation of an atomic object leads to a disruption or even complete destruction of the structure of the object or its inherent functions, connections, possibilities.

For example, we will carry out an experiment in which an electric flashlight will act as an Atom (an integral functional particle), and the dark room that we illuminate with this flashlight will be our middle space. In this case, according to our understanding of the Atom, the separation of the flashlight into parts will destroy it as a functional unit of the middle space. It should be clearly understood the difference between the physical and ontological definition of the Atom. Physically, a flashlight can certainly be subjected to a division procedure, since it is assembled from a multitude of constituent parts - and in this, physical sense, can not be called an Atom in any way. However, ontologically in our experiment the flashlight is considered just as an Atom - an indivisible unit, which can be one of the parts of some more complex structure. If you physically disassemble the flashlight, remove the battery, it is obvious that it will cease to shine, despite the fact that all its components are not separately destroyed and are absolutely working. However, the flashlight as an ontologically integral object in our "middle space" has lost the possibility of its functioning, has lost its main characteristic: the ability to illuminate space. Consequently, functional indivisibility becomes one of the most important properties of the "Atom" separation as the basis for the stability of the middle space.

From here we get a different understanding of atomicity as inadmissibility of arbitrary division of elements of the space under consideration. Therefore, by an Atom we mean an indivisible object from the middle space in the sense of a violation of the original qualities in fission. Thus, instead of the classical postulate of atomicity, a new ontological understanding of indivisible atoms is proposed-not as physically indivisible particles, but as objects that lose their main characteristic properties in dividing [8].

From the point of view of the eastern approach, we, being in the "middle" and introducing the concept of the Atom, defined one of the boundaries: "extremely small". However, in order to adequately and completely reflect the surrounding space, a second boundary is also necessary. We offer as such a second border Aplit.

We introduce the concept of Aplit by ideological analogy with the concept of an Atom. Formally, the ancient Greek concept of the undivided ($\alpha + \tau\omicron\mu\omicron\varsigma$) - "extremely small" - is defined as the termination of the possibility of division. Therefore, the term for the inverse notion: the newly formed quantifiable number of atoms, we introduce, placing emphasis on the emergence of quality "non-set" ($\alpha + \pi\lambda\eta\theta\omicron\varsigma$). As a result we get from the ancient Greek language $\alpha\pi\lambda\eta\theta\omicron\varsigma$ - simple, not set, not a crowd: Aplithos - Aplite. Thus, to indicate the level of discreteness

"extremely large", we formally introduced the notion of Aplite.

How are the signs of a new union showing when an Aplite is formed? As an illustration, you can imagine the following situation. We put three apples on the table, so that each apple touches the other two. Now put the fourth on top. We got a small "pile" of apples. But, in spite of the smallness, it has the main features of the heap: there are apples that do not touch the table, but only touch their own kind, there is an empty space between the apples. If now we add the next apple to our heap, then the fifth, sixth, etc., then the presence of the characteristics of the "heap" does not change anymore, only their value changes. Through the formation of new qualities, Aplite is manifested.

In a mental experiment with apples, we were outside the Aplite and could observe its appearance. If we are in the middle of a newly formed "heap," another example will be more appropriate here. So, builders, being in the "middle of the city", add houses from the elements prescribed in the specification. Thus, the construction of the city shows an atomic border in the form of houses and Aplit border in the form of outlines (plan) of the whole city.

If we assume that the observer's point of view, the researcher is always in the "middle", then the Aplit, like the Atom, is the closest discrete to it. Let us repeat, both Atom and Aplit are ontological concepts. In this case, by definition, for the Atom, the main property is "not divisible", and for Aplite - "not multiplied". That is, the Atom and Aplite are two conceptual boundaries that form characteristic discrete limits. The Atom, taken as a whole, loses its qualities when trying to withdraw a part. Aplit, on the contrary, when adding or removing a part does not lose its qualities. In this sense, being finite, it may not have its clear meaning [8].

As a result of the introduction of these two concepts - Atom and Aplit - we get an ontological frame of our middle: on the one hand - an Atom: not divisible, elementary, on the other - Aplite: not a set that is not multiplied.

In the surrounding reality, "extremely small" exists in some hard-to-surmountable Aplit boundary of the "ultimately great". This position ensures the stability of the middle.

For example, in primitive society for man (as for the Atom of a tribe) such a border was the need to return home from the hunt to the light before home or the appearance of a barrier on the way: rivers, seas, mountains. On a cosmic scale, such an aplicite boundary becomes objective physical laws, for example, gravity: an upwardly thrown body falls to Earth. In order for some body to become a satellite of the Earth, it needs to develop a sufficiently high initial speed. Even more speed is needed to overcome the attraction of the Earth and fly to other planets. Electrons in a physical Atom need the energy to overcome their "ultimately great".

Generally speaking, humanity has applied Aplit principles for a long time and practically in all spheres of its life activity. For example, we perceive the solu-

tion of a problem as achievement of an aplic state, when further actions have a negligible impact on the result. To transmit messages in any way, a limited set of characters, words, is used. In computer technology, operating with exact values, the Atom is a memory bit that takes the values "0" or "1". In these cases, the Aplite boundary becomes particularly clear. In the binary system "1" - the upper limit of the discharge with obvious signs of aplic boundedness. The new level of Aplite for the computer will be the limitation of the processor data bit: for the 8-bit processor this amounts to 256, for the 32-bit processor it is 4,294,967,296. To overcome the bit-width limit of the processor data, additional rules for working with memory are introduced.

Through the synthesis of two forms of discreteness - Atom and Aplite - the conceptual boundaries of stability of the middle - the boundary of inadmissibility and impossibility of violation.

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发展教育移民管理

Development of migration management in education

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本文考虑了移民管理在教育中的相关性。制定了科学学院框架下教育移民管理发展的理论研究和实践活动的主要实质性方向。Bondarevskaya, 教育科学跨学科方向的创始人 – 移民（迁移）教育学。

关键词：移民子女，合作，移民（迁移）教育学；教育中的移民管理。

Annotation. *The article considers the relevance of migration management in education. The main substantive directions of theoretical study and practical activity on development of migration management in education within the framework of the scientific school are formulated. Bondarevskaya, the founder of the interdisciplinary direction in pedagogical science - migrant (migratory) pedagogy.*

Keywords: *children of migrants, collaboration, migrant (migratory) pedagogy; migration management in education.*

Introduction. Migration is one of the most important problems of population and is seen not only as a simple mechanical movement of people, but as a complex social process affecting many aspects of social and economic life, including education. Migration processes at the present stage are one of the most urgent problems of the Russian Federation (RF). After the collapse of the USSR and the inclusion of Russia and other CIS countries in the system of free migration movements, these countries faced new types of migrations and migrants, such as ethnic migrants, returnees, forced environmental, illegal migrants

In the Russian Federation, migration problems were recently identified as one of the most important state priorities for the purpose of creating and implementing an integration policy for migrants [4]. The Government of the Russian Federation has developed measures to fulfill the tasks in the field of the country's migration policy, the primary of which is to create conditions for the unhindered realization of the rights of migrants, their children in the sphere of education, upbringing, socio-cultural sphere.

In all the diversity of problems in the study of migration processes, a set of questions on the scientific and methodological support of research in the field of managing migration processes in education and the application of new technologies is one of the least studied in the theoretical and practical plans. Analysis of the practice of regulating migration, including the children of migrants, refugees, immigrants shows that an organizational mechanism is necessary to regulate migration processes aimed at integrating migrant children into a single organizational and management system that ensures their rights to education, social and psychological support and adaptation in the host country.

The proportion of children from the category of socially unprotected families of forced migrants is constantly increasing. This process can provoke, in general, the disadaptation of arriving children and adolescents to the requirements of the Russian system of secondary, vocational and higher education. The created legal framework in the field of education contributes to the fact that in the school, which is now a multicultural educational environment, it is possible to create all the conditions for ensuring the process of social, pedagogical and psychological adaptation of migrant children.

The relevance of the researches of migration management in education is determined by the peculiarities of the socio-pedagogical situation that currently exists in the South of Russia and the border area of the Russian Federation. The inclusion of the South-Russian educational region in global and regional educational processes, as the research of the formation of the category "migrant pedagogy" shows, is a necessary condition for the integrity of the educational system for a migrating group of children and young people. This actualizes the development of migration policy in education in the South of Russia, migration management in education on the basis of new conceptual approaches and organizational forms of science, including, and collaboration.

The purpose of this article is to theoretically substantiate and develop in the scientific school E.V. Bondarevskaya open, self-organizing collaboration of migration management in education for the period 2018 - 2021.

Methods. The methodological basis is a set of principles, approaches and methods as a basic general scientific character, and oriented towards the examination of the subject field of migrant pedagogy - migration management in education. The system approach allows studying migration management in education as a complex phenomenon. The structural approach allows to determine the content, participants, directions of the development of migration management in education. The comparative approach reveals the general and special in migration pedagogy as a global scientific and practical problem.

Literature review. International and regional migration is a multifaceted process of great importance for the development of countries of origin, transit and

destination, and is an integrated phenomenon, like the tripartite interactions between the individual, the recipient state and the donor state. In migration flows, there are groups of individuals who are most vulnerable in the face of problems associated with participation in migrations. In particular, these are migrant children, before whom the issue of adaptation, education and social security arises with particular urgency.

These problems increase many times, if the parents of these children are migrants with irregular status. Thus, in 2015, 95,000 unaccompanied children applied for asylum in Europe. The proportion of children from the category of socially unprotected families of forced migrants is constantly increasing. So there were new categories of migrants - unaccompanied children, children - participants of non-state paramilitary organizations. In a number of contemporary foreign studies, the authors devote considerable attention to the design of a multi-level structure for the process of assimilation of migrant children from rural areas in urban conditions, [7] the children of migrants have problems with learning in the new educational system [10], the children of refugees and migrants for several years were not systematically trained [8] etc.

At school, which is now a multicultural educational environment, it is possible to create all the conditions for ensuring the effectiveness of the process of socio-psychological adaptation of migrant children. In our collaborative project we are based on research in the scientific school of E.V. Bondarevskaya, which was one of the first in Russian pedagogical science to formulate the goal and objectives of migrant (migratory) pedagogy in creating and preserving the single educational space of the country, the South of Russia:

- substantiation of migrant (migratory) pedagogy interdisciplinary research direction (E.V. Bondarevskaya, I.V. Babenko, M.A. Boldyreva, O.V. Gukalenko, L.M. Sukhorukova);
- state management of migration processes in the South of Russia and legal support for migrants (V.N. Gurba, L.Ya. Khoronko, E.V. Polyanskaya);
- upbringing and education of migrant children in a multicultural educational space (O.V. Gukalenko's scientific school) [1];
- Integration of migrant children in society through education (V.N. Konovalchuk, V.I. Mareev, O.G. Domorovskaya);
- the safety of migrant children in the educational environment and the information space (V.N. Gurba, N.I. Fokin, T.N. Shestakova);
- migration management in education, management of migration processes in education (L.M. Sukhorukova, L.Ya. Khoronko, T.N. Shestakova, N.I. Fokin).

In the theoretical justification of migration management in education, we use research on the problems of migration and migration management (Zh.A. Zayonchkovskaya, V.I. Mukomel, E.V. Tyuryukanova), border security (A.V. Kulak-

ov), management of the social sphere (I.N. Molchanov), pedagogical management (L.V. Goryunova, V.P. Simonov, V.A. Shevchenko), educational management (R.M. Sherayzina), management and management in education (V.S. Lazarev, T.I. Shamova, P.V. Tretyakov, M.M. Potashnik), etc. The main theoretical and practical gender Migration management in education is presented in a number of publications [5].

Results of the research. To date, cooperation between organizations and countries is widely welcomed, in particular, the development of collaborations. The phenomenon of collaborations is not sufficiently well studied: there is no clear definition of the collaboration. Collaboration in its simplest meaning means cooperation. Collaboration is not a legal organization, the association of researchers on problems that have important scientific and applied importance for studying the content and technologies of organizational, managerial, socio-educational, psychological support for migrant children, UN activities, international organizations on migration, UNESCO for the management of the development of children's education migrants at the global and regional, national level, etc.

The principles of the collaboration are: voluntariness, trust, mutual benefit. As a result, the subjects of the collaboration are trained, the absorption of new technologies and knowledge, the mastery of interdisciplinary competencies and the production of an innovative product with a new intellectual component.

Collaboration involves the mutual training of participants and their common product with a new intellectual component, resulting from this interaction [2] the joint work of several economic actors with common interests and working towards a common goal [3]. Based on the analysis of the scientific literature, we concluded that the collaboration is the most appropriate form of preservation and obtaining new knowledge in the field of migrant pedagogy and migration management in education.

System-forming task of the functioning of the collaboration "Scientific school of Eugenia Vassilyevna Bondarevskaya. Migrant pedagogy: migration management in education" - gaining new knowledge, sharing knowledge: developing collaborative relationships as an analogue of "invisible colleges" for joint projects, conferences; the formation of distributed relationships in the activities of the collaboration; creation of an opportunity for publication activity and exchange of publications; formation of the problems of scientific research on the stated problems.

The basis for the creation of the collaboration is the experience of the Department of Education Management of the FPK and PPRO of the Rostov State Pedagogical University and the Research Institute for the Socio-Educational Education Problems of the Southern Branch of the Russian Academy of Education (NII SPPO) (1999-2005). NII SPPO YuO RAO under the leadership of E.V. Bond-

arevskaya for the first time in the South of Russia held the First International Scientific and Practical Conference "Theory, Practice and Perspectives of Education, Multicultural Education, Career and Integration of Refugees, Migrants and Their Children in the Modern World", published conference materials and other events (2003).

The collaborative project is innovative, problem-oriented and interdisciplinary. Collaboration initiates the development of research and scientific-methodical projects on the development of YuFU as a macroregional university in a multicultural environment and migration activity; research in the field of management of migration processes in education through the resources of the UN, UNESCO, international centers for the study of migration.

The following activities are identified in the activity of the collaboration:

1. *Research program* "Migrant (migration) pedagogy: development of theory, educational practice of migration management in education: migration crises and post-conflict rehabilitation of educational organizations in management practice».

2. *Theoretical seminar* "Migrant pedagogy: theory and educational strategy".

3. *International Scientific and Applied Conference* "Migrant (Migration) Pedagogy: Formation, Development in Russia and Abroad".

4. *Educational activity*. Designing a complex of educational programs for pedagogical and managerial cadres of education, employment centers, national-cultural autonomies, communities, diasporas, migration services, border service: draft educational program for master's training in the direction of 44.04.01 Pedagogical education. The profile "Head of the educational organization: migration management in education", programs of additional professional education taking into account professional standards, etc.

5. *Analytical activity: analytical and information reviews:*

International management policy of working with children of migrants, refugees: analysis of network materials, in particular, - SIRIUS.net (EU) "[9]. Participation of young people in social transformations and intercultural dialogue: on the basis of UNESCO materials [6].

6. *Disseminational and educational activities*. Educational programs on the security of the educational space; support of refugee children - victims of military conflicts and participants in non-state military and terrorist groups; social and pedagogical support of children in their adaptation in a new world for them, preparation for school; educational programs for the development of the ethno-cultural competence of administrative and pedagogical personnel on the management of the adaptation of children to a foreign environment.

Collaboration develops cooperation with the Office of the Plenipotentiary Representative of the President of the Russian Federation in the Southern Federal District; educational authorities; educational organizations; with public organiza-

tions; cultural-national autonomies; UNESCO Chair "Training and Retraining of Specialists in a Market Economy" (University of Management of TISBI, Kazan), NOTs "Scientific and Educational and Educational Center for Assistance to United Nations Programs, UNESCO and International Educational and Scientific Associations of Southern Federal University". The collaboration plans include the establishment and development of links with migration and border services for the development of the skills of service employees in the work with children of migrants, refugees, immigrants, unaccompanied children, children, members of illegal military formations.

Discussion and conclusion. Education and upbringing of children of migrants, refugees, immigrants should become a part of the state strategy in education, as well as identification of the effectiveness of adaptation of the learning children of migrants. To study the complex of problems of education, upbringing, socio-cultural adaptation, a new form of organization of scientists, education managers, psychologists, teachers, social workers is needed. Collaboration is most appropriate for the needs of the stakeholder community in working with migrant children in the context of the formation of enclave residence by migrants and isolated interest groups.

In the process of analyzing the scientific literature, analyzing the activities of education management bodies, educational organizations, designing the content of the activity of the collaboration, a number of new problems have been identified: the desirability of developing a regional educational foresight "Pedagogical support for migrant children, refugees, migrants"; formation of a system for monitoring, studying, analyzing, generalizing the problems of managing migration processes in education, the safety of migrant children in the macroregion; the design of a complex of educational programs in order to develop the ethno-cultural competence of management and pedagogical personnel in the management of the adaptation of children to a foreign environment, etc..

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复杂的综合任务作为国家教师培训大学毕业考试的基础

The complex integrated tasks as a basis of a State Final Examination of the graduate of teacher training University

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文章综述了复合综合任务（CIT）作为教师培训大学毕业生专业能力形成水平评估的工具。需要建立以复杂培训支持为基础的跨学科整合的职业教育体系组织。实例CIT，包括在“44.03.05教育学教育”中的数学最终国家考试的内容，信息学概况的单身汉培训方向。

关键词：跨学科整合，最终状态评估，复杂综合任务。

Annotation. *In article the complex integrated tasks (CIT) as the tool of assessment of level of formation of professional competence of the graduate of teacher training University are characterized. Need of the organization of system of vocational education which basis cross-disciplinary integration with a support on complex training would be is specified. Examples CIT, included in "44.03.05 Pedagogical education" in the content of a final state exam in the Mathematics, Informatics profile of the direction of training of the bachelor are given.*

Keywords: *cross-disciplinary integration, final state assessment, the complex integrated task.*

The State Final Examination (SFE) of the graduate of teacher training University has cross-disciplinary character. The Final State Exam (FSE) is the integral component of educational process of teacher training University, its final stage designed to reveal the level of professional competence of the graduate of future pedagogical activity. Assessment of this level – one of unresolved problems of modern higher education.

Many researchers (Katayev S.G., Loboda Yu.O., Ulyanova I.V. and others) note some "amorphous" of contents of the Federal state educational standard of the higher education (FSES HE) [9] consisting in lack of any criteria of estimation of formation of the competences entering him (universal and all-professional). Both

the contents, and the procedure of preparation and carrying out the SFE, and levels of formation of professional competence of the graduate are installed by everyone separately the taken higher education institution independently. Existence of various disagreements in a position of assessment of readiness of the graduate of teacher training University for work as the teacher in modern school is obvious. Such situation destroys complete educational space in the country, allowing serious deviations for high school education, requirements to the level of professional competence, norms of assessment of this level and so on.

The central place in the SFE by right is taken by an oral final exam which carries the complex integrated character [11]. Its complexity is dictated by need of coverage of several groups of educational processes: theoretical preparation, practical training, creative projects and other.

The structure of the complex integrated state exam (CISE) is actively offered within the researches and experiments conducted by the Russian higher education institutions. So, at the Russian state pedagogical university of A.I. Herzen (St. Petersburg) for identification and assessment of degree of readiness of graduates for professional activity the draft of the complex integrated open test (CIOT) is developed. The structure of CIOT consists of three blocks: a) the problem essay for identification of level of formation of common cultural competences; b) the theoretical test on a preparation profile for identification of level of formation of professional competences (theoretical level); c) a professional case for identification of level of formation of professional competences (practical level) [1].

In the Moscow University of the Ministry of Internal Affairs of the Russian Federation of V.Ya. Kikotya (Moscow) suggests to carry out CISE in four steps:

1. Estimation of a portfolio of achievements of the graduate, as readiness for different types of professional activity, through providing diplomas, certificates, patents, certificates, reviews, lists of scientific works, etc. (at most 30 points from 100).

2. Estimation of preliminary results of proficiency and good breeding of the graduate on the basis of formation of his professional competences (the personal card of competences of the graduate) (at most 30 points from 100).

3. Estimation of performance of the complex task focused on practice (at most 60 points from 100).

4. Exposure of a total mark in a basis of all results presented in a format of the chart Ganta [11].

Ulyanova I.V. speaks about need of introduction of the concept "Passport of Estimation of Professional Readiness of the Graduate" [11, P. 212] which content has to include the purposes, the principles, contents, means, forms, methods and criteria of estimation of results of proficiency of the graduate, formation of his common cultural and professional competences, valuable installations.

Katayev S. G., Loboda Yu.O., Homyakova E.A. suggest to use in this regard indicator approach of estimation of competences when each of them is presented in the form of set of signs indicators. Estimating value of each of indicators on a certain scale, it is possible to receive numerical value of formation of competence. "The system of indicators has to reflect rather fully each competence, consider age features and specifics of a subject" [6, P. 70].

Naumova O.S. and Klimenko T. N. for assessment of formation of competences use the funds of estimated means (FEM) entering the maintenance of educational and methodical complexes of disciplines of the curriculum of training of bachelors of pedagogical education [7].

In this case FEM is understood as a set of specially developed methodical and control and measuring materials intended for assessment of formation of competences within studying of separate disciplines at different grade levels of students, including on FSE.

In Naumova O.S. and Klimenko T. N. research of FSE includes four components: a) target (detection of professional and personal readiness of the bachelor for implementation of professional activity in the field of pedagogical, design and research activity); b) substantial (content of competences; psychology and pedagogical, methodical and design and research); c) organizational and activity (directly examination tests: solution of a methodical task, subject knowledge and task project); d) analitiko-productive (total estimation of educational achievements) [7].

Teachers Zvonnikov V.I. and Chelyshkova M.B. [4] give FEM not less important role of management of all educational process in higher education institution through control and management of achievement of the goals of educational programs of training of students in the form of a set of common cultural and professional competences of the graduate.

However, in the system of the higher education with development FEM the large number of unresolved problems, connected, including, is connected with lack of criteria of estimation of formation of competences of FSES HE. According to requirements of the standard the final exam of the bachelor checks formation of universal (UC), general professional (GPC) and, perhaps, the professional competences (PC) which will be realized further in pedagogical, design, methodical, organizational and administrative, cultural and educational activity and activity of maintenance of educational process in educational institutions in which graduates (according to the standard) can carry out professional activity.

From our point of view, the complex integrated tasks (CIT) can become the most effective uniform and method of assessment of formation of professional competence of future mathematics teacher. CIT are approved by the organization at the cathedral level due to creation FEM and allow to estimate achievement of

the planned results and level of formation of all competences stated in the educational program.

The relevance of use CIT has significantly increased with introduction of competence-based approach in education. They are focused on formation of competences, both universal, and professional (the general and special). Process of formation of competences of teacher training University is carried out by means of development of qualities of the identity of future teacher, training of students for professional activity during permission of these or those professional focused educational situations, formation of the abilities necessary for the solution of professional and methodical tasks, implementation of professional activity as the subject teacher during practice and realization of personal potential for successful creative activity in professional and social spheres [3].

According to Dyomina E.A., process of development CIT within realization of competence-based approach demands complex accounting of system of competences [2]. That is development CIT demands an integrated approach.

CIT can be divided on complexity levels:

Level 1 – the CIT relying by the studied contents, assuming use of knowledge and abilities from two and more disciplines;

Level 2 – CIT including some uncertainty of factors forcing "to see" a problem, "to finish thinking" about a situation, to offer own non-standard exit from her;

Level 3 – CIT assuming discrepancy of data with providing freedom of action when performing a task.

Anyway CIT have to be closely connected with future professional activity.

Cross-disciplinary integration with application CIT allows to expand educational space, to create virtual educational cross-disciplinary laboratory in which the student, repeatedly applying knowledge of the integrated disciplines in new conditions, develops ability to apply them in professional activity [8].

We will bring a little CIT on different subjects of discipline "Methods of teaching and nurturing mathematics" which, as we know, is central in professional and methodical training of future mathematics teacher.

1. Subject "Methods of Studying of Properties of a Triangle". The teacher should develop a lesson of studying of property of an isosceles triangle with use of a method of problem training. Help him. Characterize a method of problem training. Carry out the logical and methodical analysis of the subject "Property of an Isosceles Triangle". Offer the teacher a fragment of a lesson of studying of property of an isosceles triangle with use of a method of problem training. Express the reasoned opinion on expediency of use of a method of problem training in relation to this subject.

2. Subject "Methods of Studying of Formulas of Abridged Multiplication". Characterize age features and the leading activity of pupils of the eighth class.

Whether studying of this subject in playful way is possible? If "yes", then what type of a game will be more effective? Offer the scenario of such game. Offer 3-4 mathematical tasks for a game. Whether are possible during the game conflict situations? How to leave them?

3. Subject "Methods of Studying of Quadratic Equations". In practice at school to you have charged to prepare a lesson of generalization and systematization of knowledge of the subject "Methods of the Solution of Quadratic Equations". What do you know about process of generalization and systematization of knowledge? What has to form the basis of this lesson? What forms of the organization of educational process will become the main? Think over the scenario of a lesson, prepare for him a complex of tasks.

The given tasks enter the maintenance of FSE on the Mathematics, Informatics profile of the direction of training of the bachelor "44.03.05 Pedagogical education" of the Ishim teacher training college of P.P. Yershov (branch) of the Tyumen state university.

According to requirements of FSES HE at FSE there are without fail representatives of employers, heads of comprehensive schools, skilled teachers with length of service. During daily pedagogical activity of the teacher hourly perform similar tasks therefore their assessment of readiness of the graduate for professional activity is more objective and proved.

Thus, integration of FSE seems to us in need of use CIT, leaning on several main subject matters and forcing the graduate to show the maximum quantity of the personal and professional qualities created for all years of training in teacher training University at examination. CIT allow to estimate the level of formation of the main set of competences from universal to professional. It is difficult to overestimate their value. They are capable to unite disciplines of subject, professional and methodical and psychology and pedagogical cycles; to impart skills of logic and the argument during statement of the found solution; to develop ability in generalization, allocation of the main thing, identification of minor; to carrying out a reflection, the analysis of mistakes, identification of gaps in knowledge; and so on.

Experience shows that systematic use on occupations and during intermediate control CIT allows to create on occupations the atmosphere of the real pedagogical laboratory where the student accumulates everything the psychology and pedagogical, subject and professional and methodical knowledge which is available for him for a solution.

At the Ishim teacher training college of P.P. Yershov (branch) of the Tyumen state university on the Mathematics, Informatics profile the complex integrated state exam includes three stages:

1. The Complex Integrated Test on subject domains of "mathematician" and "information scientist" and also disciplines of psychology and pedagogical, pro-

fessional and methodical and common cultural cycles. The test includes tasks of all types: opened, closed with the multiple choice, tasks for establishment of compliance and the correct sequence which are directed to identification of level of formation of professional competence of future teacher of the theoretical plan.

2. CIT on subject domain of "mathematician" and "methods of teaching mathematics" with orientation to knowledge of disciplines of a basic part of the curriculum. Assessment of correctness and quality of performance of a task is given by experts from among members of the state certifying commission, including representatives of employers.

3. CIT on subject domain of "information scientist" and "methods of teaching informatics", also with orientation to knowledge of disciplines of a basic part of the curriculum.

In the conclusion we will note:

1. In teacher training University the organization of system of vocational education which basis cross-disciplinary integration with a support on complex training is necessary. Such system will allow by means of CIT to train future teachers for the solution of real pedagogical and methodical situations.

2. Methods and forms of carrying out FSE in teacher training University need theoretical justification and practical development. However already now it is clear that the final exam has to have the complex and integrated character.

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现代特征开发的自适应测试方法

Modern features of the development of adaptive testing methods

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在整个专业人员的工作能力期间实施培训方法有助于通过使用各种技术来控制知识水平来提高他的资格。利用信息技术实现这些目标是制定计算机自适应测试方法的基础，在现代条件下，计算机自适应测试被认为是监测和评估受训人员知识水平的最完美工具。本文概述了应用自适应测试方法的主要特征和优势，以及用于进行自适应测试的方法和方法的关键特征。显示了它们在进行计算机自适应测试和评估受训者知识水平方面的应用可能性。所获得的结果可用于开发适用于特定教育学科的学科领域的不同复杂程度的自适应测试。

关键词：教育，信息技术，学生知识，监测与评估，自适应测试。

Annotation. *The implementation of the training methodology throughout the whole period of the specialist's working capacity contributes to the improvement of his qualification through the use of various technologies to control the level of knowledge. The use of information technology to achieve these goals served as the basis for the development of the methodology of computer adaptive testing, which in modern conditions is considered the most perfect tool for monitoring and assessing the level of knowledge of trainees. The article outlines the main features and advantages of applying the adaptive testing methodology, as well as the key characteristics of the methods and approaches that are used to conduct adaptive tests. The possibilities of their application in carrying out computer adaptive testing and assessing the level of knowledge of trainees are shown. The obtained results can be used for the development of adaptive tests of different levels of com-*

plexity applied to the subject areas of specific educational disciplines.

Keywords: *education, information technology, student knowledge, monitoring and evaluation, adaptive testing.*

Introduction

The introduction of modern information technologies into the education sphere also contributes to a significant facilitation of the organization of continuous monitoring of the level of knowledge of trainees and their evaluation. At the same time, different technologies and various forms of assessing the level of knowledge of trainees can be used, which make it possible to determine unambiguously how much new amounts of knowledge were learned by trainees. The use of modern information technologies to assess the level of knowledge of trainees, allows you to quickly monitor how fully the goals of training established initially are achieved.

In recent years, the use of modular educational technologies (MET) has become increasingly popular in modern pedagogical information technologies, which allow the development of electronic educational resources by combining several training modules (TMs), usually corresponding to the subject areas of a particular educational discipline. An important feature of the MET is the presence in each TM of the block of control of the level of knowledge of trainees, in which computer testing technologies are usually presented, implemented in the form of special software or applications to it [5, p. 49].

To the greatest extent this direction corresponds to adaptive testing (AT) technologies, the principal feature of which is the generation of a sequence of tasks directly during the test, depending on the level of knowledge of each trainee. Therefore, when organizing and conducting an AT, the sequence and number of tasks in the test for each trainee may not coincide. For the practical implementation of technology and the implementation of AT at the present time, different levels of complexity algorithms are used. Their development is based on the application of a sufficiently large number of known methods and approaches, the choice of which in the development of each algorithm should be justified in relation to the didactic content of the subject area of the educational discipline as a whole, as well as its individual sections, themes and TM.

Main part

Modern pedagogical practice clearly demonstrates that in comparison with traditional technologies of computer testing, AT technologies have fundamental differences and peculiarities of their practical implementation. They are as follows:

- an assessment of the level of knowledge of each student occurs on the basis of the generation of an individual algorithm for the passage of AT, which includes a different number of tasks, different in content and complexity, and also limited in time;

- an individual algorithm for passing ATs by each trainee assumes the generation of a sequence and the determination of the number of tasks in the test in automatic mode, depending on the level of knowledge of the trainee, the degree of complexity of tasks and the correctness of the answers to them [7, p. 83].

These fundamental differences and peculiarities predetermined the main advantages of AT technologies in comparison with traditional testing technologies [2]. They are as follows:

- Possibility of the organization of operative monitoring and control of a level of knowledge of trainees at all stages of their training;
- the possibility of obtaining more objective estimates of the level of knowledge of each trainee with high accuracy and with minimal time expenditure;
- increasing the effectiveness of the organization of monitoring the level of knowledge of trainees by reducing the influence of such unfavorable factors as fatigue, excitement, inattention, etc.;
- the formation of direct and feedback links between trainees and the teacher, not only in the learning process, but also in monitoring the level of knowledge of trainees.

To conduct an AT, it is necessary to justify the choice from among the existing or the development of new methods for its practical implementation. These include methods that regulate the characteristics of AT, evaluate the results and verify their reliability and objectivity, as well as establish the rules for conducting AT. We will open below the possibility of using and the features of the practical application of certain specific methods.

The methods of conducting AT ensure the adaptation of the test tasks to the current level of knowledge of the individual trainee and his individual abilities to assimilate new volumes of knowledge, depending on which the key characteristics of the AT process are determined and the methods of its implementation are selected. Given the possibility of taking into account the above set of conditions, it is customary to single out the methods of partial and complete AT [1].

The methods of partial AT implementation assume a different sequence and number of tasks in the test for trainees with a high, medium and low current level of knowledge. Generation of the sequence, number and complexity of the tasks by the AT program takes into account the number of correct / incorrect responses of the trainee and / or the current level of his knowledge and / or on the basis of individually developed AT trajectories. To obtain the above input data, the parameters of the trainee model are usually used. In pedagogical practice, for the implementation of methods of partial AT, the results of random sampling are used, taking into account the key parameters of the trainee model, the number of correct / incorrect answers of the trainee, the didactic content of the subject area of the studied topic or the section of the educational discipline within TM [6, p. 50]. All these charac-

teristics became the basis for the development of a modular-rating method for organizing control and evaluation of the current level of knowledge of trainees [3, p. 127; 7, p. 82]. The result of its application is the rating scale of a certain contingent of trainees depending on the assessments of the current level of their knowledge.

Using the methods of full AT allows to implement in practice the control of the level of knowledge of each individual tested. To do this, as an input data, when applying methods for the full implementation of AT in addition to the key parameters of the trainee model, analogous parameters of the subject area model of the studied topic or the section of the educational discipline in TM are connected [8, p. 57].

Another fundamental difference between the methods used to perform AT is the way to generate its trajectory. In this case, the following can be used:

- Methods of the theory of pedagogical measurements (Item Response Theory, IRT);

- neural network methods;

- methods for specifying transitions between states.

The application of the methods of the theory of pedagogical measurements is based on the provisions of the well-known method of latent-structural analysis [4; 6, p. 33; 11, pp. 349-387]. To generate the trajectory of the AT, the maximum information is used, which ensures the selection of each subsequent task of the test database based on the availability in it of the maximum information for assessing the current level of knowledge of the trainee. This method was first proposed in the late 40's - early 50's of the last century by the American sociologist P. Lazarsfeld. It is one of the varieties of methods of statistical analysis of empirical data and makes it possible, based on the answers received by trainees for a set of questions, to reveal their distribution according to some hidden (latent) trait - in our case - according to the current level of their knowledge. With respect to the problems being solved, this method is fairly close to the methods of factor analysis, which require the representation of the entire set of initial data in quantitative estimates. The main difference between the method of latent-structural analysis and methods of factor analysis is the possibility of its application for the analysis of dichotomous variables expressed through qualitative characteristics. Later, a generalized version of the method of latent-structural analysis was developed, which was called the method of latent profile analysis by U. Gibson [9, Pp. 229-252]. This method allows us to analyze not only qualitative dichotomous variables, but also qualitative multivariate variables, as well as quantitative variables. At the same time, the final (latent) sign can have both qualitative and quantitative assessments.

Some neural network methods, in particular, the iterative process of interpolation of the task complexity function, can be used to generate trajectories of ATs [2]. The peculiarity of using this method is that, based on the analysis of the answers to the tasks of a particular test, the level of complexity of these tasks for a

particular trainee is determined. After that, a suitable function is selected, which interpolates this level of complexity for the whole set of tasks of a given test. Based on the results of analyzing the behavior of the interpolating function for the trainee, tasks are chosen in which this function manifests itself most "irregularly".

To assess the current and / or final level of knowledge of trainees received as a result of the AT, various methods for evaluating the test results are used. Depending on the approach to obtaining an assessment of the current and / or final level of knowledge of trainees, methods based on quantitative, probabilistic and classification criteria are singled out [10, pp. 84-93].

Methods based on quantitative criteria allow the use of quantitative scales to obtain estimates of the current and / or final level of knowledge of trainees, that is, if applied, the level of knowledge of trainees will be evaluated by a specific numerical index. In the simplest case, such a numerical index can be represented as the sum of points that the student received for correct answers to the tasks of a particular test. For more complex cases, when assessing the level of knowledge of trainees, they take into account the level of complexity and other characteristics of the test tasks, as well as the key indicators of trainees when they perform specific tasks. These include: the timing of the AT, the ratio of the number of correctly and incorrectly performed tasks, the number of attempts to complete the task, and a number of others [3, c. 132].

Methods based on probabilistic criteria are intended to determine the probability of obtaining correct answers of the trainee in the form of a function that characterizes the current level of his knowledge in relation to the level of complexity of the test tasks. These methods are commonly used in the classical theory of tests and its models (Classical Test Theory - CTT models), for example, IRT-models [2].

Methods based on classification criteria are used to form relatively stable classes, referring to one of which trainees is based on the inclusion of a set of classification criteria that determine the current level of their knowledge. Examples of the use of methods based on classification criteria are the methods of the evaluation algorithm (ABO method), as well as the methods of fuzzy sets [2].

The methods for verifying the reliability and objectivity of the results of conducting ATs depending on the order of presentation of tasks in the tests differ from the standpoint of the approach to verifying the results and the methods of obtaining them in:

- methods with constant adaptation during AT;
- methods with block adaptation in the conduct of AT.

Methods with constant adaptation in the conduct of AT are defined as methods of a deterministic branching strategy for obtaining estimates of the current level of knowledge of trainees. They assume the need to make a decision to change the

generation of the task sequence in the test at each step of the AT, depending on the ratio of the number of correctly and incorrectly executed tasks to the trainee.

Methods with block adaptation in the conduct of AT are defined as methods of variably branching strategy for obtaining estimates of the current level of knowledge of trainees. They assume the need to make a decision to change the generation of the sequence of submission of tasks only after analyzing the results of processing the task set in each test when performing AT. When using these methods, the generation of the task sequence in the test is less dependent on the ratio of the number of correctly and incorrectly executed tasks to the trainees. It is most convenient to use them for assessing the level of knowledge of students on the basis of learning new amounts of knowledge in the form of didactic content of the subject area of a particular module for teaching a particular educational discipline.

Finally, in the conduct of AT it is necessary to establish general rules, the implementation of which will allow us to speak about its termination. Usually, the number of such rules is usually attributed to the achievement of the required level of mastery of knowledge, the number of tasks in the test, the established time for conducting the AT. The indicator of achievement of the required level of knowledge acquisition by trainees is most often accepted as one of the defining rules for ending AT. However, it becomes necessary to obtain its evaluation with a sufficiently high accuracy, and in the event that this can not be achieved, it is advisable to use the predetermined limits (minimum and maximum) of the level of knowledge of trainees. The use of such indicators as the limitation of the testing time or the number of tasks in the test is much less frequent as the rules for completing the AT. In this way, the main purpose of the reform of the education sphere is being met - the training of qualified specialists for the further development of the Russian economy.

Conclusion

Based on the results obtained, the following conclusions are formulated:

1. Application of modern information technologies in the educational sphere expands the practice of their use as an effective tool for assessing the level of knowledge of trainees. Most often, the computer AT methodology is used for this.
2. It is established that when organizing the monitoring of the level of knowledge of trainees, the main thrust of computer testing technologies is to increase efficiency and reduce the time for obtaining its estimates.
3. In order to conduct AT, it is necessary to justify the choice from existing ones or the development of new methods for its practical implementation. These include methods that regulate the features of AT, are used to evaluate the results obtained and to verify their reliability and objectivity, as well as establish the rules for conducting AT. Some of them have been described in this article.

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在俄语作为外语教学过程中使用游戏技术

The Use of gaming technologies in the process of teaching Russian as a foreign language

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Annotation. *In this article gaming technologies are considered as a linguodidactic tool for teaching Russian as a foreign language. Not being a universal form of work, games used in conjunction with traditional methods, contribute to active language learning. Practice shows, that the use of gaming technology allows you to implement the strategy of interactive forms of teaching and new trends in teaching methods that take into account the psychological characteristics and communicative, emotional, cognitive needs of students.*

Keywords: *educational technologies, innovations, gaming pedagogical technologies, training, traditions, experiments.*

Gaming technology is now considered to be one of the innovative educational technologies. "Gaming pedagogical technologies", which are widely used today in teaching Russian as a foreign language, represent a set of methods and methods for organizing the educational process in the form of games. The question of their application in the pedagogical process in the teaching methodology is not new: the development of the theory of the use of games in classrooms, the methodological foundations of the game, the definition of its social nature, the significance for the development of the student in domestic pedagogy and psychology were studied by A.N. Leontiev, L.S. Vygotsky, D.B. Elkonin and others. Thus, L.S. Vygotsky defined the game as a space for the "internal socialization" of the child, a means of assimilating social attitudes [cf. on 2, p.152]. Speaking about the functions of the game, A.B. Kovaleva noted that even D.B. Elkonin distinguished the most important four:

- a means of developing the motivational and need sphere;
- a means of knowledge;
- a means of developing mental actions;
- a means of developing arbitrary behavior [6, p. 38].

In addition, educational games have a *learning* (facilitate the acquisition and formation of competencies in one or more learning topics); *motivational* (stimulate teaching and upbringing activities through a positive impact on the personality of the learner by expanding the outlook, development of thinking, etc.); *orienting* (games are taught to find a solution in a specific situation and independently select appropriate verbal and non-verbal means of communication); *compensatory* (they approximate the educational activity to the conditions of using the language in real life, thereby compensating for the absence or lack of speech practice) functions [4, p. 111].

In the formation of speech competence, a special role is played by the correct correlation of educational objectives and the communicative needs of students. In the teaching of a foreign language and Russian as a foreign language, gaming methods are regarded as a special training system that differs from traditional ones in several ways:

- the maximum activation of students in the class, which is important, because, according to researchers, encouraging students to active communicative actions and involving them in the educational process is one of the main tasks of the teacher [8, p. 26];

- mobilization of the hidden personal reserves of the student.

Consider the various classifications of educational games, noted in the methodical literature. Game typologies are built on the basis of their goals and objectives, the forms of their conduct, the degree of complexity, the methods of organization, the number of participants. According to the purposes and tasks of instruction, the educational (linguistic) games that are most often used in classes in Russian as a foreign language are usually divided into aspect and communicative. Aspect games, in turn, are divided into phonetic, lexical, grammatical, syntactic, and stylistic respectively. Language games help to activate the activities of students in the classroom, and also develop the speech initiative. Communicative games are aimed at forming competencies in all types of speech activity. Each type of speech activity corresponds to a certain type of educational game, aimed at teaching audition, monologic and dialogical speech, reading and writing. In the form of conducting it is customary to allocate mobile games with a verbal component, subject games, situational games, role games, intellectual games, competitions, etc. By the way the organization of the game is full-time and remote, written and oral, with support and without support, simulation-modeling, creative, etc. In terms of the degree of complexity of the actions being performed, the educational games are divided into monosituational and polysituational ones, and in the duration of the conduct, they are divided into long and short ones. By the quantitative composition of the participants of the game are divided into individual, pair, group, team and collective [4, p. 114].

The game as a form of organizing classes with foreign students not only stimulates the process of communication, but also brings it closer to natural communication. With the help of the game, it is advisable to develop phonetic skills, to activate grammatical and lexical material, to develop listening and speaking skills. Thanks to the game, you can also remove emotional fatigue, mobilize the mental efforts of students. Game technologies develop organizational skills, skills of self-discipline, create a positive environment in class [5, p. 69]. The goals of gaming training for foreign students are:

- development of thinking by language means of the language being studied;
- Increased motivation to learn Russian language and culture;
- ensuring the personal growth of each participant in the game;
- formation and improvement of skills to enter into interpersonal communication [2, p. 155].

The use of gaming technology for teaching Russian as a foreign language, according to O.V. Gavrilova, contributes to the consolidation of the memory of language models, the creation of more vivid visual and auditory images, the maintenance of interest and activity of students [3, p. 7]. Game technologies give students the opportunity to act in simulated educational and professional situations. The formation of communication skills occurs through the use of games that promote psychological readiness for speech communication in a foreign language, and also satisfy the natural need for repeated repetition of linguistic and speech material.

The use of game situations at the initial stage of the study of the Russian language as a foreign language provides an opportunity to form an interest in the Russian language for foreign students, as well as to purposefully implement a person-oriented approach to learning, moreover, they create a positive attitude toward learning the language and stimulate independent speech activity. Particular attention during this period, of course, is given to correct articulation of sounds. So, the educational goal of the phonetic game is that the students correctly pronounce the sounds and can identify them in the speech stream; also the importance of intonation. Typically, phonetic games are used regularly and gradually move from the level of words, sentences and rhymes to tongue twisters, poems, songs. Grammatical and lexical games are aimed at the use of certain speech patterns that contain certain difficulties. The learner learns to apply knowledge in practice, create a natural situation for the use of grammatical constructions in natural communication situations. The vocabulary is expanding.

The game as a form of training is appropriate in the subsequent stages of training. So, at the senior stage active reading, monologic and written speech receive active development, vocabulary is increased. Interpersonal communication becomes the leading type of speech activity of students. In addition, the gaming

method has a huge training and psychotherapeutic potential.

Gaming activities have a constant technological scheme:

1. Stage preparation, which includes the development of the script, the development of the game plan and the characteristics of the roles.
2. The stage of explanation of the game - its mode, the statement of the problem, as well as familiarity with the handouts.
3. The stage of the game.
4. Stage of reflection: assessment and self-analysis; conclusions and recommendations.

Educational games, of course, help overcome language and psychological barriers. Their use makes it possible to concentrate on mastering speech skills during the process of natural communication [7, p. 46].

Practice shows that the regular use of gaming technology in the process of learning Russian as a foreign language helps to achieve a lasting assimilation of linguistic and speech material in the event of a shortage of study time; while providing a variety of types of learning activities and forms of communication. There is an opportunity to unload the arbitrary memory of students by transferring the educational information to an involuntary training regime, in optimal terms, to develop a speech rate near the average speech rate of the native speakers. Game technologies significantly increase the amount of grammatical and lexical material worked out at the lesson, intensify its assimilation, improve the quality of the educational process, help to form skills and abilities of adequate communicative actions in socially significant situations of verbal communication using linguistic and cultural knowledge [1, p.311]. Thus, the use of gaming technology allows the implementation of a strategy of interactive forms of teaching and new trends in teaching methods aimed at updating the learning process through its "revitalization", i.e. practical account of the human factor, psychological features, as well as communicative, emotional, cognitive needs of students.

Of course, gaming technology is not a universal form of work, without other techniques and methods and without proper preparation of the teacher they will not bring the desired effect. However, games that are adequately used in conjunction with traditional methods, contribute to active learning of Russian as a foreign language.

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形成未来教师的专业思维

Formation of professional thinking of the future teacher

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文章将教师专业思维的概念作为专业能力的重要组成部分之一。提出了作者对这一现象的结构和内容特征的看法。指出了专业教学思想的形成和发展系统的方向。给出了实例

关键词：高等教育，专业能力，教师专业思维，未来教师的准备。

Annotation. *The article actualizes the concept of professional thinking of the teacher as one of the significant components of professional competence. The author's view on the structural and content features of this phenomenon is presented. The directions of the system of formation and development of professional pedagogical thinking are indicated. Practical examples are given..*

Keywords: *higher education, professional competence, professional thinking of the teacher, preparation of the future teacher.*

Modern socio-economic conditions that determine the direction of modernization of higher and secondary education determine the relevance of the study of the problems of forming the professional competence of the teacher, in particular, the teacher of mathematics. One of the components of the professional competence of the teacher is a professional style of thinking, the level of development of which largely determines the teacher's ability to successfully self-actualize in the face of rapid social changes. In studies on the problems of vocational education, the development of professional thinking of the individual is often not given due attention. At the same time, the formation of professional thinking is a necessary requirement for the preparation of a future teacher in higher education at the present stage of the development of society.

The thinking activity of man as a whole is subject to the same psychological patterns. However, the identification of features of thinking, in the aspect of any activity of the individual, including professional, requires its consideration in indissoluble connection with the content of this activity, its means and methods.

• In the psychological and pedagogical literature that reveals various aspects of the formation of the professional competence of teachers 1-7, 11]pene-

trate into the essence of pedagogical facts, situations, phenomena, establish their objective characteristics;

- interpret theoretical positions from the point of view of real practice;
- predict the likely outcomes of their manifestation;
- to design the educational process taking into account the goals, laws and principles of training, conditions of professional activity;
- to exercise personal control in the course of one's own professional activity;
- to establish, critically comprehend and evaluate the results of their professional activities, their professional experience and to form on this basis a creative individual style of professional activity.

1) Revealing the features of the professional thinking of the teacher, researchers [solve the proposed problem, establish the features of its solution in terms of subject content (mathematical component);

2) establish the methodological features of its solution, identify the moments of the solution, which can cause difficulties and think over ways of overcoming difficulties (methodological and mathematical components);

3) change the condition of the problem so that it can be used to organize the work of groups of students: with low, medium and high levels of training (psychological, pedagogical, methodological and mathematical components);

4) think over the organization of the work of groups to solve the problem (psychological, pedagogical and methodological components);

5) think through the organization of checking the solution of the problem and working on the errors for each of the groups (psychological, pedagogical, methodological and mathematical components).

The task of developing a lesson summary for studying a particular topic of the school course can be presented as follows.

The task. Draw up an abstract of the lesson on the topic "Parallelogram properties", taking into account the input data.

Input data. This lesson is the lesson of fixing a new material. Most of the students in the class have average abilities in mathematics. Schoolchildren differ in situational educational interest, they are able to independently apply the assimilated modes of activity, while not always carrying out an adequate transfer of training activities. The actions of self-control are successfully carried out in the presence of an assimilated scheme. In the class there are two students with excellent mathematical abilities. Three schoolchildren are characterized by a negative attitude towards learning. The lesson of mathematics is in schedule three. Before mathematics was a lesson in history, in which students were taken to the local history museum.

Hint. Do not forget to take into account the calendar scheduling.

Obviously, the proposed tasks are focused not only on the formation of all three components of professional thinking, but also on such qualities as creativity, situability, and predictability. It should be noted that for the effective formation of the professional thinking of the teacher, the stage of reflection is essential in the work on assignments, the purpose of which is to correlate one's own actions with the situation stated in the task. In this regard, not only should he check the fulfillment of tasks, but organize a mutual examination or a general, group, paired discussion of the results of students' work. As a rule, during such a discussion students become the most strict reviewers of the results of their comrades' activities and at the same time analyzing the work of others begin to become more aware of their own mistakes.

Thus, the system of work on the formation of professional thinking and the attainment of certain levels of its development is also a condition and factor for the professional development of the future teacher.

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大学生外语教学中多元文化价值观的形成
**Formation of Multicultural Values While Teaching a Foreign Language to
University Students**

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在文章中，考虑了俄罗斯多元文化现代语言教育的因素。基于区域材料的项目活动被视为培训教师专业活动的一体化基础。项目实施的例子旨在促进库班哥萨克文化及其在高等教育机构的多元文化空间中的学校（哥萨克班级）和大学（哥萨克团体）的光荣传统。

关键词：多元文化主义，语言教育，项目技术，库班哥萨克传统，连续性。

Annotation. *In the article, factors of multicultural modern language education in Russia are considered. Project activity based on regional materials is viewed as the integrating basis in training teachers for their professional activity. The example of project implementation aimed at promoting Kuban Cossacks culture and their glorious traditions at schools (Cossack classes) and university (Cossack groups) in the multicultural space of a higher education institution is given.*

Keywords: *multiculturalism, language education, project technologies, Kuban Cossacks traditions, continuity.*

The modern world is characterized by interrelation of cultures and languages, hence multicultural and multilingual education is one of tools effectively training future experts today. In this regard, the Russian system of higher education faces a new goal – education of personalities thinking globally, perceiving themselves both as representatives of their culture and citizens of the world who realize their role, importance and responsibility in universal scales.

Krasnodar Krai as an integrated part of the multicultural world is characterized by tendencies which have caused the relevance of scientific projects implementation and development of the multicultural language personality. Thus, consideration of multiculturalism is an indispensable condition for modern language education in our country.

University graduates are to be ready to realize a wide range of competences

among which the socio-cultural competence plays an important role. In the process of updating all spheres of social activity, requirements connected with creativity, active living position, independent way of thinking are imposed on the young.

The basis for general education modern standards, "Conception of Spiritual and Moral Development and Education of the Russian Citizen Personality", determines the main priorities of the state policy in education:

- modern national educational ideal;

- aims and objectives for spiritual and moral development and education;

- system of basic national values for spiritual and moral consolidation of the peoples in the Russian Federation;

- main social and pedagogical conditions for spiritual and moral development and education [1, p. 7].

According to the authoritative opinion, "the relevant task for higher school consists in training a new generation of teachers: competent, capable of carrying out the process of cross-cultural and cross-generation dialogue [2, p. 260]. On the other hand, as the President of Russia V.V. Putin notes, in a rough time of technological changes it is very important to maintain one's identity. According to him, it can't be made without culture which is "a unique civilization code" as "it reveals creative grounds in a person" [3].

Dialogue of cultures, in the Russian education system, is traditionally viewed as the means of formation of ideas about other cultures, education of tolerant people willing for constructive and mutually advantageous cross-cultural communication. Higher education must form competitive experts whose foreign language skills enable them to participate fully in cross-cultural communication.

Special attention in methodical community is paid to the question of socio-cultural competence of future teachers, as well as determination and development of techniques of its formation in educational institutions of different type.

Federal State Educational Standard Requirements for higher education stimulate teachers to apply creative approaches to teaching foreign languages and using of modern technologies in class.

One of the forms developing the socio-cultural competence of students is considered to be project activity which stands out as the integrating basis for training future teachers for their job, motivating students for professional and personal growth. In the 21st century, project management is considered as one of relevant intellectual activity types which promotes them to become subjects of educational process on the basis of creating the product with the subsequent realization in life.

Project technologies give a teacher the opportunity to combine practical application of theory for the solution of a specific problem in the course of independent information search (which is priority), focusing participants on the result, with its representation during the public defense. Thus, project technologies are character-

ized by poly-functionality and also by possibility of their optimal integration into educational process, when mastering basic knowledge and key competences correlates with multilateral development of students' personality [4].

Practice of applying project technologies in teaching languages allows us to speak about their high potential, including high school multicultural education. It would be desirable to share the concrete practical experience in realization of the project in conditions of multicultural higher education institution.

Armavir State Pedagogical University (ASPU), celebrating its jubilee in 2018, is the oldest higher pedagogical education institution in the South of Russia.

Armavir is a multinational city where representatives of original cultures have been living for many years peacefully, as good neighbors. This fact is proved by the annual festival "Multicultural Armavir" which is considered as the hallmark of the city. The purpose of the festival consists in promoting ethnic traditions and cultures, creating the space for cultural exchange and development of creative abilities. The festival program includes various events held within a year: lectures, conferences, excursions, concerts, exhibitions and fairs, folk art workshops, ethnic cuisine shows and traditional sports competitions. 12 ethnic autonomy organizations show the diversity of cultures, stronger traditions of friendship, people's desire for peace, kind and creation. With time, the geographical framework of the festival has extended: representatives of other regions and republics of Russia come to feel the unity with the big family of peoples in Armavir.

ASPU students participate actively in the work of "Multicultural Armavir" festival and celebration of the City Day where they see all the beauty of the city where they live and study. ASPU is a multicultural higher education institution with students coming not only from the region, but also from abroad. In recent years the university has considerably expanded the frames of international cooperation, having signed a number of agreements with the universities of Armenia and Kazakhstan, established cooperation with the university of the Province of Sichuan in People's Republic of China. Academic exchange has become a good tradition for the university.

The variety of cultures can be seen both at classes and in extracurricular activities. ASPU Students regularly organize concerts "Multicultural ASPU", impressing the audience with their talents through touching Russians and the Armenian melodies, bright traditional Caucasian and Turkmen dances, profound poems of Russian classics recited by Chinese students.

For the third year in ASPU, the Regional Project Competition in foreign languages for school, college and university students has been organized. So, in 2017 the competition was devoted to the 225th anniversary of Kuban Land development by Cossacks and the 80th anniversary of Krasnodar Krai formation. As one of the winners was announced the project **"We are the Cossacks!"** made by Technology,

Economics and Design Faculty and Historical Faculty students under the supervision of Associate Professors N. Papernaya and E. Kovalevich.

The project was carried out gradually. The first stage included determining the problem which, as had been revealed, consisted in the fact that the younger generation does not know the basics of the Cossacks life, their history, customs and traditions, which leads to the situation when "the time is out of joint". As the culture of Russian Cossacks nowadays, to a certain extent expresses the socially important values of Russian culture reflecting the image of Russian civilization [5], the continuity of transferring experience and knowledge to the younger generation must be carried out, with the aim of accumulating and following fathers' traditions.

In this regard, at the same stage there was defined the project main objective – promotion of culture and glorious traditions of Kuban Cossacks according to the "school-university-city-region" line. For achieving the objective the following tasks were set:

- to work with archives,
- to visit several memorable places,
- to interview the Cossacks representatives in the city about prospects of joint collaboration.

The second stage included the out-of-class activity with the objectives achieved.

The third stage was devoted to processing the information collected together with the research supervisors. Students analyzed and systematized the material in English and checked the information for reliability. In the course of work they learned a lot about the history of Kuban Cossacks.

At the fourth stage the students prepared the presentation where they included the interviews with S.N. Lukash, DEd, Professor of ASPU, Deputy Ataman of Labinsky Cossack Department of Kuban Cossack Army and A.M. Krasovsky, Army Foreman, Deputy Ataman of Labinsky Department.

The project activity resulted in the booklet about the student's Cossack group "Lineyets" at the Technology, Economics and Design Faculty of ASPU, which tells you how

the Cossacks perform their law-enforcement function on the equal basis with the police,

Labinsky Cossack Department of the Kuban Cossack Army functions, the Cossack student's group "Lineyets" collaborates with the Department, it was created in 2011 at the initiative of ASPU Rector, A.R. Galustov, the group lives and works under the leadership of ASPU professor S.N. Lukash.

As mentioned above, the specified project became the winner in the nomi-

nation "**Discovering Krasnodar Region: Past and Present**" of the II regional competition in 2017. While working at the project, there was an exchange of opinions between students and teachers concerning the material usage, methods of its processing were specified, i.e. in conditions of the product creation, in the course of vigorous cognitive activity using the English and Russian languages, the competences allowing the trainees to apply skills of research activity were formed.

Some of the project sections needed the language and cultural comment as one of the relevant and effective methods of multicultural training, which consisted in revealing the language cultural sense broadcast by separate language text units. For example, the Cossack realia and their transfer in English were successfully performed:

шашка – shashka, a special kind of sabre (the Russian word shashka originally came from the Adyghe word – Adyghe: Шашькуэ (Shash ko) meaning "a long knife") [6].

Verifying the data on the Cossack life, students discovered the interesting details connected with this weapon:

- The Don Cossack shashka, which has a straighter blade, which gave Cossacks something in the middle to combine two things in one. The weight of this shashka is around 1 kilogram.

- The Terek Cossack shashka, the handle, like the Don Cossack shashka, does not go inside the scabbard. It is very light and strong [ibid].

Other realia were checked the same way, for example:

нагайка – (a short, thick whip with round cross-section used by Cossacks, borrowed from Nogai people, hence the original name "nogaika", or "Nogai's whip") [ibid];

черкеска – cherkeska, Circassian coat (item of clothing worn by people of Caucasus – single breasted caftan without a collar, cut at the waste with pleats, usually about above the knee length) [7], etc.

As for solution of the problem in the project, the participants saw it in training teachers for Cossack classes, collaboration with Labinsky Cossack Department of the Kuban Cossack Army, with schools and universities of Krasnodar Krai, providing education of youth in the spirit of the Cossack traditions. Cossack classes in schools and Cossack military schools functioning in the region testify that their graduates will become worthy heirs of their fathers.

Thus, the project realized created the conditions for using a foreign language to increase the general culture of students, expand their outlook, improving their communication culture, the system of moral and esthetic views which has a major impact on multicultural values formation. Implementation of the project "**We are the Cossacks!**" also convinced us in great potential opportunities for project technology in the sphere of multicultural language education.

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关于互联网教育影响的思考

A reflection on the educational impact of the Internet

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本文主要关注互联网在教育背景下的应用。通过与以前的大众媒体技术进行比较,可以发现网络的创新性,以突出新技术的巨大力量。

关键词: 互联网, 网络, 超文本, 多媒体, 电子学习。

Annotation. *The essay focuses on the application of the Internet in an educational context. The innovativeness of the web is caught through a comparison with the technology of previous mass-media, in order to highlight the great power of new technology.*

Keywords: *Internet, Web, Hypertext, Multimedia, E-learning.*

The genesis and the affirmation of the Internet

The birth of the Internet is undoubtedly an event of historical importance, whose relevance is visible to all.

Although it's a recent technological revolution [1, c, T.S. Kuhn, *The structure of scientific revolution*, Chicago, University of Chicago 2012, p. 1-264], one can already observe its multiple effects in every field, so significant as to induce the scholar Manuel Castells to even compare it to a galaxy [2, c, M. Castells, *Galassia Internet*, Feltrinelli, Milan 2002, p. 16].

The direct ancestor of the Internet is to be found in Arpanet [3, c, K.G. Coffman & A.M. Odlyzco, *Optical Fiber Telecommunications IV-B: Systems and Impairments*, Cambridge - Massachusetts, Academic Press 2002, p. 29], a computer network created by Cerf and Khan in 1969 to allow communication between US universities, subsequently perfected and expanded with constancy, until reaching a first mass dissemination in the nineties.

Subsequently, the Internet became a global phenomenon, able to involve all areas of the planet, albeit with different intensity. The birth of the World Wide Web [4, c, S. Sammartino McPherson, *Tim Berners-Lee: Inventor of the World Wide Web*, Minneapolis, Twenty-First Century Books 2009, p. 1-112] and the entry into the Internet of Microsoft have certainly been fundamental steps in the affirmation

of the network.

With the diffusion of the optical fiber, which guarantees a faster and more constant transmission of data, the problems of inhomogeneity between the main trunk of the network and its branches has somewhat attenuated, even if, being an expensive technology both for materials used that for installation, it has difficulty extending into economically depressed areas.

The key to Internet success is to be found in high efficiency, accompanied by ease of use.

The Internet is a multi-faceted resource, able to quickly store and disseminate information all over the world.

From various studies of the sector it has emerged that the service of the network preferred by Internet users is e-mail, which makes the assertion that the Internet has been a great success in the first place because it satisfies the need to communicate, felt acutely in our time .

The Internet has contributed to profoundly transform the communicative style, replacing the logic of traditional mass-media (television and radio), with the logic of personal-media, which calls the user to interact directly with the technological tool.

While traditional mass-media have an underlying rigidity that is difficult to overcome (even if, today, the television offer makes more and more use of the on-demand mode), Internet adapts to the needs of every user, because its technology is interactive.

From a psychological, aesthetic and educational point of view, the vision of a television program is quite different from browsing the web. In the first case, in fact, we use a product packaged by others, in front of which we assume a passive role.

Instead, another experience is represented by browsing the Internet: the Internet user, after having identified the topic of the search, personalizes the navigation, directing it towards one or more objectives.

There is also a different logic of Internet functioning with respect to the mass media, which consists of the hypertextual logic that guides the architecture of internal references to the web. This is hypertextuality [5, c, P. Castellucci, *Dall'ipertesto al web. Storia culturale dell'informatica*, Roma-Bari, Laterza 2009, pp. 111-112], that is, in the possibility of activating links (links) even between texts of a different nature (for example, graphics and music). If television and radio, while involving the viewer, are still distant objects, the Internet literally envelopes those who use it, dropping it into a virtual environment alternative to the real one.

In terms of communication, it's undoubtedly a radical innovation, which makes the Internet an instrument much more satisfying than the mass media, particularly appreciated by a young audience.

For several years now, the creation of mobile devices connected to the web, such as tablets or smartphones, has further promoted the use of the Internet, making it constantly available.

The massive offer of Internet access, to date not subject to effective regulation that protects the user from fraud or solicitation, is the most worrying aspect of the innovative personal-media.

Cases of fraudulent subjects (elderly and minors) and the dissemination of child pornography material through the web are constantly growing and testify to the emergence of a crime that lies in the virtual environment.

If it's true that the Internet is used primarily for communication or play, it's also true that there are more specific uses of the new technology, which has also revolutionized the working environment, promoting the so-called distance work.

In this way the dead times necessary to reach the working place have been eliminated, contributing at the same time to reduce the emission of polluting gases, but the loss of the relational dimension of the work has also been determined.

Finally, it should not be forgotten that the Internet has generated a completely innovative type of economy, which has reached enormous dimensions in a short time. Think of the continuous expansion of online commerce, dominated by multinationals with billionaire turnover.

The dissemination of E-learning

Over time, the Internet has established itself as a fundamental element also in the educational context.

The web, in fact, offers to anyone who wants to conduct a search enormous possibilities, ranging from the simple consultation of libraries scattered throughout the world to direct consultation of books or manuscripts, up to the function of "download" (download) documents collected in files of different formats.

In this context, the E-Learning [6, c, V. Eletti (a cura di), *Che cos'è l'e-learning?*, Roma, Carocci 2002, p. 1-142], that is distance learning using electronic supports, also deserves a special mention.

For work reasons, or because of the great distance, a large part of the potential users of the universities was forced, until recently, to give up their studies, with serious consequences.

With the spread of the Internet, the situation has changed radically, offering the possibility of benefiting from the training offer to a much wider audience.

At the beginning the E-Learning has established itself especially in the United States, both because it's a reality in which the use of the computer is very widespread, and because the distances are enormous. Later, however, E-learning has spread widely also in Europe, meeting a good success, because of the convenience represented by the use of lessons recorded and placed on the platform.

Alongside the advantages, over time, a critical conscience has matured more and more, which, together with its merits, has highlighted the limits of E-Learning. In fact, communication, fundamental in the learning process, is affected by the lack of direct contact between teacher and learner, which can be remedied through a mixed system, which also includes moments of training in the presence.

Another serious problem is the difficult conciliation of courses with a high theoretical content with the communication logic of the telematic tool, which tends to simplification [7, c, G. Trentin, *La sostenibilità didattico-formativa dell'e-learning: social networking e apprendimento attivo*, Milano, Franco Angeli 2008, p. 9-12].

In light of the above, it's clear that virtuality cannot replace reality. It would be better to consider the two non-opposing worlds, but complementary.

When the Internet appeared, not a few were able to prophesy the imminent disappearance of the paper book, destined to be replaced by the e-book, considered more practical and more ecological. Nevertheless, the old book has survived the affirmation of the web, sometimes acquiring an electronic format, easily accessible on the reader. The publishers themselves are committed to making their sites more attractive, on which it's possible to purchase online publications. Thus a happy balance has been found between the old technology and the new and both have earned us.

The problems posed by the Internet

As we have already seen, the planetary extension of the web, besides representing a great opportunity, also poses serious problems, which are far from being solved and are grounds for bitter political debate among those who see the Internet on the Internet.

As we have already seen, the planetary extension of the web, besides representing a great opportunity, also poses serious problems, which are far from being solved and are grounds for bitter political debate among those who see the highest expression of freedom on the Internet. individual and those who would like, on the contrary, a more widespread control over Internet users.

We have previously mentioned the revolutionary scope of the birth of the Internet, far from exhausted. The continuous evolution of electronic tools is so rapid that it's very difficult to keep up with it if you are not an expert. This should represent an advantage for users, allowing them to take advantage of a better service. There is, however, the other side of the coin, represented by the so-called "programmed obsolescence" [8, c, V. Packard, *The waste makers*, Philadelphia, D. McKay 1960, p. 1-340]: the continuous change in the range of electronic products leads to premature aging, which obliges the owners to purchase new tools, according to a consumerist logic that it enriches the producers. This commercial

dynamic has been described very clearly by Clifford Stoll, who has dedicated a book entitled *Confessions of a High-Tech Heretic*. Clifford Stoll, who teaches astronomy at Berkeley, was one of the pioneers of the Internet, of which he is today one of the foremost experts.

In reality, explains the author, "programmed obsolescence" is not a novelty linked to the birth of the Internet, but an old practice that has been renewed. In the 1950s, in fact, the automotive industries pushed the buyers towards an expensive run-up to the last model, which in most cases was not better than the previous one.

Stoll's denunciation of consumerism is not complete without a reference to the web, which is also intent on constantly imposing new software that is often useless, but necessary to make computers work.

Another one that Stoll moves involves the insertion of young people into the world of work. It's now commonplace that those who do not know how to use the Internet would not find work, or would find an unsatisfactory one. The Internet is, in reality, a simple tool that you can always learn to use, while creativity, the ability to be in contact with the public, the knowledge of foreign languages, honesty and punctuality are much more precious qualities. in a work environment.

Multimedia in education

The introduction of multimedia in education is the subject of bitter debate within the academic world. Some consider it an opportunity to be seized on the fly, others fear, instead, that through it the educational message can fade.

In fact, we have long been immersed in an experiential context characterized by the plurality of media we draw on to build our knowledge and skills.

Let's think, for example, of the possibility of conducting a research first by reading a book, then observing a photographic collection or a movie. In this case, we use different media, which we integrate with each other.

However, fruition doesn't take place simultaneously, because it's diachronic, articulated in distinct moments. The difference with the use of a PC lies in the ability of the latter to offer the possibility of an immediate reference between texts of a different nature, according to a multimedia logic.

The entrance of multimedia in our existence hasn't introduced new forms of knowledge, but has changed the way in which the pre-existing ones are used.

The great potential of digital multimedia technology, in particular the Internet, consists in the free choice of information-cognitive path, according to a logic of personalization that, in the traditional context in which the transmission of knowledge took place, didn't have the possibility to express itself.

This potential also has negative implications, such as the instability of acquired knowledge, the lack of content control, the impoverishment of deep thought and attention to the advantage of rapid decision-making.

Controversial aspects, which have significant effects in the educational field, so far substantially linked to traditional methods of transmission of knowledge [9, c, M. Spitzer, *Demenza digitale. Come la nuova tecnologia ci rende stupidi*, Corbaccio, Milan 2014, p. 1-330].

The particularity of the technology in question lies in the ability to influence human cognitive processes, especially in the case of subjects in the developmental age. A computer, in order to be used, doesn't require mere manual operations, but involves high cognitive functions, so as to be configured as a psychotechnology.

Before computer science, other psychotechnologies have entered human life, starting with writing, which has led to a new organization of memory.

In this regard, studies of great interest have been conducted since the 1940s by the Toronto school, which had the highest exponent in McLuhan [10, c, M. McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man*, Toronto, University of Toronto press 2011, p. I-LIX]. In the past writing, today the mass media and personal media have changed the way we think.

So far, the advent of new psychotechnologies hasn't marked the end of previous ones, but a progressive enrichment. The invention of movable type printing by Gutenberg didn't decree the end of manual writing, just as the PC didn't supplant the book.

The school world, albeit with some delay, is opening up to information technology, to which the new generations are approached ever more precociously.

What the school must not absolutely lose is the ability to educate to a conscious use of the technological instrument. The young should never be left alone in front of the PC: the presence of teachers during school hours and parents at home is the best guarantee against a distorted use of a technology must be used correctly. The computer connected to the web cannot and must not replace the textbook nor the teacher.

The way to go for the new opportunities to be used profitably in education is still very long and challenging.

It's advisable to reflect carefully on the relationship between media and learning styles.

The transition from oral to writing represented a media revolution that could radically change the communicative style between men. And the radical nature of change has deeply troubled men of great cultural stature, like Plato [11, c, Platone, *Dialoghi. Fedro*, Milano, Mondadori 2008, p. 729-736].

We carefully evaluate the consequences of moving the sensorial channel used in communication: the transition from the primacy of hearing to that of sight is a harbinger of deep meanings.

In oral cultures, in order to exchange knowledge, feelings, emotions, men used speech. The advent of writing has changed the hierarchy between senses.

Certainly humanity hasn't ceased to communicate through the word, nor to listen to music, but the hearing has been progressively ousted from view, prompted by the written text, both in the phase of realization and fruition. A further push towards change occurred in the fifteenth century with the invention of the movable type printing of Gutenberg, which greatly favored the spread of literacy.

This domain has remained strong until today, in which there is a change whose contours do not yet appear completely clear.

The twentieth century was a century of great technological innovations, first with the establishment of cinema and then television. Considering the nature of these new media, one cannot be silent about the fundamental role of images, in both cases on the move. It was therefore a technological evolution that didn't detract from the primacy of hearing, already established by Gutenberg.

It must however be remembered that the nature of cinema and television is complex, formed by images and sounds that involve both the sense of sight and that of hearing.

It's already, with full rights, multimedia tools, as far as they are less complex than a PC. The resounding success of cinema, television and telephone, which all presuppose a hearing involvement, made one think of a sort of revenge of this sense on sight. Surely it's a rediscovery that hasn't reaffirmed a record comparable to that recorded in cultures with primary orality, but in any case it marked an inversion of tendency.

A considerable distance separates the reading, which considerably increases the processes of abstraction of the individual, from a style based on immersion of the subject involved, typical of the media that stimulate the hearing.

Reading a text is an experience that involves a different and less immediate emotional involvement than listening to a piece of music. An experience that, under the pressure of e-books, conceived according to the logic of "multimedia contamination", is losing the linearity imposed by the paper text.

From the considerations expressed up to now, it comes down to the impossibility of closing the school world to technological innovations, which, however, doesn't mean that we must accept the stimuli of the external world without subjecting them to critical scrutiny. Experiences already gained in recent years have shed light on an unclear plot between colossal economic interests and the imposition of information technology at school.

Too often, unfortunately, the industry sees in children, and even before in children, potential consumers, rather than the subjects to be educated.

The advertising siren is very seductive and it's not easy to resist it even for a shrewd adult, let alone for a child who just begins to look at life.

The school must take up the challenge that technology offers it, but with critical acumen. There is no doubt the possibility of exploiting the digital universe for

educational purposes, but the encouraging results are always the result of a great commitment on the part of educators, who have the duty to update themselves and to put their knowledge at the service of young people.

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向视听专业的学生讲授音乐艺术的基础知识

Teaching the basics of musical art to students of audiovisual specializations

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文章揭示了学生需要熟悉音乐艺术的基础知识和掌握音乐计算机程序。

关键词：信息技术，音乐声，作曲。

Annotation. *The article reveals the need for students to get acquainted with the basics of musical art and mastering musical computer programs.*

Keywords: *information technologies, musical sound, composition.*

In the 2016-2017 academic year, the "Music production" course was introduced at the Faculty of Television Technologies for the students of the department "Audiovisual Technologies", for acquaintance with the basics of musical culture and mastering the techniques of creating music on the computer. Since our graduates are preparing to work at television and radio studios as audio and video editors, as well as specialists in working with sound, possessing the skills of creating simple melodies for the musical design of television and radio broadcasts, advertising, video sketching gives certain advantages and one of them - saving money, because the use of other people's melodies is problematic today, in connection with the copyright law and fines for the use of music without the permission of the authors.

Acquaintance of students with the world of music not only sounded in their players, but also with classics, folk music, music of different countries and continents, is simply necessary for the education of a cultured and educated person. Unfortunately, today's young people visit theaters and even movies a little. Modern technology allows you to get acquainted with modern music and movies, without leaving your own apartment, and this leads to the dissociation of people, fences the young man from others. The joint listening of classics and folk melodies enriches the inner world and awakens positive emotions in the hearts of students.

Historically, the development of music is inseparable from the active

development of man's sensory abilities. In the early folklore of various peoples, the musical sound was unstable in height and uninterrupted from speech articulation. Melody was often a combination of ups and downs, combining contrasting high-altitude zones in a rhythmic order, depending on the rhythm of the text and dance. However, this primary pitch contrast is already endowed with emotional expressiveness due to the inclusion of music making in everyday life, work, rituals (folk music). The constancy of these links, which forms the primary musical genres, leads to the stabilization of heights and, as a consequence, to their fixation in a certain order. Thus, in the public musical consciousness, the height of sound is separated from the voice of voice and speech articulation, a category of harmony appears. There are scales and melodies based on them. Soundness, recorded in the musical structure, suggests the development of auditory skills (musical ear), special musical memory, which holds the position of sound in the altitude range, relative to other sounds. Finding the exact height, intonation becomes capable of translating a wider meaning.

Specificity of music, as a special aesthetic value, is revealed in the correlation of applied and artistic goals of creativity. The formation of primary genres is associated with the performance of applied music by music (applied music), which implied the use of canonical expressive means. [1] The value of music in these conditions depended on the typical nature of its form, its proximity to the usual patterns.

The formation of a separate musical language and a special sphere of music distribution, not equivalent to everyday life, ceremonial or cult, led to the realization of a new goal - the original embodiment of individual author's thought (composition). In these conditions, the value of music consists in the unique structure of the musical work and at the same time in the internal semantic justification of the means selected by the composer. Reduction of artistic quality in autonomous music can result either from the standard of author's thinking (for example, salon music) or the self-sufficient orientation to use original effects that contradict the inner wholeness of the work.

A special aspect of the specific nature of musical art is the correlation of its temporal nature (any musical phenomenon exists as an irreversible sequence of intonations and intonation complexes) and artistic and semantic integrity. The primary type of integrity in music is represented by improvisation - the process of music making, which has no functionally distinguishable means for designating the beginning and end of the play. The impression of integrity in this case is created due to the fact that the elements making improvisation are intonationally related to each other, being variants of the original melodic, rhythmic, harmonic model.

A variation form is close to improvisation, in which, however, the functions of the beginning and the end differ (the theme and its variations, sometimes

terminated by a return to the original theme). The most complex type of musical integrity is represented by completed musical forms, in which the functions of beginning, development and completion are expressed by special musical means (for example, exposure, development, reprints in sonata form).

In these forms, the time-honored process is divided into phases that are related to one another in the type of cause and effect. The perception of such forms presupposes the activity and attention of the listener, capable of comparing, comparing, retaining in memory the past and present, anticipating the future development of musical thought. In completed forms, time acquires a specific spatiality: the ability to "freeze" in the logic of the relationship of parts of the musical whole. This is how the dialectic of the "form of the process" and the "crystallized form" arises.

The completeness of a musical work, in turn, turns into a processuality in the performance interpretation, which leaves a complete image of the work in the listener's memory. He again unfolds into the process of acquaintance with other performances, interpretations, with various comprehension of this work in criticism. They speak of musical art as "the most sensual among the arts." [2] Poetry or painting, for example, can not be perceived at the level of physiological reactions, music can not only be perceived, but also reproduced without the inclusion of intelligence, and the horizon of such listening and playing is quite wide (meditative practice of disabling rational thinking through certain tunes, dancing in a disco, singing patients with speech disorders and the disorder of the logical apparatus).

The neurophysiological influence of music has long been used in medicine. At the same time, according to a tradition that has been going on for ages, music is recognized as the most generalized, abstract art, the artistic equivalent of philosophy and mathematics. [3] For students of television technologists, knowledge of the basics of musical art is of paramount importance. Our graduates will work with orchestras, and with individual performers, and with ensembles. Therefore, familiarization of students with the world of music is quite natural.

Working with sound recording and sound design of television programs, films, advertising, you need knowledge of music computer programs for creating music. Acquaintance with music of different countries and peoples. Getting acquainted with the variety of musical genres and styles develops our students, makes them more attentive to the world of music and the choice of music for daily listening.

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儿童中期儿童的形态能力与一般言语不发达

States morphologic competence in children of midchildhood with general speech underdevelopment

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本文论述了形态能力的内容和个体发生；描述了研究言语发展的畸形发生中的形态学能力的可能性以及具有第三级语言发育不全的年轻学生的语言形态结构的特征。

关键词：语言活动，形态能力，三级语言发育不全，形态紊乱。

Annotation. *This article deals with the content and ontogenesis of morphological competences; describes the possibilities of studying morphological competencies in the dysontogenesis of speech development and features of the morphological structure of the language in younger schoolchildren with a third-level general underdevelopment of speech.*

Keywords: *language activity, morphological competences, third-level general underdevelopment of speech, morphological disorders.*

At the present time, the number of children with speech pathologies is increasing, namely, with a general hypoplasia of speech. Analysis of the literature data shows that such children in the younger school age have difficulties in mastering morphological competences, which hinders the development of cognitive, linguistic and communicative activities, as well as the violation of interpersonal interactions with peers.

formation of linguistic activity and, in particular, morphological competence in children with hypoplasia of speech of various genesis engaged in the works of E.F. Arkhipova, O.M. Vershinina, V.P. Glukhov, N.S. Zhukova, G.A. Kashe, A. Kovshikov, R.I. Lalaeva, L.V. Lopatina, L.F. Spirova, N.V. Serebryakova, T.A. Tkachenko, G.V. Chirkina, T.B. Filicheva, A.B. Yastrebova and others. However, the problem of violation of morphological competences remains insufficiently studied neither in theoretical, nor in practical aspects.

Language, by definition of V.P. Glukhova and V.A. Kovshikov, is a complete system of phonetic (graphic), lexical, grammatical and syntactic means and the corresponding rules of speech communication [5].

The structure of the language is paradigmatic and syntagmatic. The paradigmatic system, as noted by V. A. Kovshikov, is a system of relations of units of the same order. These units form language paradigms or levels, for example, phonological, morphological, lexical, and syntactic levels. Considering the problem of the formation of language in children with impaired speech development from the point of view of competence approach, T. V. Tumanova marked morphological competence as a hierarchically built set of morphological ideas, knowledge, skills and their practical application in the process of mastering oral and written speech [9].

The morphological level, according to V.P. Glukhov, assumes the ability to master the techniques of inflection and word formation and includes such methods of word formation as suffixal, prefixal, non-affixal, addition of bases [5].

Consider the following the ontogeny of morphological competence.

In his research A. N. Gvozdev identified the following periods of morphological system formation:

In the first period, in children aged 1.3 to 1.10 years, sentences are formed, consisting of amorphous root words.

In the second period, lasting an average of 1.10 years to 3 years, there is assimilation of the grammatical structure of the sentence [4].

About 1.5 years in children with normal speech development appear imperative verbs, later, about two years-adjectives.

In addition, A. N. Gvozdev revealed that, starting from 4.5 years, there are attempts of the child to go to the explanation of the meanings of words based on their composition, and in the period of 5 – 8 years, their own word creation is widely deployed, which indicates the active formation of the morphological system of the language.

A. N. Gvozdev notes that a child at this age is extremely widely used morphological means of the native language, very often used suffixes to their correct sound and meaning [4].

Thus, as the child develops, the child discovers a sense of "language rule" or "sense of language", and in the speech of children of primary school age, the morphological system should be fully formed without neologisms and with the possibility of self-correction.

In schoolchildren with a general underdevelopment of speech, morphological competences are formed with a delay and pathological features. Under the general underdevelopment of speech in children with normal hearing and primarily preserved intelligence in speech therapy, this is a form of speech pathology in which the formation of each component of the speech system is broken - phonetics, vocabulary, grammar, coherent speech [7].

The first level of general underdevelopment of speech is characterized by a

complete or almost complete lack of verbal means of communication.

At the second level of speech development, children begin to use the phrase, the understanding of speech improves, the passive and active vocabulary expands, an understanding of some simple grammatical forms arises, Pronunciation of sounds and words, as a rule, is violated abruptly.

The most pronounced morphological disorders are manifested in children with a third level of speech underdevelopment. The third level of speech development is characterized by the fact that the everyday speech of children turns out to be more or less developed, there are no gross lexical and phonetic deviations, there are only separate gaps in the development of phonetics, vocabulary, grammatical structure, in oral speech, certain grammatical phrases are found, incorrect or inaccurate use some words, phonetic imperfections. In simple statements simple sentences prevail, almost no complicated constructions are used; there are violations of the morphological system [7].

Children of primary school age with general underdevelopment of speech of the third-level do not know how to use the rules of the morphological system. Students of lower grades with a general underdevelopment of speech do not know how to use word formation, which in turn causes them difficulties in selecting single-root words, they can not form new ones with the help of suffix and prefix methods. Inability to use the methods of morphology leads to a restriction of the ability to distinguish words, so that the task of transforming words turns out to be inaccessible to children. The process of transforming words is also complicated by phonetic mixing, which distorts the morphological structure of the word [1].

Thus, the unformed morphological aspect of speech in younger schoolchildren with a third-level general underdevelopment of speech is manifested in morphological and syntactic agrammatisms, in the difficulties of performing many tasks requiring grammatical generalizations. Insufficient formation of both the morphological system of the language and the syntactic structure of the sentence in schoolchildren of lower grades with a general underdevelopment of speech leads to noticeable violations in mastering orthography, i.e. to dysorthography, and dysgraphia [1].

In the studies of N.S. Zhukova, L.F. Spirova, T.B. Filichevoy and other scientists, typical violations of the morphological system of language in children of primary school age with general underdevelopment of the speech of the third level were revealed, which include misuse:

- endings of nouns, pronouns, adjectives;
- case and generic endings of quantitative numerals;
- personal endings of verbs;
- endings of verbs in the past tense;
- prepositional - case designs.

N.S. Zhukova, R.E. Levina, T.B. Filicheva, G.V. Chirkina, S.N. Shakhovskaya, dealing with this problem, and, studying the verbal and nonverbal development of children with a general underdevelopment of the speech of the third level, repeatedly pointed to their difficulties in mastering the functions of word formation and inflection [10].

Analyzing the state of speech of students of lower grades with a third-level general underdevelopment of speech, T.B. Tumanova ascertains that they lack the morphological competence already formed at the preschool age, and at school age this can be manifested both in oral speech and in writing, which provokes various types of disgrasion [9].

In order to study the morphological competence in children of primary school age with a third-level general underdevelopment of speech, we established the ascertaining stage of the experiment on the basis of the school speech therapy center at the School No. 9 in Kurgan, where 18 children aged 7-8 years with a general underdevelopment of third-level speech and dysarthria.

Below we present the methods used to study the morphological competence of children of primary school age with general underdevelopment of speech of the third level.

Methodology of M.M. Alekseeva, V.I. Yashina "The study of the ability of word formation" is designed to test the ability to properly form the names of animals and their young in the unit. and many others. including the ability to critically assess speech, the ability to find errors in the use of word-formation methods, and the ability to form words by merging two bases and by translating words from one grammatical class to another [2].

Test method of T.A.Fotekova aims to study the vocabulary and skills of word formation, it is aimed at studying the formation of the name of the young animals; nouns in a diminutive form; the formation of adjectives (relative, qualitative, possessive) [11].

"Methodology of psychological and logopedic examination of children with speech disorders" G.A. Volkova is designed for children of preschool and primary school age with speech disorders and is aimed at studying the ability of word formation of nouns, verbs and adjectives, as well as their ability to change word [3].

The method of studying the word formation R.I. Lalaeva provides opportunities for studying morphological competencies in children with impaired oral speech. The aim of the method being studied is to reveal the level of formation of the word-formation of nouns, adjectives and verbs in an impressive and expressive speech. The material of the study is the subject pictures and words, as well as the experimenter's instruction [6].

In our opinion, the use of the "Methods of psycholinguistic study of speech disorders" of R.I. Lalaeva is effective in determining the level of formation of the

skills of word-change in the noun, adjective, verbs in students of lower grades with a general speech underdevelopment.

This methodological material was used by us to study the state of the following components of the morphological language system in younger schoolchildren with a general speech underdevelopment:

- 1) word formation skills;
- 2) skills of inflection.

The skills of word formation and inflection were studied on the linguistic material of verbs, nouns, adjectives and pronouns.

To fully study the state of morphological competence in children with general underdevelopment of third-level speech, we identified the following morphological components:

- prefixing word formation in verbs;
- suffix way of word-formation in nouns, adjectives, verbs;
- Adding the basics of nouns and adjectives;
- inflection of such parts of speech as, nouns, adjectives, verbs.

The state of the experiment was conducted in the form of a conversation, a game using visual material. Children had to adequately answer the questions posed, relying on pictures.

The results of the assignments were evaluated quantitatively and qualitatively, depending on the correctness and completeness of the answers from 0 to 5 points. We developed the following point-level evaluation system:

- High level (5 points) - correct and independent task performance.
- A level above the average (4 points) is the correct performance of the task with the help of the experimenter or single incorrect answers.
- The average level (3 points) - systematic errors in the forms of word formation and inflection.
- Level below the average (2 points) - systematic errors both in the forms of word formation, inflection; the number of incorrectly performed tasks exceeds 50%.
- Low level (0-1 points) - incorrect execution of all tasks, simple repetition of a given word or refusal to complete a task.

As a result of the study of morphological competencies in children of primary school age with general underdevelopment of third-level speech and dysarthria in oral speech, we found the following typical errors:

- difficulties in the formation of nouns with the help of diminutive caressing suffixes;
- substitution of the suffix;
- superposition of suffixes;
- adding word changes to the word formation;

- incorrect accentuation;
- the tendency to preserve the derived basis without changes;
- distortion of the syllabic structure of the stem of the derived word;
- the complexity of the formation of neologisms;
- poverty of morphological generalizations and concepts of the morphological composition of the word.

These violations of morphological competences are related, in our opinion, to the violation of the innervation of the muscles of the speech motor, the defects in sound production, the shortcomings of phonemic processes and insufficiently formed higher mental functions.

An analysis of the scientific and methodological literature on the problem under study and the results of our study allowed us to come to a series of conclusions.

1. Morphological competence - the ability to apply knowledge, skills, obtained by morphology, forming part of the language system, uniting words as carriers of grammatical meanings, their grammatical classes, the laws of their existence and form-forming in a wide area.

2. In ontogenesis, morphological competences are formed in conjunction with the development of higher mental functions, namely, as the development of analytic-synthetic activity, spatial representations, successive processes, auditory and kinesthetic perception. The psychophysiological basis of morphological competence is the coordinated activity of the visual, auditory and speech-analyzing analyzers. The development of morphological competences is naturally associated with the development of other linguistic competencies. Norms of word-formation and word-change skills should be fully formed for the child to enter school.

3. Morphological competencies of primary school students with third-level OSR are mainly on the average level of formation. Violated are both the skills of word formation, and the skills of word change, which is expressed in the distortion in their oral speech of the suffixes of nouns, adjectives; difficulties pristavochnogo way of word formation of verbs; in the distortion of the syllabic structure of the word; in the incorrect use of the method of forming new forms of words by adding the foundations of nouns and adjectives; in violation of inflection.

4. We associate the shortcomings of morphological competencies in children of primary school age with general underdevelopment of third-level speech and dysarthria with a complex of verbal and non-verbal disorders, namely: with a special pathological condition of the central nervous system that determines the specificity of the morphological competences for the higher mental and regulatory processes; insufficient level of motor abilities of the articulatory apparatus and weak kinesthetic sensations from articulatory movements, which cause defects in sound production, disturbances of phonemic hearing and phonemic perception, and, as a consequence, a low level of the lexico-grammatical structure of speech as a whole.

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语音错误发生的机制（以中国学生的错误为例）

Mechanisms of occurrence of speech errors (on the example of errors of Chinese students)

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本文考虑了语音错误发生的机制，揭示了其功能的规律性。因此，当与语言知识（语音，词汇，语法，语义）对话时会产生干扰和错误类比，并且当使用非语言知识（语言 - 文化信息，国家刻板印象，概念等）进行操作时会产生转移和关联。每种机制对于将语言作为外语教授的某个阶段是典型的。作者分析了在西伯利亚联邦大学学习俄语的中国学生的语言错误。

关键词：语音错误，语言意识，认知机制，干扰，类比，关联，转移。

Annotation. *The mechanisms of occurrence of speech errors are considered in the article, regularities of their functioning are revealed. Thus, interference and a false analogy arise when speaking with linguistic knowledge (phonological, lexical, grammatical, semantic), and transfer and association arise when operating with non-linguistic knowledge (linguistic-cultural information, national stereotypes, concepts, etc.). Each mechanism is typical for a certain stage of teaching the language as a foreign language. The author analyzes the speech errors of Chinese students who studied Russian at the Siberian Federal University.*

Keywords: *speech error; linguistic consciousness, cognitive mechanism, interference, analogy, association, transfer.*

Cognitive mechanisms in linguistic research are presented broadly, but they have not been unambiguously interpreted. In Russian linguistics, this problem is covered in the works of L.S. Vygotskij, R.O. Jakobson, A.R. Lurija, N.I. Zhinkin, A.N. Leont'ev, A.A. Leont'ev. Experimental studies are presented in the works of I.A. Zimnjaja, N.V. Imedadze, T.V. Chernigovskaja, L.Ja. Balonov, V.L. Deglin and others.

In the theory of speech errors, mechanisms allow to simulate the process of speech production, which contributes to a more efficient alignment of the learning process, taking into account a certain classroom.

The analysis of speech errors (in the amount of 2,081 units) of Chinese students showed that the cognitive mechanism depends on the type of errors.

Thus, the mechanism of the emergence of linguistic errors is **interference** and a false **analogy**, and for linguoculturological errors **transfer** and **association**.

Interference as a deviation from the norm of the studied language occurs at all stages of learning a foreign language and happens: *extensive*, *intensive* and *permutational* (A.E. Karlinskij).

At the initial stage, *extensive interference dominates* (attributing the properties of the elements of the native language to elements of a foreign language). These errors demonstrate the peculiarities of the language consciousness of students. For Chinese students are characterized by (1) facultative grammatical indicators - the use of an infinitive instead of the forms of the verb and nominative in the role of object (*I read the book*); (2) double affiliation of words - the same word is used as a verb and a noun (*My dream of becoming a teacher*); (3) clutch proposals - the object of one sentence is simultaneously a subject for another subordinate clause (*I saw my brother go to university*).

Intensive interference is expressed in ignoring the characteristics of elements of a foreign language and testifying to ignorance of idioethnic aspects of the semantics of the linguistic units of the studied (Russian language in this case). This is manifested when expressing (1) temporary, (2) spatial relationships, for example

(1) *In my childhood I want to be a pilot* (ignoring the sign of absoluteness / relativity of temporary orientation in Russian language).

(2) *I went in my grandmother.* - to the grandmother (the animate nouns are used with the dative case).

We were in the stadium. - at the stadium (the static verb should be used with the prepositional case).

Masha will go in the post office - to the post office (a dynamic verb to be used with accusative case).

Permutational interference manifests itself in the redistribution of signs of linguistic units in a foreign language under the influence of the native. This is expressed in the simplification of the constructions (*I was ___ Krasnoyarsk*), the complication of designs with numerals (*She bought one coat, one shoes, one bag*), ignoring the grammatical indicators with the lexical actuator (*In my childhood I live with my grandmother*).

The **analogy** mechanism is based on the semantic, structural and functional assimilation of the phenomena of native and foreign languages (1) (*interlanguage identifications*) and phenomena within a foreign language (2) (*intralinguistic identifications*), for example:

(1) *Masha, open the light* (instead of *switching on*), because the Chinese students do not distinguish between the words *put - put on, open - turn on, close - turn off, break up - break down, wash - wash out, think - miss*.

(2) *I'm sick with a runny nose (analogy to the flu)*, testifies to the "creative" approach to language, the student tries to create a statement by analogy with those similar to his view.

Linguistic and cultural errors arise when operating with non-linguistic knowledge: linguistic and regional information, key concepts, national stereotypes, precedent texts, images. And for them characteristic of the **transfer** and **association**.

Transfer occurs when compensating for cultural lacunae, demonstrates the process of socialization and acculturation of the person in a new environment for him. It is typical for both the initial and advanced stages of training. Errors of this type indicate that the required background knowledge has not been formed. This is expressed in (1) the transfer of the rules of speech etiquette (referring to you to an unfamiliar person, repeated greeting during the day); (2) borrowing from the native culture of regional information (*kilograms of eggs, the Krasnoyarsk province, drink soup*).

Association is a universal cognitive mechanism. Association determines the status of a certain concept in the ordinary consciousness of a person, allows you to judge the key concepts. So, students mistakenly demonstrate the value system, images, concepts, certain fragments of the naive picture of the world of the Chinese language carrier. For example, teachers are compared to a candle or caterpillar silkworm. The duty is to be worthy of your Motherland, that is, be a hero. Priorities of the Chinese linguistic and cultural tradition, emerging from Confucian ethics, are still stable and dominant in the minds of students.

In conclusion, we can conclude that the type of mechanism depends on the type of error. Thus, linguistic errors are the result of interference or false analogy, and linguistic-regional studies arise in the process of transfer or association. In this case, the type of error and the cognitive mechanism depend on the type of knowledge that the student has. When operating with language knowledge, interference and analogy (a linguistic type of errors) arise, and when handling non-linguistic knowledge, transfer and association (linguocultural errors) are used.

语言的本质：物理成分
Nature of language: physical component

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语言起源的问题仍然存在。 文章指出, 自然语言的出现是基于声音传递关于其来源的客观信息的能力。 声音被描述为一种自然现象, 具有独特的属性, 成为原因, 并形成了清晰的言语和思维的出现的基础。 声音传递关于其来源的客观信息的能力, 嵌入在物质存在的形式中, 并成为自然语言出现的基础。 这说明语言不仅与人类活动的社会方面有机联系, 而且与物质世界的物质组成部分有机联系。

关键词: 声音, 来源, 信息, 运动, 语言起源, 思考。

Annotation. *The question of the origin of the language is still relevant. The article states that the emergence of natural languages is based on the ability of sound to carry objective information about its source. Sound is characterized as a natural phenomenon, possessing unique properties, which became the cause and formed the basis for the appearance of articulate speech and thinking. The ability of sounds to carry objective information about their source, embedded in the very form of the existence of matter, and became the basis for the emergence of natural languages. This speaks of the organic connection of language not only with the social side of human activity, but also with the material component of the physical world.*

Keywords: *sound, source, informative, movement, origin of language, thinking.*

The question of the origin of the language is one of the most complex and not completely solved. Available theories - religious, evolutionary, interdomain, the theory of labor commands, onomatopoeic - to a certain extent hypothetical. The latter contains a share of rationality, but it remains rather superficial. In our opinion, the origin of language was based on deep and informative features of the physical world order.

It is known that in the material world there is nothing that would be in a state of absolute rest. Any peace is only relative, everything in the world is in motion,

which is the form of the existence of matter: this applies to all levels of the micro- and macrocosm - from molecules and atoms to planets and other cosmic bodies.

As an immutable, it is necessary to note the law of nature, according to which we can observe an amazing feature of the world order: nothing in the world is allowed to move and "not talk" about it - i.e. any movement is accompanied by sound. And what is especially important is that it is the absolute rule for the existence of all material things. The noted feature takes on the character of a law imposing a taboo on the permissibility of an action without warning about it. Thus, it deprives all existence of the opportunity to live "secretly."

Another thing is that the human ear can hear a certain, relatively small frequency range. Other movements, for example, the growth of plants, can only perceive and record sensitive microphones (here one can be surprised by the genius of A.S. Pushkin, who writes in his poem "The Prophet" about the ability to hear "the vines of vegetation" (vegetating had the meaning of "grow"). According to NASA, technically in space there is a sound - it represents electromagnetic oscillations. Projects that transform electromagnetic oscillations into a perceived sound are designed." While we perceive space as a visually mystical environment and enjoy amazing images of planets, galaxies and the solar system, [we] do not pay attention to the sound aspect of the cosmos "[1].

Of particular importance for our topic is the fact that any sound is informative. It carries full information about the source of sound: about the material, its parameters, composition and state, as well as the nature of the movement. For each sound, you can determine all the data about its carrier. For example, the sound of a guitar string depends on what material the string is made of, what is its length, the thickness, what the guitar itself is, what shape it is and what material it is made of, what force is applied to the string, and so on. The same can be said about other bodies, mechanisms and aggregates. The engine of the car gives out all the information about its work: if it is running smoothly, then it informs about this; if there is any failure - immediately reports it. A certain sound for a man in the street can only talk about a phenomenon, and for an understanding person it's not just about the phenomenon, but also about the meaning of what is happening. Thus, all that exists is moving. Everything that moves - sounds, i.e. announces itself.

In nature, nothing is allowed to move, and therefore to exist "silently". Since the range of sound of different objects is not the same and the person is not available all the sounds, he resorts to all sorts of primitive tricks and "supplies" with the sound of those or other objects. So a person ties a bell to the neck of animals to facilitate their search or to the cat's neck so that it can not sneak in on the birds.

For direct perception of the human ear, the information received through the sound is invariably relevant, since it has an almost momentary character: the person perceives directly by the ear only those sounds that reach him in a short time.

If a person hears a sound, it means that it is produced relatively recently and the source is relatively near (at a distance of several tens of kilometers).

If a person can perceive an object with touch and taste only with direct contact, and with the smell of hearing the smell of a source located at a relatively short distance, then sight and hearing have wider possibilities. But even in comparison with sight, hearing has several advantages: 1) one can hear people both in the light and in the dark time of the day; 2) eyes are closed, and ears - never: they are open day and night, even when a person is sleeping; 3) if by sight one can see only what the eyes are aimed at, then the sound is perceived from all sides; 4) eyes can only perceive objects in the line of sight, not enclosed by other objects, and you can hear what is behind the various partitions and barriers; 5) in contrast to light, sound propagates in gaseous, liquid and even in solid media; 6) if only the surface of the object is perceived by sight, then by means of hearing it is possible to obtain information about what is happening inside some objects.

The voice transmits and that information that is inaccessible to the sight. For example, if we lost a loved one, the voice reminds him more vividly than the silent image in the photo. This circumstance is associated with the property of sound to be constantly relevant and live in practically the same time as us. In connection with these qualities, the voice of a person and his photograph produce different impressions on us: the world of sounds is a living world, unlike the silent world (it is no accident in the mythology of a dead world - a world without sounds).

Each sound carries in itself unconditional information about the content of the sounding object. Do not carry this information sound can not, because it is all this information. The special nature of sound and there are special characteristics of the source of sound. And since the sound carries information, it means that it can be extracted, recognized and comprehended. Hence, everything about the world can be learned from sounds, each of which always has its own carrier - the source that generates it.

It is well known that in birds and many other animals, the voice is a bait, which appears just at the time of sexual development and attracts individuals of the opposite sex for marriage. Hence, in the animal world, voice is the factor determining which individuals to continue the genus and which one is not: sound transmits all the information necessary for natural selection about the subject. For example, the number of males in toads is many times greater than females. And the male has only a limited opportunity to attract the attention of the female to herself, and precisely with a voice. Many birds have the same situation.

It should be noted that nothing else does not have such an impact on a person, so it does not start, as music-based forms of art - music, song. Architecture, sculpture, painting and other kinds not connected with sounding can not so inspire a person, bring him to ecstasy, to which listeners of music reach (a vivid example

of this can be the effect of military marches, hymns and other musical works on people, and Also, the reaction of listeners to music at concerts).

In order to inspire a person with something and bring him to the state of hypnosis, also mostly affect the object by sound (voice). Accompanying the episodes of films, music creates the necessary semantic background in a particular case, built on the ability of sounds to carry informative information.

Music hits become such as a response to the need of time and society. The attractiveness and usefulness, as well as the essence of music, consists in the fact that a person mastering the world by means of sound is attached to the content-semantic plan of the material world, partly "uses" it and adds it. Music is the possibility of using objects and phenomena (in the real absence) in the form of a sound expressing their content and meaning.

Thus, any sound is an essential expression of a thing or thing: it is an accurate information about its origin, information about the form, material and nature of the actions of the aggregates producing it. Something else can not be a sound, by definition, because it contains something else (except what and how it produces), sound can not. So, the drum can not speak: I'm not a drum. Sound can not help but matter: each sound carries with itself its own meaning, which consists in characterizing its source. The element of sound is the element of meaning. To operate, manage and control the variety of sounds means to operate, manage and dispose of all the diverse meanings of the world. This is a godlike function, which is accessible, for example, to great composers who do not obey any one of mortals, including earthly kings.

Sound does not deceive ever, because it can not physically deceive: otherwise there would be no this voice or there would be another - exactly corresponding to its real reason. To deceive a wild duck, the hunter can use the appropriate whistle - and the duck does fall into it. Nevertheless, the sound of the whistle truly indicates that it comes from the whistle, and not from the duck. In this case, the duck is deceived in his assessment of what is happening, and the sound (voice) can not deceive, because it is only the result of the action of the source. He very truthfully, one to one, reports on the features of the device: the properties of the material, its quality and organization, i.e. about all characteristics of the source. Every sound has a reason, which "screams". Since any perception is the integration of external data with internal experience, each one relates what he has heard with the known carrier of such a sound. If someone understands and identifies a certain sound is wrong, this is a problem associated with the perceiving subject. Sound can not deceive - sound can be deceived.

So, sound can not help but matter: every sound carries with itself a meaning, which is the characterization of its source. The real state of things indicates that the world in which we live exists in two forms - material (physical) and semantic. On

the presence of the essence of essence in semantic essence is evidenced by their property being represented in conditions of their physical absence, which creates an opportunity for the existence of human consciousness. The two hypostases of phenomena correlate in such a way that only after mastering the semantic aspect of phenomena can a person manage them in the material (physical) plane. To operate in his consciousness by objects of reality a person can only through the meanings found in words and fixed in words.

The element of sound is the element of meaning. The sounding, by which a thing proclaims itself and its content, is represented by the other-being of the material object, i.e. being in a different plane - content-semantic. If the things themselves did not have a semantic essence (other-being), then it could not have arisen in a person in the form of articulate (meaningful) speech and consciousness, for all his activity is reduced to discovering the phenomena of nature and using them. Man has become a man due to the fact that he has somehow acquired the semantic essence of the world, which is the basis of the universe and is the "mind" of nature. The material (sound) expression of the semantic essence of things and became the basis of language and consciousness.

Speech arose through imitation of the sound expression of the phenomena of nature: imitation and game actualized the symbolicity (secondary) of the sounds used, thereby raising the human potential. At first he learned to use the sounds skillfully to convey the senses perceived by him, and eventually, having mastered the possibility of transmitting the meaning by a certain sound combination, he began to artificially connect any meaning with an arbitrary set of sounds, which, in fact, is modern languages. It is during the long development of the language that words acquire the role of conventional notation.

At the same time, only a small part of the real reality is assimilated and fixed in the words-concepts, which are the building material of the human thought activity. The whole semantic essence of reality - the second (along with the material) hypostasis of the world - can be called the term *semanthosphere*, by which we denote not only a small part of the semantic "space" mastered by man (natural languages, achievements of science, culture, etc.), but and the whole infinity of unknown reality.

The solid and permanent content of the world can not be fully reflected in words (elements) of the language that are discrete in nature. Any language consists of the episodes of the *semanthosphere* seen and "captured" by the consciousness ("meaningful"), which the person fixes in the words-notation. Therefore, languages are characterized by fragmentation and far from covering the semantic space of the surrounding reality. The world is intact and indivisible, and the words are scattered and express the meanings of only individual fragments of the *semanthosphere*. Words only stick out from the solid content of the world by separate

mounds. The vocabulary of any natural language is a discrete expression of a continuous world meaning. Possess a person with all the necessary information about the world - for him there would be no insoluble problems. The discreteness of the language, testifying to the scarcity of information about the world, to which the person and the soul refers, is a "curse" for him. With the expansion of human experience and the development of the science of words in the language, it becomes more and more, which contributes to the expansion of the manned area of the semantosphere.

Thus, along with the obvious material side of the world, we must also state the presence of its semantic hypostasis, which creates conditions for the existence of human consciousness and the operation of objects and phenomena of the world in the situation of their real (material) absence. Only an understanding of the semantic essence of things enables a person to operate and control them, because the meaning acts as a kind of "soul" of the object. The sense hypostasis of things manifests itself through sounding - a unique phenomenon that spreads full information about its source. It is the physical peculiarity of sound that carries objective information about its source, embedded in the very form of existence of matter, and became the basis for the emergence of natural languages (although later the connection between sound and meaning becomes conditional). The mastering of the semantic essence of things is produced by man through a language, each word of which is an expression of the sense of a certain fragment of reality. Language is nothing more than the expression of the contents of the semantosphere, the world's semantic space, fixed after the conditioned sounds complexes (words). Of course, language is only a discrete expression of a continuous world content, for which the whole human activity is directed towards more and more extensive development.

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社会适应和预防大学冲突局势

Social adaptation and prevention of conflict situations in the university

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本文讨论了在高等教育学习过程中帮助学生适应和解决冲突局势的组织的一些方面。 这个问题与今天在大学教育环境中发生的变化有关的必要性和无可争议的相关性, 这有助于披露和全面形成学生的个性。

关键词: 适应, 冲突, 社会适应, 预防, 社会化, 社会, 社会环境。

Annotation. *The article discusses some aspects of the organization of assistance to students in the adaptation and resolution of conflict situations in the learning process in higher education. The necessity and indisputable relevance of this issue in connection with the changes taking place today in the educational environment of the University, which contributes to the disclosure and full-fledged formation of the student's personality.*

Keywords: *adaptation, conflict, social adaptation, prevention, socialization, society, social environment.*

There are several variants of the definition of adaptation: biological, expressed in the fact that a particular type of organism appears to have a certain feature that contributes to the survival and growth of the population of this species; physiological, manifested and associated with chemical processes occurring in the body; psychological, considering the mental and physiological reactions of the individual to the environment; social, which can be represented in two aspects, macro-and microenvironments. Macroenvironment is expressed in the social adaptation of the individual in society, microenvironment also considers the interaction between the individual and a certain social environment.

The desire and aspiration of the person to self-improvement and development, and also the changing social environment promote adjustment of behavior of the person acting as result of the analysis of the events.

A vivid example of this situation can be the transition of an individual from one educational institution (in particular, a school) to another, in the context in question, to a university. Here, the freshman adapts to new rules and regulations, to a new social group, his social environment changes radically. In the higher educational institution there are various social processes, the ambiguity of which is

determined by the multidimensional interaction of all subjects of educational activity. As a result, the causes that cause the emergence of conflict situations within the walls of this or that university are great.

Of considerable interest is the opinion on the social adaptation of T. Parsons. The concept of the scientist of the "equilibrium society" is the balance between the needs of the individual and the social environment that occurs in the process of assimilation by the individual of the most important social norms that dominate in this environment. There is a balance - the society is stable, there is no balance - a social conflict [1]. T. Parsons views the conflict as a reason that destabilizes society. From this position, the conflict defines it as a social anomaly, a kind of disease that must be overcome. According to this point of view, the discrepancy between the values, goals and interests of people or groups is the main cause of conflicts. At the same time, scientists recognize the fact that interests and values are mobile and changeable elements of social and individual consciousness [2].

Social adaptation by E. Durkheim is the assimilation of social norms by an individual, their internalization. Adapting the individual and adapting the society qualitatively and quantitatively a single process, and the terms "adaptation" and "socialization" are synonyms. The basis of human activity is subjective motivation, and the purpose of its goal is to appoint its concrete actions. The number of possible ways of doing this is great. In the vast majority of cases, the actions are carried out in a "socially-oriented way", i.e. In the framework of the social norms revealed by E. Durkheim.[1]

From this position, one can say that the process of adaptation plays a crucial role in shaping the freshman's understanding of the learning process in the university, in the success of mastering new knowledge, in acquiring the necessary skills, skills, and competences for the future qualified specialist in his field.

It is worth noting the point of view of M. Weber, who explained the normative behavior of a person with its high level of rationality, when the achievement of the goal is guaranteed by the existence of the same social norms with a known level of costs. However, this does not always happen. A person tries to "rationalize" his activities, reduce his own costs in comparison with socially accepted ones and thus gain certain advantages. If this is successful, a "pathological" way of action can attract other people and eventually become the norm. At the same time, M. Weber pointed to the possibility of simultaneous existence of several mutually contradictory norms [1].

Thus, it is possible to apply the theoretical and methodological views of T. Parsons, E. Durkheim and M. Weber in the aspect of considering a higher educational institution as a micromodel of society. That allows us to consider the social interaction of the individual with the society, determine the influence of society on the individual, as well as the individual on society.

Unsuccessful adaptation can be the cause of the emergence of contradictions, which, in turn, represent a favorable ground for the emergence of conflict situations. Conflicts, for the most part, have a destructive function.

Therefore, the orientation towards the successful implementation of adaptation and the formation of a conflict-free environment, the provision of conditions for the successful implementation of students' abilities are goals that must be achieved by a modern university.

In this regard, the creation and implementation of a service in the educational institution, which, in turn, will provide psychological support is of paramount importance. It is proposed to include in the staff of competent employees, carrying out activities aimed at students who have difficulties in communication, poor progress in current disciplines, problems with mastering knowledge. Also within the framework of this service to ensure the prevention and detection of conflicts within the walls of the university by conducting interviews with students and teachers. In the course of ongoing activities, identify the actual problems of student youth.

Social adaptation in the university will be successful enough if the student is satisfied with the learning process and enthusiastically embarking on the tasks set by the teacher. Quite often, this can be hampered not so much by a person's mental abilities or exorbitant workload, but rather by a well-dressed relationship in a student group, which signals an unhealthy socio-psychological situation. Therefore, it is important to pay attention to the prevention of conflicts in the university. For this purpose, it is possible to conduct trainings, interviews with the participation of psychologists, curators of student groups.

Thus, the implementation of successful social adaptation and the prevention of conflict situations can be presented as a certain type of activity aimed at creating a favorable atmosphere for both successful learning and for revealing the abilities and development of students in the educational environment of the university.

It should be noted that this is a rather complicated activity that requires considerable efforts, the results of which will be decisions and actions that will significantly advance the development of both the subjects of the educational process and the learning process as a whole.

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教育需求作为教育领域的基础
Educational needs as a substrate of educational sphere

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在社会学，心理学，教育学，市场营销，经济学等领域的跨学科研究中的复杂分析。在分析选举需求的过程中，确定方法，模型，发展趋势，作为教育需求，发展的本质特征，自决 自我实现，取决于社会文化决定因素，与知识领域主体的关系。 文章研究了教育的必要性，这是解释教育领域功能特征的基本概念之一。 需求可以区分为他们的亚种。 分配主要和次要的，物质和精神需求。 当然，其中有教育需求或教育需求。

关键词：教育领域，基本概念，教育需求，非正规教育，跨学科研究，社会，社会转型，社会化。

Annotation. *Complex analysis in interdisciplinary research in the field of sociology, psychology, pedagogy, marketing, economics, etc. In the process of analyzing electoral needs, identifying approaches, models, development tendencies, as educational needs, the essential characteristic of development, self-determination and self-realization, are determined by socio-cultural determinants, relations to the subject to the sphere of knowledge. The article studies the need for education, this is one of the basic concepts that interprets the features of the functioning of the educational sphere. Needs can be differentiated into their subspecies. Allocate primary and secondary, material and spiritual needs. Among them, of course, there are educational needs or educational needs.*

Keywords: *educational sphere, basic concepts, need for education, non-formal education, interdisciplinary research, society, society transformation, socialization.*

The need for education is one of the basic concepts that interprets the features of the functioning of the educational sphere. It is used as an important component of interdisciplinary research in the field of sociology, psychology, pedagogy, marketing, economics, etc. The essential side of the concept can be revealed in the context of analysis of its generic category "need", which is sufficiently established in science [1, p. 232].

Needs can be differentiated into their subspecies. Allocate primary and sec-

ondary, material and spiritual needs. Among them, of course, there are educational needs or educational needs. They are based on the need for knowledge, which is not only an educational object, but also a whole complex of spiritual needs. Thus, scientists believed that the concept of "knowledge" should be interpreted in the sociological context extremely widely, as including "virtually the whole gamut of cultural products" [1, p. 130].

In this regard, educational needs can be divided into needs for scientific knowledge and knowledge of everyday, everyday. These needs are implemented in various ways. If the former are realized within the framework of formal education (in the institutions of its system), the latter - in the context of non-formal education, in the interpersonal interaction of a person with the nearest environment, in the process of socialization under the influence of a complex of social factors: family, education, culture, state, religion and other

In the works of the founder of the sociological knowledge of M. Scheler, the knowledge of the "higher kind" can be classified: as knowledge for the sake of domination, or activity knowledge of positive sciences; knowledge for the sake of education, or an educational knowledge of philosophy; knowledge for the sake of salvation, or religious knowledge. The types of knowledge allocated to them differ among themselves in forms, motivation, cognitive acts, the goals of cognition, exemplary types of personalities, forms of historical movement [7, p. 211]. On the content characteristic of knowledge, respectively, can be identified groups of needs in knowledge of social, professional, economic, political, aesthetic, moral, religious, educational.

This analysis, from his point of view, allows us to distinguish the following educational needs: material growth, status promotion, professional excellence, moral self-affirmation, social adaptation and spiritual self-realization.

It should be noted that the above analysis of educational needs is of a strategic nature, indicating a certain consistency of the result of educational activity. At the same time, a number of sociologists-classics pointed to the changes in educational needs, highlighting the development of information technologies as a reason.

In the works of E. Durkheim it is said that one must realize oneself, try to notice and isolate tomorrow's man [4, c. 221]. And it is for educational purposes, in his opinion, that set of real social needs that provides the unity of educational systems. In his reasoning, there is a bundle of the need and the development process of the educational system, which makes it possible to designate the transition to a new educational model that is in demand by society - the distance model. According to E. Durkheim, the transformation of society requires appropriate transformations in education. However, one can successfully reform only by understanding the goals of reform.

Images of modern education are made up of new features of a developing so-

ciety. So the American sociologist D. Bell argues that the basis for the transition from a postindustrial society to a society providing a variety of services are new technological innovations and new intellectual technologies [1, p. 110].

For his part, T. Smelser notes that in a post-industrial society, information resources become the main economic value and the largest potential source of wealth. He states that these resources, together with the means, methods and conditions that enable them to activate and effectively use, are the potential of society [6].

At the same time, W. Dyzard [3, c. 265] suggests that there is a general model of changes associated with information technology. This manifests itself in a three-step progression: the establishment of the main economic sectors for the production and dissemination of information, the expansion of the range of information services for other industries and for government, the creation of a broad network of information tools at the consumer level.

Taking into account the aforesaid, it can be stated that even in the works of the classics of sociology, the forthcoming changes in the society related to changing the role of information were noted. New needs should directly affect the education sector, stimulating the formation and development of an innovative educational model.

Thus, if the need for education (the general model) can be set by the goals and the strategy for obtaining it, as was indicated above, then the educational needs in the conditions of the new innovation model can be indicated by tactical needs that ensure the procedural nature of decision making about the choice of the model. A possible candidate for the "rank" of the innovative educational model is currently the distance education model (DEM), the characteristic features of which are [1, c. 208-219]:

- the need for a lack of competitive admission and age qualifications for students;
- the need for training without interrupting the main work, moving to another place;
- the need for training according to the individual program, which is made up taking into account the wishes of the learner;
- the need for unlimited learning by the time frame;
- the need for unlimited selection of academic disciplines;
- the need for financial access to education;
- the need to communicate with the teacher if necessary, and not just with information sources of information;
- the need for the quality of educational services provided, regardless of the location of the trainee;
- the need for specially developed teaching aids for self-study;

- the need to monitor the learning outcomes regardless of the location of the trainee;
- the need for continuous modernization and modification of the training material in accordance with the level of development of the STP.

Thus, educational needs in the distance educational model arise: first, if the educational needs are actualized and there is no possibility of satisfying them within the framework of the traditional education system; secondly, if there are obstacles to traditional learning that can be eliminated in the DMO (distance, openness, flexibility, relatively low cost); Thirdly, if there are claims to the conditions of traditional education, which can be implemented in a remote model, which makes it possible to make practical use of innovative forms and means of teaching [2, c.240]. Nevertheless, despite all the obvious advantages of the distance education model in relation to the traditional, it still has methodological and technical problems, which at present does not allow us to identify distance and innovative educational models.

The reasons for this are as follows: First, the level of required knowledge for the use of information and communication technologies in education is higher than the real skills and abilities of students; Secondly, the Russian system of education (preschool and school) did not offer an alternative to classes with the teacher, as a consequence - the adaptation to the classical and the complexity of adapting to modern methods of teaching, mostly designed for self-mastery of educational material. In conclusion, we note, firstly, the social aspect of managing the modern model of education needs to be revealed through the development of educational needs in it. The management of the innovative educational sphere should be defined as a two-level process in which the first level is leadership, that is, the formulation of the strategy for the development of the educational model, and the second level is regulation in accordance with the chosen strategy.

Secondly, the nature of educational needs in specific historical conditions depends on a complex of socio-cultural factors and, ultimately, is determined by the place and value of a person in society. If for a traditional society the educational need is a factor in the inclusion of a person in the socio-cultural environment, forming its sociality, then for the information society it is a means of individualizing the individual, a factor in the development of her freedom. In technogenic societies, the educational need is a condition for the training of professional personnel and "participates" in the production of man as an "appendage" of scientific and technological progress. In the modern information society, educational need is a condition for self-realization and self-development of a person. It is to building such a society that we should strive.

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自闭症谱系障碍学龄前儿童情绪领域矫正与发展的工作体系
**System of work on the correction and development of the emotional sphere
in pre-school children with autism spectrum disorders**

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本文探讨了为患有自闭症谱系障碍的学龄前儿童提供心理和教育方面的帮助的问题。总结了该类儿童情绪领域发展特点研究的实验研究结果。提出了针对儿童情绪发展的矫正发展工作的组织方法，并给出了实践教师的建议。

关键词：矫正，发展，情绪领域，学龄前儿童，教师，自闭症谱系障碍

Annotation. *The article examines the issues of providing psychological and pedagogical assistance to preschool children with autism spectrum disorders. The results of an experimental study on the study of specific features of development of the emotional sphere of children of this category are summarized. The method of organization of correctional-developing work aimed at the emotional development of children is presented, and recommendations for practice teachers are given.*

Keywords: *correction, development, emotional sphere, children of preschool age, teachers, autism spectrum disorders*

The urgency of the problem at the social level is determined by the significantly increased number of children with autism spectrum disorders (ASD), in particular, in addition, there is a tendency to increase the incidence of this disorder in development in preschool children.

The term "autism spectrum disorder" is the most common for the category of children with autonomic dysontogenesis and combines both classic autism variants and easier autism disorders (VM Bashina, SA Morozov, L. Kanner, M. Rutter and others) [4], [8], [9], [10].

Readiness for the emotionally intense interaction of preschool children with people around him is now a necessary condition for the self-realization of a child

with autism spectrum disorders, which necessitates the activation of his emotional sphere. Emotional development is the most important component of the emotional-volitional sphere and provides the necessary social and psychological adaptation of such a child in the world around him.

In this regard, before the correctional psychology and special pedagogy arise the questions of theoretical substantiation and practical use of effective forms and methods of corrective-developing influence and regulation of the emotional sphere of preschool children with autism spectrum disorders.

The problem of developing the emotional sphere of children with autism spectrum disorders, despite the high degree of elaboration of many of its psychological, sociological and pedagogical aspects, remains insufficiently studied.

At the same time in the works of E.R. Baenskaya, L.S. Vygotsky, E.E. Dmitrieva, D.S. Kazarova, I.V. Kornilova, M.M. Libling, K.S. Lebedinskaya, E.Yu. Medvedeva, O.S. Nikolskaya, T.A. Shalyugina, L.M. Shipitsyna and other specialists prove the thesis that the content of the development of the emotional sphere of preschool children with autism spectrum disorders is completely determined by the social development situation (L.S. Vygotsky) in which their vital activity is carried out [1], [2], [3], [5], [7].

The modern practice of preschool education shows that the emotional development of preschool children with autism spectrum disorders is carried out in specially organized conditions of the pre-school educational organization, but nevertheless is spontaneous, unregulated and not targeted in its assimilation. The absence of a standard, basic program for the emotional development of children with autism spectrum disorders does not or does not regulate the activities of teachers in the implementation of the tasks assigned. The introduction of various corrective-developing and teaching technologies, as a rule, does not change the psychological and pedagogical foundations of the educational process, on the contrary, there is a tendency of its formalization [11].

Accordingly, at present, there are still urgent questions about the methods and methods of psychological influence, the development of correctional programs aimed at developing the emotional sphere of such children.

Our pilot study was carried out on the basis of the School of Development "Znay-ka!", organized at the "Amur State University named after Sholom-Aleikhem", as well as the children's center "Elephant" in Birobidzhan, in which preschool children from 3 to 7 years with autism spectrum disorders. To obtain the most reliable data, parents of children of this category [10].

The purpose of the experimental study was to study the level and characteristics of the development of the emotional sphere (understanding the emotional states of other people and the causes of their occurrence, emotional manifestations) of pre-school children with autism spectrum disorders, as well as the par-

ents' attitude to the emotional manifestations of their children.

To carry out the diagnostic work, we used a set of techniques: "Understanding emotional states" (authors: G.A. Uruntaeva, Y.A. Afonkin), "Studying emotional manifestations of children" (author: A.D. Koshelev), "The girl listens to a fairy tale "And the questioning of parents (author: E.I. Rogov) and the questioning of parents.

The results of the experimental study made it possible to reveal specific features in the development of the emotional sphere in pre-school children with autism spectrum disorders: they do not know how to fully control their emotional manifestations, manage their behavioral reactions, they have an unformed elementary emotions. Some children are characterized by various fears, inadequate behavior, aggressiveness, negativism, avoiding communication, lack of interest and understanding of the world around them. There is a pronounced emotional immaturity of the child, a lack of adequate emotional response. They are able to distinguish the emotional states of surrounding people by their manifestations: facial expressions, gestures, movements.

The questioning of parents showed that most of them do not always pay attention to the emotional manifestations of children of preschool age with autism spectrum disorders, and respond adequately to them. Parents do not always take into account the emotional factor when organizing leisure activities. They know and understand that this is due to developmental disabilities, but they do not seek to influence the elimination of the developmental deficiencies in the emotional sphere of their children.

Consequently, such children need to carry out targeted and systematic corrective work on the development of the emotional sphere, and their parents in educational and advisory work.

Correction and development work on the emotional development of preschool children with autism spectrum disorders was aimed at solving the following problems:

1. Organize conditions for establishing emotional contact, reducing anxiety, emotional lability through emotional and sensory games, non-traditional drawing techniques, fairy-tale therapy, sand therapy, etc.
2. To overcome behavioral stereotypes and expand the behavioral repertoire of children of preschool age with autism spectrum disorder by socially acceptable interaction skills through playing fairy tales, game situations, the situation of everyday communication.
3. Develop skills to analyze your own behavior, deeds, personality qualities, emotions and feelings.
4. To teach acceptable ways of expressing negative emotions (anger, resentment, irritation), getting rid of them.

In Fig. 1 presents a methodology for organizing a correction and development work aimed at the emotional development of preschool children with autism spectrum disorders.

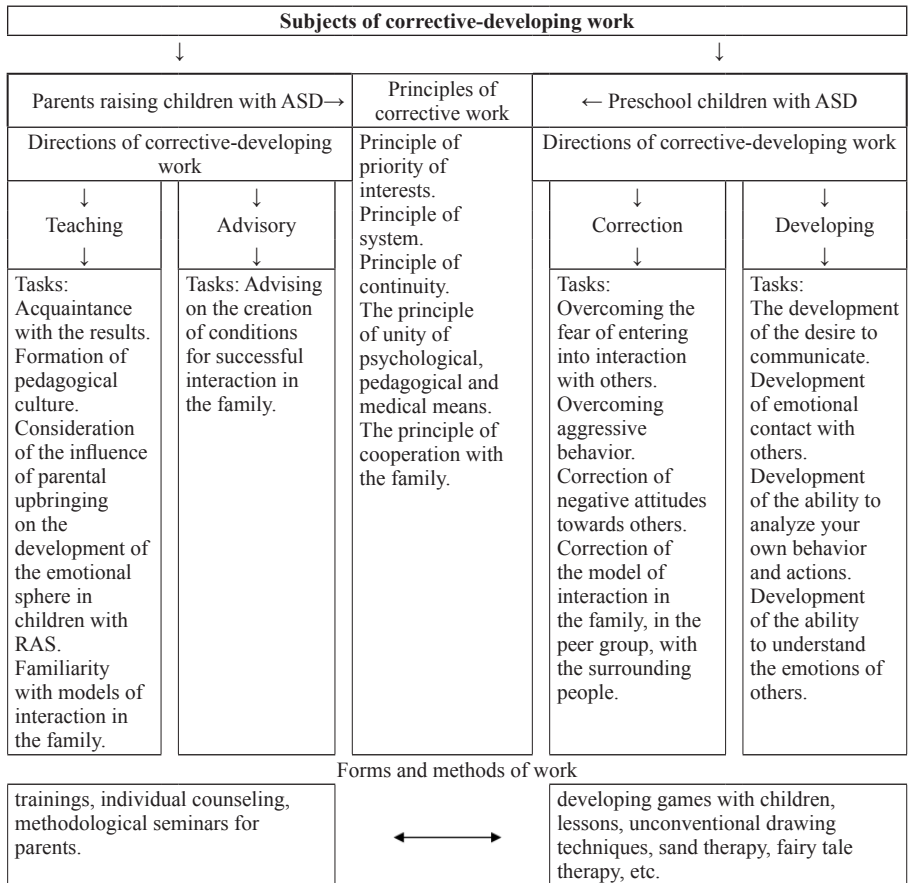


Fig.1. Methods of organization of corrective work on development of emotional sphere of preschool children with autism spectrum disorders

Correction and development work was carried out taking into account the age and individual characteristics of the development of children in an individual form.

During the organization of the correction-development work, we adhered to the following principles: the principle of the priority of the interests of children, the principle of systemic nature, the principle of continuity, the principle of unity of diagnosis and correction, the principle of cooperation with the family.

Important conditions for the organization of effective correction and devel-

opment work on the emotional development of children with autism spectrum disorder were: the involvement of parents in the educational process of children, the creation of a positive emotional mood during the conduct of corrective-developing activities.

In the corrective-developing work, we used the following forms and methods of organizing work with children (developing games, classes, non-traditional drawing techniques, sand therapy, fairy tale therapy, etc.) and their parents (trainings, individual counseling, selection of materials in the parents' corners) .

The conducted corrective-developing work showed positive changes, respectively, the emotional sphere of pre-school children with autism spectrum disorders is amenable to correction and development.

Based on the results of the purposeful and systematic corrective work, we developed recommendations that can serve as the basis for developing a system of corrective-developing influence on the development of the emotional sphere of pre-school children with autism spectrum disorders, general approaches, game and training tasks and exercises aimed at developing and correction of the emotional sphere of preschool children with autism spectrum disorders.

Our educational and consultative work with parents confirmed that parents need specialist support (teachers-psychologists, defectologists, speech therapists) to organize effective work to correct the emotional development of preschool children with autism spectrum disorders.

Thus, the proposed system of work on the correction and development of the emotional sphere in pre-school children with autism spectrum disorders has been tested and can be offered to practitioners.

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信任国际互动：社会文化基础

Trust in the inter-national interaction: socio-cultural bases

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作者考虑了对信任的解释，揭示了其在民族间互动中的社会文化基础和细节。对这个问题的思考将使我们能够找到克服社会心理文化距离的方法，使其具有发挥族际对话生产性发展的功能性。

关键词：信任，民族间互动，文化距离。

Annotation: *The authors consider the interpretation of trust, revealing its socio-cultural foundations and specifics in interethnic interaction. Consideration of this problem will allow us to work out ways to overcome the socio-psychological cultural distance by giving it a functional character for the productive development of interethnic dialogue.*

Keywords: *trust, interethnic interaction, cultural distance.*

The globalization processes that take place in the modern world place the problems of interethnic interaction at the forefront, which is a field of communication of high uncertainty and risk, which contributes to the formation of specific trust relationships. In such conditions, those interested in cooperation and prosperous coexistence, who understand their responsibility for the development of relations, recognize the need for actions to observe precautionary measures in potentially dangerous areas of activity and situations of interaction of increased uncertainty¹.

¹ Kupreychenko A.B. Psychology of trust and mistrust. - Moscow: Institute of Psychology RAS, 2008.

"It is difficult for a modern person to be within the framework of his culture only, as the interpenetration of cultures is observed in all spheres of his life activity, forming his personal perceptions of others and stimulating the activity of interpersonal intercultural communication"². There are new communication opportunities and types of communication, aimed at developing mutual understanding and respect for the communication partner and the culture, of which he is the bearer. One of the leading cognitive operators of positive interethnic interaction is "trust". A social group, within which there is an interpersonal trust based on attraction and rational development of reality, is able to accomplish much more than a group that does not possess these qualities. Thus, trust becomes the socio-psychological basis of productive socio-cultural interaction between representatives of different cultures. At the same time, modern researches of trust as a cultural phenomenon are aimed at studying the ontogeny of trust relationships, the systemic relationship of trust with various socio-cultural phenomena and processes, the evolution of trust in social interaction³.

The phenomenon of trust is the subject of research interests of specialists in various fields, due to which a wide range of its interpretations is observed. At the same time, trust is a component of communication between actors at the level of individuals, groups, organizations, social institutions, associations, and society as a whole.

D. Gambetta treated trust as the expectation of a favorable behavior of the trust object in a situation where this behavior is not subject to control⁴. R.B. Sho, in turn, defined trust as "the hope that the people we depend on justify our expectations"⁵ and associated with such phenomena as "decency", "honesty" and "manifestation of care".

In the context of the problematic of the sociocultural foundations of trust in interethnic interaction, it is of interest to interpret trust as the etiquette norm. So, people with active etiquette behavior have an internal locus of control, demonstrate a positive experience of interaction with the world and a positive attitude towards themselves, which fosters confidence-building confidence. Passive etiquette behavior puts the external locus of control at the forefront, which is often due to a lack of experience of interaction with the world, an uncertain attitude to-

- p. 84.

² Gushchina T.V. Trust as an important aspect of coping behavior in the context of intercultural communication // Psychology of communication and trust: theory and practice: Collected materials of the International Conference URAO, PI RAO, MSU, November 6-7, 2014 / Ed. T.P. Skripkinoy. - Moscow: University of the Russian Academy of Education, 2014. - P. 611.

³ Dontsov A.I., Perelygina E.B. Interpretation of confidence in foreign social psychology // Voprosy psihologii (Questions of psychology). - 2017. - №2. Pp. 152-160.

⁴ Gambetta D. Can we trust in trust? // Trust: Making and Breaking Cooperative relations / D. Gambetta (ed.). Oxford: Basil BBlackwell, 1988. P. 213-237.

⁵ Sho R.B. Keys to trust in the organization: Effectiveness, decency, caring. - Moscow: Delo, 2000. - 272 p.

wards oneself and leads to the emergence of trust-faith. Surveys show that young people's view of trust as a etiquette norm in interethnic interaction often turns out to be unformed, but, nevertheless, most subjects retain passive etiquette behavior, and with it - internal factors of trust⁶.

Trust can neutralize the uncertainty caused by insufficient information about a partner. The subject of trust voluntarily goes to the risk associated with the decision-making process in the situation of interethnic interaction. The difficulty lies in the fact that in different cultures trust is based on different moral conditions, role expectations, obligations, etc. "Confidence building in a risk situation is an electoral process, depending on the amplitude of factors, parameters and circumstances relevant to the environment"⁷.

The problem of trust in interethnic interaction is largely due to the presence of a cultural distance between the subjects of interaction, which makes it difficult for members of one cultural tradition to understand the motives and values of representatives of other cultures. Socio-psychological cultural distance is differentiated depending on the degree of sociocultural reflection. So, functional socio-psychological cultural distance is formed in the conditions of awareness of cultural differences and the subject's confidence in the sense of belonging to a particular culture, which, apart from, does not oppose it to another cultural community. Dysfunctional distance arises from the lack of awareness of the subject of interethnic interaction about another culture and its representatives and leads to deformation of communicative processes, forming distrust of representatives of other cultures. Overcoming this distance, giving it a functional quality is one of the productive tools for developing interethnic dialogue and optimizing interethnic interaction.

The study of trust in interethnic interaction shows the significant significance of its sociocultural conditioning. For example, in Russia the main zone of trust has traditionally always been a family and a circle of close friends. Researches aimed at identifying the conditions of trust for representatives of another culture show that young respondents (n = 50) tend to have a trusting relationship with the Other, if he is benevolent, open to communication, ready for friendly relations, has no aggressive and anti-militaristic attitudes. The lack of trust of Russians to representatives of other cultures is fixed, in particular, Russian youth is inclined to trust mainly to compatriots, despite the expansion in the modern world of opportunities for interethnic communication. The very sociocultural reality with its turbulent migration flows not only expands the possibilities of the subject's participation in interethnic communication as a field of his personal communicative

⁶ Kumysheva R.M. Internal and external factors of trust in the ethnic community // Psychology of communication and trust: theory and practice: Collected materials of the International Conference URAO, PI RAO, MSU, November 6-7, 2014 / Ed. T.P. Skripkinoy. - Moscow: University of the Russian Academy of Education, 2014. - P.621-622.

⁷ Dontsov A.I., Perelygina E.B. The Trust Factor for Children in a Risk Situation // Procedia - Social and Behavioral Sciences 233 (2016). P. 69.

choice, but also puts him before the fact of spontaneous expansion of the boundaries of the sociocultural space and the inclusion of representatives of different nationalities and cultures. However, not only immigration determines the specifics of interethnic communication. Emigrants leaving their country are also included in interethnic communication, getting into the situation of the need to develop a new socio-cultural landscape. "A person, regardless of age, begins life anew, in a new environment, with a new language, in a new social role and status"⁸.

Staying in a changing sociocultural space requires the individual to develop optimal behavior strategies that promote effective dialogue. Moreover, the effectiveness of this dialogue is largely related to the reciprocity of trust between the subjects of social interaction. It is no accident that Russian scientists come to the conclusion that "the conditions for genuine mutual trust are voluntariness, decentration and socio-psychological mutually reflective"⁹, which allows us to follow the path of mutual understanding of value orientations and ethnic stereotypes. However, deep cultural intentions of trust need further investigation. The interpretation of trust as a cultural phenomenon within the framework of the sociocultural approach allows us to generalize the data of private approaches to the study of trust and give them the necessary depth for analysis and forecasting the patterns of development of global sociocultural processes.

Understanding of the possibility of the existence of communicative barriers by individuals allows more efficient selection of optimal behavior strategies and builds trust relationships. In this connection, it is necessary to note the importance of awareness and assessment of the diversity of cultural traditions in the interethnic interaction, the workings out and development of certain skills, the constant acquisition of specific knowledge about different cultures, the application of social behavior strategies corresponding to a certain socio-cultural situation.

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⁸ Zinchenko Yu.P., Zotova O.Yu. Emigration intentions and personal security // Nacional'nyj psihologicheskij zhurnal (The National Psychological Journal). - 2013. - No. 2 (10). - P.18.

⁹ Skripkina T.P. The psychology of trust: a textbook. - Moscow: Publishing Center "Academiya", 2000. - p.187.

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对儿童的态度以多重违反发展为社会问题

**The attitude towards the child with heavy multiple violation of development
as the social problem**

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本文介绍了研究他的亲密同事代表对患有严重多重发育中断的儿童的态度特点的经验。这些是由父母，帮助专业（教师，心理学家，叛逆学家）的专家以及缺陷学生选择，在实践中与指定类别的儿童互动。获得的数据扩大了对现代世界中发育障碍儿童的社会和心理适应和融合过程的理解，并有助于制定一般残疾儿童和严重多发育障碍儿童的包容性和综合教育原则。尤其是。

关键词：残疾儿童，严重的多发性障碍，对患有严重多发育障碍的儿童
的感知，以及帮助患有严重和多发性障碍的儿童的中心，联合实验。

Annotation. *The article presents the experience of studying the peculiarities of attitudes toward a child with severe multiple developmental disruptions on the part of representatives of his close associates. These are chosen by parents, specialists of helping professions (teachers, psychologists, defectologists), as well as defect students, interacting with the named category of children during the practice. The obtained data broaden the understanding of the processes of social and psychological adaptation and integration of children with developmental disabilities in the modern world and can be useful in developing the principles of inclusive and integrated education for children with disabilities in general and with severe multiple developmental disabilities in particular.*

Keywords: *a child with disabilities, severe multiple developmental disorders, the perception of a child with severe multiple developmental disabilities from others, a center for helping children with severe and multiple developmental disorders, an associative experiment.*

Currently in Russia there are about 2 million children with disabilities, which is about 8% of the total child population, with 600 thousand of them - children

with disabilities. Therefore, one of the important problems of modern society is the need to understand their position in society, improve the system of social assistance and support [3].

During its existence, human civilization has passed a long and contradictory path in relation to children with disabilities. It was also the path of the spiritual evolution of society, at which there were both pages of indifference, hatred and aggression, as well as examples of caring, mercy. Only one did not meet in previous relations - cooperation on equal terms. The main problem of the "special child" today is to limit its connection with the world, poverty of contacts with peers and adults, limited communication with nature, access to cultural values, and sometimes - to elementary education. The problem of negatively treating children with disabilities on the part of peers is acute, the presence is not so much physical as psychological barriers that increase the social isolation of such children.

The described negative tendencies acquire a special sound when it comes to children with severe and / or multiple developmental disorders (SMDD). SMDD is a conditionally distinguished category, a special development situation characterized by a high degree of severity of disorders (severity) and a complex violation character, in which the intellect, speech and communication, general and minor motor skills, sensory and emotional spheres of the child (multiplicity) suffer. SMDD is not the sum of various constraints, but a complex interlacing between all the violations that make up its structure. In this regard, the child requires significant assistance, the amount of which is much larger than the amount of support provided for any one violation [1; 2].

Despite the fact that in our country the process of dissemination of an inclusive approach to the education of children with disabilities is actively proceeding, the problem of studying attitudes toward this category of children is extremely poorly represented in the scientific literature. However, relying on one's own experience, it can be concluded that a significant part of people are showing negative attitudes towards persons with disabilities in general and with SMDD in particular. They are not interested in disabled people and their problems, they are not ready to interact with them. The purpose of our study was to study and describe the characteristics of the perception of a child with SMDD from his surroundings. As a hypothesis of our study, it was suggested that the attitude towards the child with SMDD among the people around him (parents, specialists in defectology, defectology students) has a qualitative originality and depends on the nature of the experience of direct interaction with the defect carrier. The study was carried out on the basis of the Khabarovsk Regional Center for Assistance to Children with Severe and Multiple Developmental Disorders (SMDD).

Let us briefly discuss the definition of the key term of our study. According to domestic and foreign research, SMDD is a specifically holistic phenomenon that

characterizes a fundamentally special development situation. SMDD occurs due to the organic lesion of the CNS as a result of underdevelopment or brain damage primarily in early development. CNS lesion with SMDD is complex in that it suffers: general and minor motor skills, sensory sphere, speech and communication, intelligence, behavior. The main in the clinical picture of severe and multiple disorders is mental retardation. In addition, different combinations reveal: motor disorders (cerebral palsy of different shape and severity); severe speech disorders (unformed linguistic means), disruption of the functions of analyzer systems (vision, hearing, tactile sensitivity); increased convulsive readiness (episyndrom); disorders of the emotional-volitional sphere (disturbances in the regulation of behavior, etc.); Autistic disorders (stereotyped actions, disruption of communication, interaction, social behavior). The combination of shortcomings gives a cumulative effect and causes difficulties in the psychophysical development of the child in comparison with peers who have a single violation. The possibilities for psychophysical development of children with SMDD are different, since some children have three or more developmental deficits, expressed in varying degrees, for example, a combination of one severe sensory disorder and others that are mild. But at the same time such children can have satisfactory potential educational opportunities, which allows them to study in special groups and classes of preschool and school institutions of correctional type.

At the same time, it should be noted that the processes of adaptation and socialization of a child with SMDD in a wide society are extremely unfavorable. Following the experts-defectologists, we are forced to state that in the perception of a person with disabilities in general, and with SMDD in particular, the medical model prevails. The medical model draws attention primarily to the existing disease, accompanied by virtually total human insecurity, its dependence on the environment. In contrast to it, the social model reflects the concept of an independent, independent life of a disabled person and implies the human right to be an integral part of life, freedom of choice and freedom of access to all aspects of life, including work and education [4; 5].

Despite the fact that the Russian state proclaims and legislates the rights of disabled people, there are very many problems with people with disabilities in general and with SMDD in particular. In the works of many authors, the idea of the society being unprepared for full-fledged adoption of disabled people, social isolation and emotional-personal problems is largely due to the lack of tolerance and care of the society about disabled people [3; 4; 5].

The research that was initiated by us aimed at identifying the specifics of attitudes towards children with SMDD was conducted with the participation of three

groups of respondents:

- parents who raise children with SMDD (21 people);
- specialists (teachers, psychologists, defectologists) who directly work with children with SMDD (9 people);
- University students studying in the profile of defectology education (full-time education - 23 people, correspondence course of education - 26 people).

In the study, an associative experiment was used. Respondents were asked to give 15 associations for the notion-stimulus "child with SMDD". The entire array of obtained associations was analyzed by the cluster method.

The analysis of obtained data allows us to make the following generalizations:

1. Associations expressed by parents are emotionally brightly colored. The greatest number of coincidences is noted in the cluster describing the manifestations of the defect in the behavior of the child: (25) *helpless and defenseless* (unadapted, incompetent, waiting for help from adults, weak, small, timid); (14) *dependent* (you have to constantly monitor, control, do not depend on yourself, do not study on your own); (14) *slow* (slowed down, unsporting, clumsy); (14) *Inattentive* (diffuse, unassembled); (13) *restless* (hyperactive); (13) *aggressive*; (13) *painful*; (8) *lazy* (likes to sleep).

2. When describing the parent of a child, the positive features of his personality significantly exceed by the number of references to negative features: (20) *good* (sympathetic, sincere); (18) *special* (unusual, not like everything, a little strange, alien); (17) *communicative* (eager to communicate, likes to come to visit); (16) *inquisitive* (curious, interested in everything, likes to explore all sorts of wardrobes, likes to walk in new places, loves TV, computer); (16) *affectionate* (friendly); (16) *active* (mobile, athletic, dragonfly, loves to dance, likes to walk); (8) *musical* (loves music, singing); (8) *favorite*; (8) *cheerful* (happy, laughing); (4) *cunning*; (4) *beautiful* (my beauty); (2) *sensitive*; (2) *strong*; (2) *trainee*; (21) *naughty* (stubborn, demanding, what she wants and does, manipulating, likes to do only what she likes, selfish, willful, terrorist); (9) *sensitive*.

3. Among the unique associations expressed by parents, the more positively charged characteristics also predominate: *they like to dress their mother's things, like sweets, loving animals, loving mom, loud, my son, in itself, demanding self-understanding, shy, calm, quick-witted, fixated, traveler, gourmet, fair, slender, smiling, trusting, not understood, an actor brought up by women, courageous and patient, assistant, darling*. Conditionally negative characteristics are few: *screaming, crying, tied to my mother, versatile, not loving*.

4. Among the associations expressed by specialists, universals are more prevalent, united by us into a cluster of professional concepts: (38) *defect* (disability, features, disorders, abnormality, autism, intellectual impairment, insufficiency, retardation, lag, development delay, scarcity) ; (27) *specialist activity* (formation,

development, correction, compensation, elimination of shortcomings, rehabilitation, habilitation, comprehensive approach, treatment, work 24 hours a day, diagnostics, psychology, help, techniques, ABA, TEACCH, search for rewards, touch room); (11) *education* (special education, inclusion, special school, correctional school, home-based education, learning difficulties, special educational needs, differentiated education); (7) *the personality and motivation of a specialist* (desire to help, tolerance, patience, support, empathy); (7) *problems related to the child* (isolation, difficulties, screaming, problem behavior, uncontrollable, aggressive, inhibited); (8) *emotions and feelings of negative* (pain, hopelessness, sadness, pity, guilt, resistance, fear, shame); (6) *emotions and feelings are positive* (future, hope, prospects, joy of small victories, leisure, toys).

5. Full-time students on the expressed associations are closer to the opinion of specialists. Their answers are also formalized and refer to scientific terminology describing the defect and its manifestations: (39) *dysontogenesis* (disorders, pathology, CNS disorder, cerebral palsy, hearing impairment, defect, regression, mental retardation, intellectual disability, insufficiency, retardation, delay, delay development, speech impairment, the child does not speak, bad speech, motor disinhibition, deafblind children, inhibition of mental processes, not like everyone else); (28) *medical problems of health* (sick, hospital, clinic, doctor, doctors, therapy, psychotherapist, neurology, medical care, medication, ulcer, enuresis, pain, trauma); (18) *difficulties* (difficult, many difficulties, communication difficulties, learning difficulties, difficult child, difficult child, hard, heaviness, inconvenience, complexity, problem); (16) *assistance* (comprehensive care, correctional help, work, painstaking work, work for results); (15) *support* (concern, interest, acceptance, cooperation, patience, care, individual approach, empathy); (15) disability attributes (stroller, ramp, wheelchair); (9) *adaptation*; (8) *rehabilitation*; (8) *socialization*; (5) *study at the institute* (institute, practice, Vygotsky, special psychology, defectology).

6. Among the unique associations included words that carry an artistic, lyrical and romantic halo: *a child's smile, an uncut diamond, a sigh, a lifetime, a flame, a broken mosaic, an empty leaf, a desert, a white sphere, a soft sound, autumn, 25 frames, dust, winter, gray, bouquet, cube, curved line, crooked mirror, broken mirror, crockery, catering, short life, designer, creak, documentaries, turtle steps, the question of values, look at the future, preschooler, progress, the attachment*.

7. The greatest number of negative associations we found in the answers of correspondence students: (37) *hopelessness* (despair, sadness, despondency, depression, bad, fear for the future, suffering); (27) *problem* (tension, difficulties, difficulties of socialization, disadaptation, burden for parents, lack of time for other loved ones, difficult life situation, difficulties, struggle); (22) *isolated* (loneliness, isolation, they have their own world, a victim of social ridicule, rejection by oth-

ers, deprived); (22) *pity* (sympathetic views, unnecessary attention); (21) *material difficulties* (poverty, additional costs, financial stress, lack of money, change in the way of life); (17) *fear* (horror, fear that this will happen to you / your loved ones); (14) *grief* (misfortune, tears); (6) *sin* (for what he deserved, test, my cross, wine).

8. Among the associations of correspondence students there are formalized responses that characterize the activity of specialists in helping professions: (26) *development* (development of cognitive activity, development of fine motor skills, development of speech); (26) *psychotherapy* (art therapy, dolphin therapy, igroterapiya); (18) *support* (psychological and pedagogical support, desire to help, help); (15) *diagnostics* (techniques, Ivanova's technique, Veksler's technique, pyramid, Séguin's boards); (14) *professionals*; (7) *compensation*; (7) *rehabilitation* (new approaches to rehabilitation); (7) *consultations*.

9. A significant part of the responses of part-time students is occupied by concepts related to the defect and its manifestations: (24) *a disabled person* (a disabled child, a disability, a disabled child); (21) *limitations* (disabilities, limited communication); (18) *special* (requiring special attention); (17) *dependence* (lack of independence, incompetence, helplessness, needs special help, needs constant care); (6) *illness* (pain, treatment, medicine, hospital).

Formulating the conclusions of our study, we note: the perception of a child with SMDD in different social groups has a qualitative identity and depends on the experience of direct interaction with the carrier of the defect. The most positive are parents who bring up "special" children. Their answers show that they manage to perceive them, first of all, as children, and only then - as "special", their relations are warm and positively emotionally colored.

The optimal attitude towards the child with SMDD is demonstrated by specialists of helping professions (defectologists, psychologists, speech therapists) and students studying in full-time. In their respect, more formalities, but this is the key to the success of their impact. The complex nature of the defect presupposes perseverance and consistency in its overcoming, firmness of intentions and the ability to abstract from the unproductive feeling of pity in this case.

The most problematic is the attitude towards the child with SMDD from the part of students studying by correspondence. Their associations have a pronounced negative (pessimistic) connotation. In our opinion, this fact is explained by the fact that among them there are many women who have their children who do not have significant health problems. In the perception of a "special" child, they are more likely to approach the representatives of a broad society that does not have clear ideas about the defect, its manifestations, and the laws of development of the psyche under conditions of dysontogenesis.

We consider the goal of our research achieved. The hypothesis advanced by us has found its confirmation. However, work on the study will continue: we have to

find out the attitude to the child with SMDD from representatives of other social groups - ordinary peers, neighbors.

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人格及其在社会群体中的地位：衡量方法

Personality and its position in social communities: on the methods of measurement

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在跨学科研究的框架内，开发了一种与公司（组织）的系统概念相关的心理范式。分析的主题是衡量社会群体特征和人格地位的方法。基于J. Moreno最常用的诊断人际关系的方法，展示了它与现代网络研究方法的相互关系。

关键词：企业制度概念，跨学科，测量方法，人际关系，人格定位，网络研究。

Annotation. *Within the framework of the interdisciplinary research, a psychological paradigm is developed that is relevant to the system concept of the firm (organization). The subject of analysis are methods for measuring the characteristics of social groups and the place of personality. Based on J. Moreno's most frequently used method of diagnosing interpersonal relations, its interrelationships with modern methods of network research are shown.*

Keywords: *system concept of the firm, interdisciplinarity, measurement methods, interpersonal relations, personality position, network research.*

Introduction.

Within the framework of system analysis, as is known, the group is considered in several plans. We will be interested in the structural aspect, which assumes the study of the group as a kind of bundle of relationships, or interactions [4]. To the formal structural characteristics of a group, the following parameters are usually referred to: the quantitative composition according to which the following are distinguished: dyad (spouses); small group (laboratory), medium-sized group (SRI); a large social group (class); society as a whole [3]. Another formal-structural characteristic is the structure of the relationships between the constituent elements. At

the same time, according to the hierarchical principle, the subject of analysis is the person (the personality research also assumes several levels of analysis of its characteristics), and the small group into which it belongs, and the larger social communities that the given personality includes as a necessary element of the structure.

The principal feature of the methods of measurement chosen by us for analysis is that they, to a lesser or greater degree, take into account this hierarchy, while combining methods of purely psychological, sociopsychological and sociological analysis. This allows, in turn, to attempt to consider some methods of measuring the characteristics of the above-mentioned subjects from the standpoint of the interdisciplinary system concept of the firm (organization) [5, p. 56; 6, p. 32]. In this case, the author in no way pretends to the completeness of the description of methods. The very field of research is broad, it presupposes a comprehensive methodology, including mathematical tools, is represented by a huge number of works, mostly Anglo-American, and the survey task in this article would not be feasible. We shall confine ourselves to a more modest task-to compare some principles and parameters of the Sociometry methodology with certain principles and parameters of network research methods that would enable us to see the general and various in them from the standpoint of psychological science, as well as make some assumptions about the possibilities of using them in specific psychological research.

Main part

1. The Sociometry of J. Moreno

The sociometric technique (hereinafter referred to as "Sociometry") is one of the most frequently used methods of diagnosing interpersonal and intergroup relations [7; 9, p. 146; 10; 20]. The procedure can be carried out in two forms: with the limitation of the number of elections and without restriction. In the first case, for example, in a group of 25 people each is offered to choose 3-5 people. Questions relate to business and emotional relationships. Examples: "With whom would you like to prepare for the exam together?" Or "Who would you invite for a birthday?". The results obtained with the help of the sociometric procedure can be represented graphically in the form of a sociogram, matrix and special numerical indexes. Based on the data of the sociometric analysis, conclusions are drawn on the following parameters: the level of group cohesion; presence of groupings; their relationship with leaders; interaction of leaders among themselves; the correspondence of the selected group asset to the real one; The presence of group members, which the group does not accept, and isolated.

The sociogram is a graphic representation of the results obtained with the help of the sociometric method in the study of interpersonal relations. The following is also calculated: the index of emotional expansivity of a certain member of the group; the index of emotional expansivity of the whole group; the index of psy-

chological reciprocity (cohesion) [9, p. 147]. The sociometric technique is carried out by the group method, its carrying out does not require large time expenditures. It is useful in applied research, especially when working to improve relations in a team.

2. Group structure and network analysis

As already mentioned above, the boundaries of the group's "Sociometry" rarely exceed the approximate volume of 25 people. Barnes J. in his publication [12, p. 58] was one of the first to clearly identify the problem - "how to analyze the interactions of people that occur beyond clearly defined group boundaries?". I must admit that such a clarity is not enough in the study of the issue of the history of the emergence of methods of network analysis: in the survey articles of domestic researchers, for example, sociology is also indicated [2, p. 112], and anthropology [1], and applied economics [8]. Nevertheless, going back to the subject of our article and intentionally narrowing the scope of analysis, let us dwell on the methods of network research only to the extent that it allows us to approach the task of our publication. Domestic researcher G.V. Gradoselskaya, considering the general and various in the methodology "Sociometry" and methods of analyzing social networks, writes about the generality of the results of the network analysis and the experiments of Moreno. In her opinion, it was in the studies of Moreno that key conceptual components of modern network analysis were obtained. The researcher sees the main difference in methods as follows: "Firstly, the network was understood not as an aggregate of individuals but positions, and the resulting model of relations between positions looked like the basis, or type, of the structure" [2, p. 23]. Known in the literature on methods of network analysis is the distinction between "strong" and "weak" ties, "density" of the network, "degree of connection" (the average number of relations, which each member of the network has with other members of the same network), "size" and "centrality" of the network, "reachability" of network members, etc. [1]. Do not lose its relevance and the question - what to consider an elementary unit of the network, its node, and how to treat the relationship between nodes. According to Ch. Kadushin, "the network contains a set of objects (in mathematical terminology, nodes) and a map or description of relations between objects or nodes" [17, p. 4]. Nodes can be objects, aggregates of objects, intersections of objects. In the social theory they may be individuals, groups of individuals, social institutions created by them.

Issues of distinction between personality traits and its structural position in the network are raised in [13, p. 23]. The network is understood as the totality of the three components: positions, relations between them, resource flows. In the works of A. Bavelas, the notion of a centralization arises, when communications are carried out through a central position. The idea is suggested that the links between positions are the flows of resources. In other publications, the relationship of the

individual with others (actors) is proposed to be considered as the "attributes" of each participant (actor). In other words, a personality is characterized by characteristics (extroverted, open, etc.) that are not customary in the psychology of the individual, but by relationships with other personalities, their number, strength, etc. [16]. One of the advantages of network thinking and method is that it predisposes the analyst to focus on several levels of analysis at the same time (micro, meso, macro level (individual, group, organization, community, society.) The network analyst is always interested in how a person is built into the structure and the way the structure arises from micro-connections between the individual parts. Thus, social networking methods are particularly well suited for working with several levels of analysis. [16] Among the studies after The concept of R. Bert, which is close to the psychological studies of the personality and relationships in the group, is outlined in the review article by A. Nazarchuk in his review article. In opinion [8], Bert studies the channels of communication of the lower organizational level. In the book «Social Capital and Structural Holes» R. Bert introduces the concept of "structural holes", which denotes the existence of spaces that are not communicatively interconnected [14, p. 220]. "Social brokers", the key figures of his work, are able to "build bridges" over structural holes and create the necessary communication links. It is important that the data in the network analysis are not obtained in connection with self-reporting data, but in connection with the actual behavior of people. Another difference - in Moreno's sociometry it is assumed that people participate in direct, live communication. Network methods allow you to analyze the relationships of people who are in remote social communities, as well as in virtual space.

3. Psychological characteristics of personality and position in the network

Psychologists, especially those who work in the field of personality psychology, can not help but wonder how classical personal qualities-for example, extraversion-introversion, neuroticism, etc.-are related to the position of the individual in social networks. There are a lot of studies on this subject in English literature and very little in Russian psychology.

Researchers tend to focus on centrality and brokerage as the most commonly used characteristics (metrics) that represent a social network, because they have long been considered crucial to understanding the results of the work [15, p. 125]. Forecasts are implemented as applied to expressive (emotional) (for example, friendship), and instrumental, business (or, as they are called, consulting) networks. In this sense, there is a commonality in the characteristics measured by the "Sociogram" and network methods.

One of the main methodological issues that cause discussion is what is the key determinant in the relationship between personality and position in the network: whether the personality and its characteristics influence what position it takes in

the bundle of relations in the social community or, conversely, the position it occupies determines its characteristics. The authors of [11] research 2 models: 1) a charisma-centrality model, according to which the charisma of the leader facilitates occupying a central position in an informal network of consultations. From this central position, the leader positively influences the performance of the team; 2) a model of centrality-charisma, according to which charisma is attributed to those leaders who are socially active in terms of providing and receiving consultations. The authors tested these 2 models in two different studies. In the first study, based on time-separated data from members of 56 working groups, they found support for the centrality-charisma model. Official leaders, who were central to the networks of councils of teams, were recognized as charismatic by their subordinates. To clarify how the leader's network centrality influenced the emergence of charismatic leadership, the authors carried out a second study in which 79 student teams measured the leader's networking activity and leadership charisma at two different time points and related these variables to the team measured at the third time point. Based on this temporarily separated data set, the authors again found support for the centrality-charisma model.

Researchers are interested in the connection of such an important psychological characteristic as the need for achievements - and the use of the advantages of social networks. McClelland in his book «The Achieving Society», in the introduction admits that his book grew out of an attempt by a psychologist trained in behavioral science to isolate certain psychological factors and strictly demonstrate by quantitative methods that these factors are generally important for economic development. In search of the maximum possible test of the hypothesis that a particular psychological factor is responsible for economic growth and decline, the author, in particular, identifies such a factor as the need for achievement. He argues that the early formation of the need for achievements is an individual factor that is important for further entrepreneurial behavior. This can contribute to various factors of personal development - in particular - a sense of social insecurity, inequality, oppression in childhood or adolescence. In the future such people can demonstrate greater achievements than their peers, taking advantage of the network [19]. Agreeing with the author of the publication, you can give an example: the hero of the film "Social Network", certainly has a high need for achievements, not the least role in the formation of which the behavior of others towards him, the feelings of injustice of resentment, desire demonstrate their abilities, which ultimately leads to the fact that he is radically ahead of his peers and achieves significant results in the activities.

Extraversion is one of the most researched and "favorite" characteristics of a personality in psychological literature. Usually used and explored in a pair with introversion. The parameter "Extroversion-introversion" characterizes the individ-

ual psychological attitude of a person either (mainly) to the world of external objects (extraversion), or to the inner subjective world (introversion). It is considered that extroverts are characterized by sociability, impulsiveness, flexibility of behavior, great initiative. Extroverts usually have an external charm, are straightforward in their judgments. As a rule, they focus on external evaluation. They are good at coping with work that requires rapid decision-making [9, p. 273].

Nevertheless, despite the fact that it could be assumed that there are indisputable advantages for extroverts in the construction of social networks - research shows that not everything is so unambiguous.

Thus, the authors of [21, p. 165] write that their previous studies have shown that extraversion affects the size of the social network. However, it is not clear, first, how extraversion affects the size of different layers of the network and, secondly, how the extraversion is related to the emotional intensity of social relations. The authors consider the relationship between extraversion, network size and emotional affinity for 117 people. The results showed that extroverts had larger networks at each level (support group, sympathy group, outer layer). The results were quite reliable. However, the extroverts did not show the expected results for the emotional closeness to their friends and friends in their network. These results underscore the importance of taking into account not only the size of the social network in relation to the individual, but also the quality of relationships with members of the network. We add that the results of the quantitative analysis (network analysis), as follows from the above description, apparently should be supplemented by a qualitative analysis of the data obtained.

Conclusion

Thus, even the above brief comparative analysis of the method "Sociometry" and methods of network analysis shows the commonality of many of their characteristics. Both Moreno's Sociometry and the methods of network research have their advantages and limitations. The use of this or that method, as always, depends on the research objectives. Forecasts based on the results obtained with the help of both methods are implemented both in terms of expressive (emotional) (for example, friendship) and instrumental, business connections of the individual. If in Sociometry the emphasis is more on the personality itself, its psychological characteristics, then in the methods of network analysis, this emphasis is shifted to the position of the individual in the social community and its connection with other people. In addition, the data in the network analysis can be obtained not only in connection with respondents' self-reports, but also in other ways. In any case, they should be based on the actual behavior of people.

One of the advantages of network thinking and method is that it predisposes the analyst to focus on several levels of analysis simultaneously (macro-meso-micro level (individual, group, organization, community, society) .If the description

of network analysis methods is correlated with the basic postulates interdisciplinary concept of the firm, it can be assumed that these methods can be applied, to varying degrees, to the economic subsystems of all four types, but such a description must be supplemented with the method and qualitative data analysis. In any case, the total in the methods of measurement of relations in social communities, briefly described in the article, that the identity of a person with all the variety of its relations, communication, interaction is placed at the center of scientific attention and analysis.

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个人线作为青少年时期自杀风险的预测因子
Personal lines as predictors of suicide risk at teenage age

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在文章中, 个人特征被认为是青春期自杀风险的预测因子。 该研究考虑了青少年的年龄和性别特征。 据透露, 13-14岁的青少年女性的自杀风险水平较高。 在形成自杀风险倾向方面, 最重要的是通过敏感, 内疚, 内心紧张和社会勇气等个人特征来证明。 对于反自杀的人格特质包括胆怯, 自我控制和接受道德规范(责任)。

关键词: 自杀风险, 人格特质, 青少年

Annotation. *In the article personal traits are considered as predictors of suicidal risk in adolescence. The study took into account the age and gender characteristics of adolescents. It was revealed that the level of suicidal risk is higher in adolescents female at the age of 13-14. The greatest weight in terms of forming a propensity for suicidal risk was demonstrated by such personal traits as sensitivity, guilt, inner tension and social courage. To anti-suicidal personality traits include timidity, self-control and acceptance of moral norms (responsibility).*

Keywords: *suicidal risk, personality traits, adolescents*

Introduction

It is known that the number and level of suicides is an indicator of the social well-being of the population. In this case, the maximum threshold value is 20 cases of suicide per 100 thousand population. The situation in Russia has come close to critical values (according to WHO in 2015, Russia ranked 17th in the world with an indicator of 17.9 people per 100 thousand population). The current situation is aggravated by the forecasts of WHO and foreign scientists Murray C.L., Lopez A.D., which suggest an increase in the number of suicides by 2020 by 1.5 times [1].

Equally frightening and critical is the internal statistics concerning the suicidal activity of minors in Russia. Fesenko Yu.A., Deputy Chief Doctor of the Center for Rehabilitation "Children's Psychiatry" named after S.S. Mnuhin, presented the statistical data announced at the All-Russian conference call "The problem and prevention of suicides among minors", which took place on March 20, 2017. The

following results were presented on the dynamics of suicidal activity (completed suicides) of minors in Russia from 2011 to 2016: 2011 - 728; 2012 - 653; 2013 - 558; 2014 - 519; 2015 - 685; 2016 - 720. Sounded data allow us to speak about a sharp increase in the number of completed juvenile suicides in recent years after the relative decline in suicidal activity in 2013 and 2014 [2].

According to the information provided in the State report "On the Health of the Population and the Organization of Public Health in the Omsk Region based on the results of activities for 2017," the number of suicides among minors has increased (from 11 in 2016 to 13 in 2017). At the same time, the Ministry of Health calls a hypothetical source of growth of teenage suicides, namely Internet games that promote suicide (Blue Whale, Quiet Home, F57, F58, Wake Me At 4:20, 1704) [3].

In this regard, topical and urgent is the question of the need for emergency measures to prevent suicidal behavior among children, requiring a comprehensive study of the causes of suicidal risk and the conditions for its formation in adolescents.

According to Voskovskaya L.V., suicidal risk is the degree of probability of occurrence of suicidal motives, the formation of suicidal behavior and the implementation of suicidal actions. The author, referring to the Glossary of suicidal terms, notes that the degree of the possibility of suicidal actions can be determined by comparing suicidal and anti-suicidal personality factors, as well as the influence of personality-situational and socio-demographic factors [4,5].

The adolescent period is the most vulnerable to the formation of a suicidal personality. Alimova M.A. notes that at different stages of adolescence - early (12-14 years), middle (15-16 years) and older (17-18 years), there are specific features of the formation and manifestation of suicidal behavior. In younger adolescence, suicidal manifestations, as a rule, are not planned in advance and arise most often in situations of threatening punishment. The motivation for suicidal behavior in this case is not a true desire for death, but a desire to avoid conflict and to avoid a difficult situation. In the middle age group, suicidal manifestations are characterized by demonstrative self-harm, attempts to take revenge on the offender, and punish those around them. As a rule, attempts at suicide occur in a state of affective stress and in the culminating moments of the conflict [6]. In older teens, the "hormonal storm" aggravates the situation, which contributes to the emergence of a propensity for depression, depression and frequent mood changes, high emotional reactivity, impulsive-affective behavior, stuck in negative emotional states, etc. [7].

Discussing the importance of personality traits in the development of suicide risk, we consider it necessary to review individual foreign and domestic publications that reveal this problem.

Domestic psychologists A.B. Kholmogorova and S.V. Volikova, conducting

research in clinical psychology, identifies three blocks of factors of suicidal risk: mass alcoholism, as a macrosocial block, loss of loved ones, as well as violence and abuse as family, microsocial factors. Among interpersonal (interpersonal) factors, the leading role in the development of suicidal risk belongs to problems in the relationships with peers and school disadaptation. To the group of personal factors, the authors included perfectionism, social anxiety, inability to cope with stress [8].

The study of personal predictors of suicidal risk in foreign publications is rather meager. The authors focus on social and demographic factors, such as the material well-being of the family, the presence of divorce, the level of education, the loss of a loved one, family alcoholization, the use of psychoactive substances, sex, sexual experience, etc. However, some interesting facts have been identified. In a large-scale study in Germany on a sample of 2,555 people, it was found that neuroticism and openness to experience are factors that contribute to suicidal behavior in women, and extroversion and conscientiousness are an antisuicidal protective factors (predominantly for men) [9]. It should be noted that in most studies, neuroticism is recognized as a personal predictor of suicidal behavior and risk in different age and demographic groups of subjects, including In one study in Australia [13], it was found that adolescents with high levels of control and low attachment have an increased risk of suicidal thinking and intentional self-harm. A study of the suicidal risk of Chinese medical students has shown that the most significant risk factors are academic load, year of study and introversion / extraversion [14].

The analysis of the literature on the problem of suicidal risk and factors affecting it has shown that more attention of foreign scientists is drawn to external, social and demographic factors. In this case, the study of personal determinants of suicidal risk in most cases is based on the Big Five methodology, which is a concise version of personality questionnaires. Studies of domestic psychologists are mainly conducted within the framework of clinical psychology and are aimed at finding pathocharacter radicals as predictors of suicidal risk.

Main part

Let us turn to the discussion of the design of the study and its results. The subject of this study is suicide risk in adolescence. As an object, personality traits have emerged as a suicidal factor in adolescence. The aim of the study was to reveal the influence of personality traits on the parameters of suicidal risk (SR) in younger and middle adolescents.

The goal of the research was achieved in the course of solving the following tasks:

1. Compare the parameters of suicidal risk in adolescents 13-14 years and 15-16 years.
2. Compare the severity of propensity to suicidal risk in adolescents of differ-

ent sexes.

3. Identify the influence of personality traits on the parameters of suicidal risk in adolescents.

The total sample totals 396 people: 120 of them are 13-14 years old and 276 are teenagers of 15-16 years old. At the stage of comparison of contrast groups by sex, 163 girls and 163 boys were included in the sample.

The following methods were used in the diagnostic complex: the method of determining the suicidal orientation (DSO). This questionnaire is designed as an indicative technique for identifying suicide-threatening settings in adolescents aged 13-18 years, namely, to identify depressive and neurotic conditions, as well as the level of sociability [26]. To study the parameters of suicide risk in adolescents aged 15-16 years, the "Questionnaire of suicidal risk" was applied in the modification of TN Razuvaeva. The study of personality traits of adolescents was carried out with the help of a teenage version of the multifactorial methodology of R.B. Cattell (14 PF, 142 questions).

The processing and analysis of the results were carried out using the following methods of mathematical statistics: primary descriptive statistics (mean, standard deviation); a criterion for estimating the normality of the distribution of the Kolmogorov-Smirnov test; Mann-Whitney U-test and single-factor analysis of variance (ANOVA).

At the first stage of data analysis using the DSO methodology, the parameters of suicidal risk in adolescents of different age groups were compared. In the analyzed literature, it is indicated that adolescents younger than 14 years are more likely to suicidal risk. The results of our study confirmed the described pattern. Significant differences were found in all scales of the DSO methodology: "depression" ($U = 14136$ at $p \leq 0.05$ - 218.7 (13-14 years) and 189.72 (15-16 years), "neuroticization" ($U = 14757,5$ for $p \leq 0,05$ -215,04 and 191,31) and "sociability" ($U = 13320,5$ for $p \leq 0,01$ -171,5 and 210,24), while teenagers of 15- 16 years of more sociability, which is considered as an anti-suicidal factor in this technique, is completely refuted by the hypothesis that the propensity to suicidal risk is more pronounced in adolescents aged 15-16, based on a theoretical analysis of the sources, peak of suicidal activity in this age period. The unexpected result can be explained by the phenomenon of acceleration of modern children and, possibly, is associated with the early physiological maturation of adolescents. The resultant age pattern requires the revision of the system of measures to prevent suicidal behavior of adolescents and their target audience. Apparently, children of 13-14 years have not yet developed the necessary coping strategies with difficult life situations and as a result are extremely vulnerable to them. Therefore, psychological support of specialists seems very acute at this age stage.

The next task of the study was to perform a comparative analysis of SR param-

eters in adolescents of different sexes. Both DSO and the Razuvaeva's suicide risk questionnaire showed a trend towards higher rates for all parameters of suicidal risk in girls, with the exception of the "maximalism" and "social pessimism" scales. Significant differences were found on the following scales: "depression" ($U = 9597.5$ at $p \leq 0.0001$), "neuroticization" ($U = 10320$ at $p \leq 0.0001$), "demonstrativeness" ($U = 5680$ at $p \leq 0.05$), "affectivity" ($U = 5974.5$ for $p \leq 0.01$) and "anti-suicidal factor" ($U = 7525$ for $p \leq 0.05$). The obtained results confirm the known fact of greater emotionality of the female representatives, which is reflected in the differences in the emotional background and, as a result, at a higher level of depressiveness and affectivity. The high indicator of adolescent females on the "anti-suicidal factor" scale inspires hope that, as the author of the technique notes, even with the high severity of all other parameters, it removes global suicidal risk. It includes a deep understanding of the sense of responsibility for loved ones, a sense of duty, an idea of the sinfulness of suicide, its anti-aesthetics, and the fear of pain and physical suffering.

The main objective of this study was to elicit the influence of the personality traits of adolescents on the parameters of suicidal risk. The use of a single-factor analysis of variance has made it possible to detect the influence of almost all scales by the method of the Cattell on the manifestations of SR: "schizotimia-affectogenicity," "emotional stability," "passivity-dominance," "caution-levity," "degree of acceptance of moral standards, courage," "realism-sensitivity," "self-confidence-the inclination to a sense of guilt," "the degree of group dependence," "self-control," "internal tension". At the same time, according to the results obtained, it is possible to judge both the risk factors and the anti-suicidal personality traits of adolescents. Let us examine in more detail the nature of the influence of the indicated personality traits of adolescents. The most susceptible were such personality traits as sensitivity (scale I), propensity to experience feelings of guilt (scale O) and the presence of internal stress (scale Q4). The scales showed the greatest number of influences on the parameters of suicidal risk. Without dwelling on the discussion of statistical results in detail, let us present the revealed regularities. The group of risk is represented by teenagers who are highly emotional, are prone to avoid responsibility in work and personal relationships, unreasonable anxiety. Impatience, impracticality, susceptibility to the influence of others, lack of independence, dependence, capriciousness and exactingness to the attention of others are also personal traits that affect the manifestation of depression, neuroticism, affectivity and a sense of own insolvency. Adolescents at risk are characterized by gloomy forebodings, anxiety in difficult situations, low frustration threshold, which is associated with high excitability, as well as a subjective feeling that they are not accepted by the group. These are children who are usually unhappy with order and leadership. At the same time, they can be highly

motivated, which is characteristic of persons with neurotic perfectionism. To the anti-suicidal personality factors we have attributed the following personal traits: shyness and shyness (scale H), acceptance of moral norms (responsibility) (scale G) and self-control (scale Q3). At high values of these scales, higher values of anisitisidal factor are revealed by Razuvaeva's method. At the same time, high scores on the H scale, which testifies to the social courage and adventurism of the individual, influence "maximalism" and "scrapping cultural barriers". These parameters of the SR are manifested in the infantile maximalism of values, the tendency of a teenager to spread the content of a local conflict in one life sphere to all spheres of life. For socially bold adolescents, in contrast to the shy and timid, it is peculiar to search for cultural values and standards that justify suicidal behavior or even make it attractive to some extent. For example, this can be manifested in borrowing suicidal patterns of behavior from literature and cinema, or in inversion of the values of death and life.

Conclusion

Summing up the research, it is important to note the most significant results and outline the research prospects in the context of the problem of prevention of suicide risk in adolescents:

1. First of all, it is worth noting the unexpected result for us of a higher level of suicidal risk in younger adolescents. Over-the-counter depressive symptoms in children aged 13-14 years are an occasion to reflect on the educational institutions about the revision of the content and timing of preventive measures, and parents are to reconstruct their children's early growing (emotionally) and communicate meaningfully with them.

2. The greatest weight in terms of forming a propensity to suicidal risk was demonstrated by such personal traits as sensitivity, guilt, inner tension and social courage. To anti-suicidal personality traits include timidity, self-control and acceptance of moral norms (responsibility).

Without considering a set of factors, including strategies for family upbringing and the current situation of adolescent development, it is difficult to predict whether the indicated personality traits lead to the commission of suicide. Only a comprehensive study of the propensity factors for suicidal risk, for example, the construction of a typology of adolescents, can bring scientists closer to an answer to this important question. It is in this direction that further research is planned.

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俄罗斯在一带一路项目中的利益
Russian Interests in One Belt One Way Project

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Annotation. *The article analyzes the possibility and interests of Russia in participating in Chinese One Belt - One Way project within the context of Russian-Chinese relations regarding Shanghai Cooperation Organization (SCO) that help to solve the security problems in Eurasian region.*

Strengthening the economic presence of China all over the world gives Russia the opportunity to improve its national infrastructure and economy through close cooperation in the New Silk Road and Maritime Silk Road. Inspire some different approaches to these projects Russia and China have a common field for cooperation.

Keywords: *Russia, China, security, national interests, Economic Belt of the Silk Road, Maritime Silk Road.*

In June 2018 the heads of state of the Shanghai Cooperation Organization (SCO) gathered in Qingdao to mark the group's 18th anniversary. After nearly two decades, the international organization now has eight full members, four observers, and six «dialogue partners». A permanent secretariat is in Beijing; and a security outpost is situated in Tashkent. The organization, despite its mostly regional Central Asian focus, is often referred to as the most populous multilateral organization in the world, a pioneer in the rise of non-Western arenas for global governance, and even a new paradigm of international relations.

The SCO presents itself as a multilateral organization of equal and diverse sovereign members, but China has been the driving force in its evolution. Today SCO remains the object of regular geopolitical intrigue, speculation and different analysis Western and non-Western experts.

But careful analysis of the SCO's history reveals that the two largest founding members Russia and China differ over the organization's exact role and future purpose.

In May 2017 68 countries, including Russia, signed agreements with China on cooperation on the One-Belt-One-Way project. The Chinese initiative to create a global transport and investment infrastructure «One Belt - One Way» unites two projects - the «Economic Belt of the Silk Road» and the «Maritime Silk Road of the XXI Century». The project is aimed at forming a transport, energy and trade corridor between the countries of Central, South Asia and Europe, deepening economic cooperation between dozens of states, intensifying scientific and technical cooperation between them.

Russia welcomed the initiative to unite the Silk Road and the Silk Road of the 21st century and stressed that the proposed EU project should involve the EU member states.

But since the launch of the initiative in the fall of 2013, nothing has really changed for the Russian-Chinese transport interaction in Eurasia. Russia both received and receives payments for transit through two «continental bridges». The possible and desirable synergy of the largest infrastructure project of the 21st century has not happened yet. Many opportunities are missing and the problems begin at a strategic level.

China has a long-term plan for the "Chinese Dream" that was put forward in 2012, called to transform China into one of the leading powers of the world by 2049. The «One Belt and One Way» initiative is an integral part of this plan.

Russian-Chinese strategic partnership has become successful because of coincidence of national security interests of both sides. Russian-Chinese economic partnership does not succeed by the same degree because of projects that meet the national interests of both powers differently. The project "Moscow-Kazan" was conceived primarily for the transportation of the football championship in 2018. China is indifferent to this event. Carrying air from Moscow to Kazan, or, especially, to Vladivostok or Beijing - is not in Chinese.

The main reason for Russia's lack of interest is still in the misunderstanding of her national economic interests. For China this project has become the driver of the entire geopolitical and geo-economic activity.

The fact is that during the creation of the New Silk Road it formed several large transport and logistics hubs connecting high-speed roads, railways and port facilities, the so-called hubs. The eastern hub from the very beginning was the port of Lianyungang on the Yellow Sea coast. In Western Europe, such a joint hub can be considered located near the other ports of Rotterdam and Hamburg [1]. The role of the southern hub is clearly intended for the Pakistani deepwater port of Gwadar, which will be connected to the new railway and to the strategic highway.

In the interests of Russia it would be to create on its territory one more northern hub in St. Petersburg. The geostrategic role of the city on the Neva for the New Silk Road is already recognized at least by the fact that it is determined by the final

point of the highway «Western China - Western Europe», which is planned to be completed by 2023.

If the highway is still under construction, the whole system of ports on the Baltic Sea in St. Petersburg itself and in neighboring Ust-Luga, Primorsk, Vyborg and Bronka is already operating and is a ready-made marine component of the northern hub. Automobile, railway, pipeline mains converge in Ust-Luga, besides, the port adjoins the nuclear power plant. On this transport and energy base, it is planned to create a powerful industrial park, consisting of interconnected clusters of enterprises of different industries.

The construction of a new modern railway from St. Petersburg to the southeast of the European part of Russia, towards the Urals, Siberia and further China would be in the national interests of Russia. Combined with the existing lines of the Continental Bridge Asia-Europe (Transsib) and the New Continental Bridge passing through Kazakhstan, such a road would meet the national interests of China as well. The access to the Baltic Sea and the operating transport network of Northern Europe would expand the opportunities for direct trade with the countries of these regions. In the long term, this road may be extended to the North, to the Scandinavian countries, as well as to the countries of Eastern and Western Europe.

For Russia, it is possible to facilitate the alignment of with Russian Eurasian Belt program on modernization of Transsib and Baikal-Amur mainline, given that Russia has rich experience in the development of a railway project on the basis of reliable database on the geology and hydrography of the territory of Eurasia, as well as the need to develop the potentials of Siberia and the Far East zones that are on top of the highly priority developments of Russia [2],

The geostrategic value of the northwestern path increases the necessity of another new transport corridor - Belkomur (The White Sea - Komi - Ural). The starting point of the railway comes from Arkhangelsk is to connect the regions of Siberia and the Urals (and in the future to the countries of Central Asia and China). However, popularity in the expert and business circles is gaining the offer to make another hub The Belkomur Murmansk[3].

The agreement on Russian-Chinese cooperation on The Belkomur was reached in September 2015 during the meeting in Beijing of the leaders of the Russian Federation and China. The construction of Belkomur, which should begin as early as 2018, is supposed to fulfill the Chinese company «Poly International Holding».

An important consideration in favor of the creation of the Russian-Chinese transport corridor of Xinjiang - St. Petersburg, including the northwestern course and the northern hub, is the security factor. The precedents of overlap or traffic difficulties on trade routes in Poland and Belarus pose a potential threat to the stable functioning of an increasingly important route for Europe to Europe.

To fulfill this part of the project could be the foundation of a Russian-Chi-

nese consortium, similar to the one that China, Kazakhstan, Turkey, Georgia and Azerbaijan created in 2015 to transport cargoes bypassing Russia along the Trans-Caspian transport route.

It seems that this would help to give impulse to Russian economy, however, other countries count on the same.

The authorities of four countries - Australia, the United States, India and Japan - are discussing the possibility of launching a joint infrastructure project that could become an alternative to the Chinese «One Belt - One Way». This was reported by the «Australian Financial Review» referring to a senior official in the US administration [4].

According to a source, the Quartet's plan is still «in its infancy» the parties agreed to call the plan «an alternative,» not a «rival» of the Chinese «Belt and the Way», but the alternative infrastructure should be economically viable and efficient.

There is also a possibility that USA along with other nations of the Pacific region will discuss over rejoining the regional free-trade pact, the Trans-Pacific Partnership. The remaining 11 nations agreed to rekindle the pact after the US withdrew but the new TPP-11 is structured so it is likely that the US can renegotiate entry. At the Davos economic summit in 2018 US President D.Trump confirmed the US policy of bilateral trade deals but left open the possibility of deals with "groups" of countries.

In this contest China and Russia should not miss the opportunities that is now available.

China's interests in the large-scale strategy of the New Silk Road are very diverse. New transport corridors should shorten the terms of transportation of goods from China to Europe from the current 45-60 days by sea up to 10-13 days by land. This would optimize the supply and reduce the cost of many Chinese products, strengthen China's position in the European and Asian markets, as well as take new markets in Africa and the Middle East. Hundreds of millions of peasants in China who are now not involved in the modern economic would receive the chance to have a new technological way of life [5].

China is interested in building railways in its neighboring countries in order to be integrated with the intra-Chinese railway network. China is ready to invest up to 300 billion rubles. in the construction of high-speed railroad Moscow-Kazan with a length of 770 km that should shorten the journey time between Moscow and Kazan from 11.5 to 3.5 hours.

It is very important for Russia to integrate into this trans-Eurasian transport corridors of the New Silk Road and Maritime Silk Road, thus consolidating its position as a major transit country to become a full-fledged "Eurasian bridge" between the countries of the East and the West.

Russia's participation in the project will dramatically increase the return on investment in transport infrastructure and, as a result, actively develop many regions of the Asian part of Russia, making them more attractive for the location of production and residence.

Against the backdrop of a complex relationship with the West at the moment, Russia is interested in strengthening and expanding cooperation with China. Joint large projects are the most reliable way to build a long-term partnership. Russia needs to expand cross-border ties with China - without this, it is hardly possible for the full-fledged economic development of the regions of Siberia and the Far East.

Russia, like China, is very interested in establishing political stability in the countries of Central Asia and the Middle East, as well as in the active economic development.

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关于文化遗产再生问题：问题，实施方式

On the issue of the regeneration of cultural heritage: problems, ways of implementation

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本文致力于解决俄罗斯联邦阿斯特拉罕市文化遗产物质再生的实际问题。考虑到历史和建筑价值，磨损程度以及形成的交通基础设施，考虑了现有历史发展对象的再生方向，以重建和谐的视觉感知。

关键词。再生，文化遗产，历史和建筑群。

Annotation. *The article is devoted to the actual problem of regeneration of objects of cultural heritage in the city of Astrakhan of the Russian Federation. The directions of regeneration of existing objects of historical development are considered, for the reconstruction of harmonious visual perception, taking into account their historical and architectural value, the degree of wear and tear, and the formed transport infrastructure.*

Keywords. *Regeneration, cultural heritage, historical and architectural complex.*

In Astrakhan, there are a number of historical and architectural complexes, many of which are dilapidated and require regeneration. In addition, at various times, many buildings that are of historical and architectural value have been lost, including the Admiralty building, the house of Peter the Great, the One-edged church, the building of the river station.

Approaches to solving the problems of regeneration, consider the example of the historical and architectural complex (HAC) «Kosa, XIX century. - beginning XXV», located on the embankment of the Volga River. Until the XVII century in its place was the channel of the Volga. Between it and the walls of the Kremlin there was only a narrow strip of coast, occupied by piers, shipbuilders and merchants buildings, warehouses, salt barns, customs, food stores, which can be seen practically on all plans of Astrakhan, from the plan of 1636 German traveler Adam Olearius and until 1809.

The complex is a tourist gate of the city. There are berths for passenger ships, summer cafes and kiosks. This area does not have a sufficient trading zone, a

zone for rest and accommodation of tourists, and also is practically not adapted to receive a large number of guests wishing to get acquainted with such an interesting city. The existing residential development is mostly uncomfortable and requires a radical restructuring in accordance with Figure 1.

All activities and life of the HAC "Kosa" reflected in the nature of its historical development. According to A. Shtylko, in 1896 this was an "unpresentable, but a rich part of the city" ..., "built up with various houses," where "small, ordinary-looking, old houses huddle close to large, new stone houses."

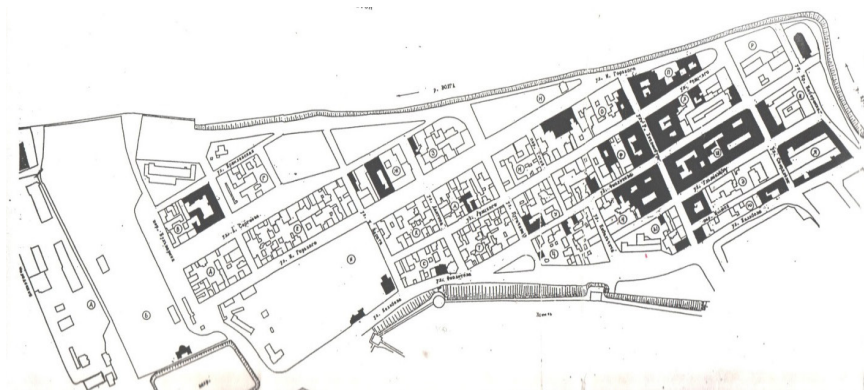


Figure 1. Outline of the HAC "Kosa"

Residential house number 13 on the street Zhelyabova adapted for housing former salt mill (the building is made in brick, is a massive powerful volume of 1-storey, 2-storey and 3-storey outbuildings with two stables. The appearance of the building is devoid of any architectural aesthetic value); wooden two-storey house № 15 and two-storey semi-stone house № 17, early connected by an internal transition (in the yard of these houses extensive household services: barns, Laundry, stable with hayloft, premises for workers for hire. Both houses are typical examples of ordinary wooden and semi-stone buildings of the late XIX-early XX century and give an idea of residential apartment houses of the time. The buildings are made in the form of architectural eclecticism, the facades are decorated with primitive wood carvings, imitating traditional motifs of folk woodcarving. The house No. 17 has a typical architecture of a closed gallery. The interiors have not survived); Outbuildings, currently adapted for housing, and the houses themselves require reconstruction. [2]

Stone houses №15 and 13/27 with their volumes make a short street Pugacheva. The Church of the ascension of the Lord, formerly part of the quarter of interest to us, was demolished in the 30s of the twentieth century. Stone, two-storey

residential building № 15 with mezzanine on the basement, where once there was a confectionery, with a characteristic of Astrakhan closed glass gallery, is made in the form of architectural eclecticism, the so-called "brick Russian style". In the finishing of exposed facade decorative features patterned brickwork. In the interior preserved stucco ceilings, polaramine tiled stove, carved doors with panels, which gives an idea of a typical sample of a rich urban house of the late XIX - early XX.

Corner, stone, one-storey house № 13/27 is located at the intersection of Pugachev streets and is an example of ordinary stone building "Kosa" of the late XIX - XX centuries. the interior is well preserved stucco ceilings. The uncoated facade was painted with bright ochre. Symmetrically to this house at the opposite end of this quarter at the intersection of Violet street (and Kibalchicha street is a corner stone, one-storey house No. 19/2, owned by merchant Prokofiy Balashov. Balashov's house is an example of exemplary building "Kosa", harmoniously included in the ensemble of building street. Purple gives an idea of typical Astrakhan small burgher-merchant manor house with a distinctive interior layout, where everything has been thought of and taken into account: living room, study, bedrooms, nurseries, etc. In the yard of the house, outbuildings, outbuilding, small garden, according to the recollections of the occupants of the courtyard were laid out according to the local tradition with a brick "herringbone". The interiors have not been preserved, subjected to redevelopment. Economic buildings are dilapidated and converted into housing. However, Balashov's house, as well as Belov's house is of historical and cultural interest. The buildings are part of a stylistically unified ensemble of planning nodes of the area "Kosa". They limit their architectural volumes quarter between street Pugacheva, St Purple lane Kibalchicha, fix the junctions.

Great value in the quarter on the street Zhelyabova, Pugachev, Kibalchicha, Purple present dwelling house at No. 21, former city pastorate Matthew G. Anointed. The ensemble of the estate is made in the form of architectural eclecticism, the so-called "Russian brick style". In the finishing of exposed facade decorative features patterned brickwork and natural colours of bricks. The ensemble consists of two stone 2-storey houses, one of which with a mezzanine, United by a stone gate and a gate. Courtyard household services: Laundry, dryer, coach house, barns. The interior of the residential buildings is well preserved entrance stairs and decorative panels, a gallery with a beautiful rassteklovkoy, paneled doors and shutters, tiled double-sided furnace, bronze fittings.

In 1860-1890 years in the scale of development, introduced multi-storey, vertically developed volumes of hotels, banks, apartment houses built in brick, often using natural cladding materials, richly decorated with stucco and metal. The architectural appearance of the Spit of the late XIX century was eclectic in a variety of manifestations, by the beginning of the XX century, wonderful

buildings in the art Nouveau style were built here. Commercial aspirations of the Astrakhan commercial and industrial elite, tough competition, the rise in the cost of construction sites in General have determined the nature of the buildings, their functionality and style. By the beginning of the XX century on Nikolskaya street there were 6 banks, 8 hotels, numerous shops, small offices, apartment houses. As a rule, under the shops, offices and various services were given the first floors of the buildings, above were placed banking institutions, hotels, cheap apartments. An example of such construction among the surviving former home Tavrizon (St. R. Luxembourg, 6) built in the late XIX century by architect A. Malakhovsky. The top floors of this extensive three-storeyed building were occupied by the Russian trade and industrial Bank, below were located shops and a drugstore. The building is made of brick, painted with bright ochre. The decor used a plate of brick, in the interior of the operating room of the former Bank preserved abundant stucco. The main attraction of the building is cast iron balconies and stairs in the interior. The building is solved in the techniques of eclecticism. [2]

In the house of merchant Grigoriev in the late XIX century and early XX century, the upper floor premises were rented by the Russian-Asian and Northern banks, the first floor housed the stor



Figure 2. "Building of Russian-Asian Bank". The architect K. Domontovich.

The interior of the angular volume is solved in eclectic techniques with abundant stucco decoration of open facades. In connection with the reconstruction of the house in 1910-1912 (arch. V. Marganec Waldowski) in interiors introduced elements of the modern (plastic walls, ancient paintings, the flooring, the design

of the stairs), second floor received second light being added to the facade on the street Skarzynski continued in a northerly direction pristrom a two-storey stone volume of services. This restoration of the facades of the former house of Grigoriev on the street. Luxembourg, 6 and its reconstruction in order to adapt to the puppet theater requires special field studies to solve the problem of painting the building clearly.

House Sergeeva (now a military hospital) was built in the late XIX early XX century), probably the project author is the architect K. Domontovich. The style of the house is similar to the solution of the facades of the Russian-Asian Bank. In the interior of the house there are two cast iron stairs of Krasavin's workshops (Astrakhan), unfortunately, on the facades in the 1960s several beautiful cast iron balconies made in pseudo-Venetian motifs were cut. The building of the hospital stands out in the construction of the Spit scale, expressive composition of volumes, accentuated by a corner tower. Setting the building at the crossroads of the main thoroughfares of the district, some exaggeration of the verticals of the main volume, the features of its composition and, finally, the nature of the cladding and painting of facades with gray lime composition allow us to correlate the house with a number of Sergeeva apartment houses built in late XIX – early XX century in St. Petersburg and Riga. An example of an interesting search for Astrakhan architects of the last century in the understanding of the techniques of modern architecture is the building of the Azov-don commercial Bank on the street.Luxembourg, 3 in accordance with figure 3.



Figure 3. “The building of the Azov-Don Bank, 1910, arch. F. I. Lidval”

Valuable in the construction of the Kosa are also the building of the hotel "Astrakhan" (former European) ul. Ulyanov, 6 (former. Cossack), the house on the street Bulahtin Purple, 11 (ex. Skarzynska), Churbakova house, St. R. Luxembourg, 10 (ex-Nicholas) and a number of buildings in the neighborhood is named. [1]

The main task of the regeneration of HAC "Kosa" is that on the basis of historical research to develop such activities that would be able to restore the lost architectural and artistic originality and beauty of this important area of the Central part of the city. In our opinion, it is necessary to fulfill the following requirements both for buildings and on the territory of HAC, taking into account the category of buildings:

- monuments of architecture and culture must be preserved and restored without fail;
- buildings of high artistic and historical importance can be adapted for other functions and reconstructed;
- "third degree of protection" buildings can be demolished to allow new facilities with similar morphology to be built in their place.

The laying of modern utilities provides an opportunity to free the yards from sheds that do not represent architectural value, for the storage of fuel and it is very important to significantly improve the appearance. To preserve the appearance of the HAC "Kosa" is assumed to preserve all existing streets, including even the most insignificant: for example, such as a Quiet side street, which, in turn, will bind the Kremlin ensemble from Nicholas gate transit through a newly built shopping and business centre and the mansion of the priest at St. Purple and Quiet building with access to the embankment of the river Volga.

Important for the purposes of restoration, reconstruction and regeneration of buildings is the allocation of historical monuments and urban ensembles, inscribed in ordinary buildings. Great importance is attached to the creation of conditions for the optimal perception of historical and new buildings. This corresponds to the desire to preserve the historical objects with their high artistic and aesthetic qualities of urban value, which determines the overall high level of the urban environment.

As regulation of the whole concept we believe it is necessary to preserve the planning structure, rhythm and proportion of existing buildings and creating new capital building the type of "high density development" with an estimated density in all areas within 400чел/ha type of housing is mnogopodezdnom mid-storey residential buildings to maintain and for new construction not to disturb the scale of valuable historical environment. The type of building is the building-blocks with enclosed courtyard-a courtyard, as a rule, exclude outside transit.

Existing houses with a small wear and tear are planned to be reconstructed and built on with the device of the attic floors. As for the new capital construction,

which makes up about 40% of the territory, the architectural style of buildings in principle should be in harmony with the existing environment.

The transport scheme of the district is actually preserved, but at the same time traffic in the area of the city, the Central embankment is partially limited. The movement of heavy and transit transport is prohibited. The main traffic flows will mainly consist of taxis and private vehicles.

The maximum unloading of the city embankment, as the main pedestrian artery of the center of Astrakhan, from the traffic flow and car Parking will allow to expand the promenade terrace of the embankment, to further develop a duplicating pedestrian direction along the Boulevard of A. Sergeev with access to Guzhvin Avenue and the embankment to the monument to Peter I, as well as with the possibility of front pedestrian communication with Lenin square with the device of an underground passage through Admiralteiskaya street.

Buildings that are subject to reconstruction without restrictions, not included in the list of monuments of architecture and whose physical wear of less than 70% is expected to be completely redesigned. The facades and dimensions of these buildings are desirable to keep, they can make modern extensions, which should be correlated with the historical environment, the harmonious content of which – the main condition for reconstruction.

The buildings recommended for demolition include all the buildings that are not included in the above lists of architectural monuments and whose physical deterioration is more than 70%, as well as objects that make disharmony in the architectural environment of the city center and built on the site of demolished historical buildings that played an important urban role. Building disharmonious with the historical architectural environment, built during the Soviet period, overscale in height and proportions and built without any consideration of the "Project of protected zones and zones of regulated development of the city of Astrakhan". These include: hotel "Azimut", residential 12-storey houses on the spit of the Volga and Kutum rivers, 9-storey house on Sverdlov street, household services house "Crystal", as well as the newly built administrative building "LUKOIL" and newly built shopping and hotel complex on the embankment of the Volga river, on the site of the unfinished river station.

Buildings subject to complex restoration require complex research and development of the restoration project. All proposals for structures and internal engineering networks should be primarily individual; the use of standard designs is possible only in the case of their neutrality in relation to the monument. After the completion of all restoration work, it is necessary to make a special passport of the monument with a detailed list of conditions for its operation.

Buildings subject to reconstruction with restrictions imply mandatory preservation of internal bearing walls and the volume of the building, restoration

of facades and preserved interiors. Restrictions also include the preservation of some of the original structures and materials of historical value (vaulted ceilings, wooden or metal rafters, tinne roofs, window and door joinery and brace). It is not allowed to bookmark and spread the original door and window openings, as well as punching new openings in the internal load-bearing walls.

If we mentally turn to the visual perception of historical buildings from the embankment of the Volga river, we will not find in the modern silhouette a number of significant, iconic verticals inherent in that time. In the 30s of the XX century was destroyed was erected in 1895 году magnificent beauty of the old rite Church of the ascension, built near the Nicholas gate of the Kremlin, the Church of Peter and Paul, which was somewhat lower than in a southerly direction from the Crimean towers of the Kremlin.

Therefore, considering that the fact that these religious objects had an important town-planning significance, then in the concept of regenerating the HAC "Kosa" it is expedient to recreate these religious buildings. At the same time, taking into account the already existing transport scheme and the practical impossibility of changing it in favor of recreating the church, it is necessary to lay the construction of a memorial chapel, and also to break through the main exit from Lenin Square to the embankment of the Volga River. It is proposed to restore the church of Peter and Paul with the orientation of the main entrance from the street A.A.Sergeev Boulevard.

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合并症量表对严重社区获得性肺炎致命结局的预测能力
Comorbidity scales' predictive ability of fatal outcome in severe community-acquired pneumonia

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本文致力于评估和比较社区获得性肺炎严重过程中致死结果预测的有效性，以及为此目的使用合并症评估量表的可能性的研究。该研究的相关性是由于合并症对该病理学中发生致死结果的风险的高度影响。对重症社区获得性肺炎的致死病例进行了回顾性研究，研究了预测肺炎CURB-65，SMART-COP和PSI致死结果的传统预后量表的信息量，并通过以下方法计算了合并症的水平。计算CIRS，Kaplan-Fenstein和Charlson的指数。在相关性分析过程中，评估后者预测致死结果的能力。对ROC曲线的分析显示CIRS合并症量表具有高辨别能力，这使得将其用于这些目的成为可能。

关键词：严重社区获得性肺炎，合并症，预后量表

Annotation. *The article is devoted to the estimation and comparison of the effectiveness of the prediction of the lethal outcome in the severe course of community-acquired pneumonia and the study of the possibility of using the scales of the comorbidity assessment for this purpose. The relevance of the study is due to the high degree of influence of comorbidity on the risk of developing lethal outcomes in this pathology. A retrospective study of lethal cases in severe community-acquired pneumonia was conducted, for which the informativeness of traditional prognostic scales for predicting the lethal outcomes of pneumonia CURB-65, SMART-COP and PSI was studied, and the level of comorbidity was calculated by calculating the indices of CIRS, Kaplan-Fenstein and Charlson. In the course of the correlation analysis, the ability of the latter to predict the lethal outcome was assessed. Analysis of ROC curves showed a high discriminatory ability of the CIRS comorbidity scale, which makes it possible to use it for these purposes.*

Keywords: *severe community acquired pneumonia, comorbidity, prognostic scales*

Community-acquired pneumonia (CAP) occupies a leading place in the structure of morbidity in the adult population and 5-6 in the structure of all causes of death.

The greatest problem is patients with severe community-acquired pneumonia (SCAP), since despite modern diagnostic and treatment methods, mortality in this category of patients remains high from 21 to 58%, and the provision of medical care is complex and expensive. The main causes of adverse outcomes in SCAP are refractory hypoxemia, septic shock and multiple organ failure. [1]

Approximately 10% of all CAPs can be classified as heavy. Causes that cause, other things being equal, a severe course of pneumonia are not completely clear. They can be associated with both the characteristics of the causative agent of the infectious process in the lungs, and with the characteristics of the patient's body. On the part of the microorganism, virulence factors, the level of microbial load and the presence of mechanisms of protection from the human immune system are key. From the side of the macroorganism is the presence of concomitant diseases like the bronchopulmonary system (bronchial asthma, chronic obstructive pulmonary disease) and other somatic pathologies (diabetes mellitus, chronic heart failure, renal dysfunction, alcohol abuse, smoking, obesity or body weight deficiency, pregnancy and etc.). [2]

According to clinical recommendations [3], the criteria for severe CAP include the following:

1. Acute respiratory failure: frequency of respiratory movements (FRM) > 30 per min. and / or saturation (SaO_2) < 90% and / or hypoxemia: oxygen partial pressure in arterial blood (PaO_2) < 60 mmHg. Art.
2. Hypotension: systolic blood pressure (SBP) < 90 mm Hg. Art. and diastolic blood pressure (DBP) < 60 mm Hg. Art.
3. Acute renal damage (ARD): anuria and / or creatinine concentration in the blood > 176.6 $\mu\text{mol} / \text{L}$ and / or urea nitrogen level > 7.0 mmol / l
4. Any signs of impaired consciousness
5. Two- or multi-lobe lesions of the lungs
6. Presence of extrapulmonary focus of infection (meningitis, pericarditis, etc.)
7. Leukopenia ($< 4 \times 10^9 / \text{L}$)
8. Hemoglobin < 100 g / l, hematocrit < 30%

Currently, several approaches are proposed for scaling the outcome prognosis for SCAP, which may be universal, for example, Acute Physiology And Chronic Health Evaluation (APACHE) and Sepsis Organ Failure Assessment (SOFA), as well as special ones. Among the latter, the most studied are: CURB-65 / CRB-65, SMART-COP / SMART-CO, PORT or PSI.

The scale CURB-65 / CRB-65 is widely used in practice, which is easy to use, because each criterion ("C" - a violation of consciousness, "U" - blood urea nitrogen > 7 mmol / l, "R" - FRM > 30 per min, "B" - DBP < 60 or SBP < 90 mmHg. , "65" - age 65 years and older) has a dichotomous evaluation - "yes" = 1 point, "no" = 0 points. Option CRB-65 does not require the determination of urea nitrogen,

so it can be used on an outpatient basis. This scale allows to determine the place of treatment of patients and closely correlates with the prognosis of the disease: 0 points - possible outpatient treatment, lethality <1%; 1-2 points - treatment in the department of therapy, lethality about 8%, 3-5 points - need treatment in the intensive care unit, lethality > 30%. [3]

The PORT scale (Pneumonia Outcomes Research Team), also known as PSI (Pneumonia Severity Index) or M. Fine scale, involves the determination of 20 clinical and laboratory parameters, which allows stratifying patients with CAP for the severity of the condition and predicting an outcome in accordance with assignment of the patient to one of 5 classes.

Since the scale is cumbersome and requires the implementation of laboratory studies, some of which are not routine, in order to not perform a full assessment of all parameters and all patients with CAP, 2 stages are performed:

at the 1st stage, whether there is an increased risk of complications and death in the patient (class II-V) or there is no such risk (class I - lethality <0.1%), for which it is necessary to answer the following questions:

1. At the time of the inspection: Age > 50 years? Is there a violation of consciousness? Heart rate ≥ 125 beats / min? FRM > 30 in minutes? SBP <90 mm Hg. Art. Body temperature <35 ° C or ≥ 40 ° C?

2. Do you have a history of malignant neoplasms? congestive heart failure? cerebrovascular disease? kidney disease? liver disease?

If at least one question is answered in the affirmative, then go to the second stage, during which the points are summed up for each evaluation point, which are considered as predictors of risk: the patient's age for men + the number of years, for women + (the number of years - 10); Stay in nursing homes +10; the presence of malignant tumors +30; presence of liver diseases +20; chronic heart failure +10; presence of cerebrovascular diseases +10; presence of kidney diseases +10; presence of consciousness disorder +20; FRM > 30 / min. +20; SBP <90 mm Hg. Art. +20; body temperature <35 ° C or ≥ 40 ° C +15; Heart rate > 125 in min. +10; the presence of pleural effusions +10; blood pH <7.35 +30; urea nitrogen level > 10.7 mmol / l + 20; the concentration of Na in the blood <130 meq / L +20; blood glucose > 13.9 mmol / l + 10; hematocrit <30% +10; PaO₂ <60 mm Hg. Art. 10.

In accordance with the scores received, the patients belong to the II - V risk classes of the lethal outcome: Class II - <70 points - lethality 0.6%; III class - 71-90 points, lethality 0.9-2.8%; IV class - 91-130 points - lethality 8.2-9.3%; V class - > 130 points - the lethality is 27.0-29.2%. [3]

The SMART-COP scale (or its abbreviated version of SMART-CO, which does not require determination of albuminemia and blood pH) implies a total score of the following parameters: SBP <90 mmHg. Art. +2; multilobar infiltration on the roentgenogram +1; level of albuminemia <3.5 g / dl +1; FRM in patients under the

age of 50 and ≥ 25 per minute, and over the age of 50 years ≥ 30 per min. +1; Heart rate > 125 min. +1; presence of signs of impaired consciousness +1; the PaO₂ value is < 70 mm Hg. at the age of ≤ 50 years, < 60 mmHg. at the age of > 50 years or SpO₂ $< 94\%$ at the age of ≤ 50 years and $< 90\%$ at the age > 50 years +2; pH of arterial blood < 7.35 +2 points.

The level of predicted mortality, depending on the scores received, is as follows: 0-2 points - 3.7%; 3-4 points - 35.3%; 5-6 points - 50%; 7 and more points - 100%. [3]

Each of the described systems has its advantages and disadvantages. The scales are designed to identify groups of patients with a prognosis of an unfavorable outcome, they are not a tool for determining the severity of pneumonia and do not replace a clinical decision when choosing patient management tactics. [4]

Studies have shown that all these scales have a good negative prognostic value, but are less useful in terms of a positive prognosis of death. [5]

The risk of a lethal outcome, although dependent on the severity of the course of pneumonia, but to a large extent directly influencing the prognosis for life in SCAP, is the presence of concomitant pathology, especially its decompensation. [6]

Studies have shown that 30-day mortality in patients with cardiovascular disease is 5 times higher than that in the absence of heart and vascular disease. [7] Significantly higher rates of 30-day mortality in patients with COPD [8], as well as an increased level of blood serum glucose [9].

Among the currently available 12 methods of assessing comorbidity, which are scales with scores of signs, the Cumulative Illness Rating Scale (CIRS) scale, the Kaplan-Feinstein index and the Charlson index are most common.

The use of the CIRS system implies a separate summary of the status of each of the 14 organ systems where "0" indicates the absence of diseases of the selected system, "1" indicates mild abnormalities or past illnesses, "2" refers to a disease requiring in drug therapy, "3" for the disease that led to disability, and "4" for the presence of severe organ failure requiring urgent therapy. The CIRS system evaluates the comorbidity by the sum of scores, which can range from 0 to 56. [10]

In this system of assessing the comorbidity with the help of the Kaplan-Feinstein index, all existing diseases and their complications, depending on the severity of the organ damage, are classified as "0" - absence of disease, "1" - mild course of the disease, "2" - moderate disease, "3" - serious illness. Conclusion on the total comorbidity is made by the sum of the points, which can vary from 0 to 36. [10]

The Charlson index also represents a scoring system (from 0 to 40) of the presence of certain concomitant diseases with the addition of one score for every ten years of life when the patient exceeds the age of 40 years. [10]

Despite the fact that the first ways to assess the comorbidity of CIRS and the

Kaplan-Feinstein index were developed in 1968 and 1974. accordingly, the prognostic significance of such systems is not completely clear. There are no criteria for interpreting the total score obtained from the summation of the diseases available to the patient. In addition, an obvious drawback of many ways to assess comorbidity is the excessive generalization of nosologies and the absence of a large number of diseases in the scales, which reduces the objectivity and effectiveness of the techniques, making their results ambiguous and contradictory. [10]

The aim of the study was to study the predictive ability of the three Cumulative Illness Rating Scale (CIRS), Kaplan-Fenstein and Charlson, and compare their capabilities with the classical prognostic scales (CURB65, PSI and SMART-COP) in assessing the prognosis of short-term mortality 30 days from the onset of the disease) with SCAP.

A retrospective analysis of 110 cases of lethal outcomes with SCAP for the period 2014-2017 was conducted. The investigated cases were patients aged 25 to 75 years who were diagnosed with SCAP at hospitalization in accordance with the criteria [3] and there was anamnestic indication of the presence of at least one somatic disease. The average age of the studied 42.6 ± 3.9 years, men accounted for 66.5% of patients, women - 33.5%. The overall 30-day mortality was 13.5% (9% of hospitalized patients for the period).

In all cases, the prognostic death risk scales for SCAP-CURB65, PSI and SMART-COP, and the Charlson comorbidity indices, Cumulative Illness Rating Scale (CIRS), and Kaplan-Feinstein have been calculated, taking into account the history and lifetime laboratory and instrumental studies, and final pathoanatomical diagnosis.

The statistical analysis was carried out using the StatBase program (version 2.5.4). For the comparative analysis, we used parametric (Student's test (t)) and nonparametric (converted Wilcoxon W-test in the z-score) methods. Correlation analysis is performed using the Spearman rank correlation coefficient (rs). The predictive ability of prognostic scales and scales of comorbidity in case of lethal outcome of SCAP is estimated using binary logistic regression with determination of area under ROC-curves (AUROC).

When assessing lethal outcomes from the prognostic pneumonia scales, the following results were obtained:

The CURB-65 scale: the mortality rate was 15.2% for a total of 2 points, 21.7% for a total of 3 points, 29.3% for a total of 4 points and 33.8% for a total of 5 points. The main evaluation criterion, which had an effect on the distribution of deceased patients by points, was "age over 65 years", i.e. patients under the age of 65 years, lost 1 point of evaluation for this indicator and increased the level of mortality with relatively favorable predictive 2 points. The predictive accuracy of the CURB-65 scale proved to be the most valuable for identifying patients at high

risk of death and underestimated it in the group of calculated low risk. The reason for underestimation is the lack of consideration of the concomitant pathology, the decompensation of which against the background of SCAP, was of significant importance in thanatogenesis.

The SMART-COP scale: lethality at 1-2 points was 1.7%; at 3-4 points 15.3%; at 5-6 points - 40.1%; at 7 and more points - 42.9%. In general, according to this scale, the mortality rate corresponded to the number of points scored by patients. This scale proved to be the most effective for assessing the prognosis of death in critically ill patients, before that, it significantly underestimated it. Like the CURB-65 scale, this system does not take into account the presence of concomitant pathology.

The PSI scale: there were no lethal outcomes with a score of <70 (grade II); in the third grade (71-90 points), the mortality rate was 9.8%; in the fourth grade (91-130 points) - 30.7%; in the fifth grade (> 130 points) - 59.5%. This scale, in comparison with the two previous ones, takes into account the sex of patients, the complicated course of CAP, the presence of concomitant pathology, and also the social factor, such as staying in nursing homes, and does not have a specific age-related relationship.

A close correlation ($r_s > 0.8$, $p < 0.005$) of all studied scales and a lethal outcome with SCAP was revealed. When comparing the CURB65, PSI and SMART-COP scales, the best profile of sensitivity and specificity for mortality was noted in the PSI scale (61%, 90%), and the CURB65 scale had the highest sensitivity and lowest specificity, which confirms its advantages for identification patients with low risk of death.

Assessment of the comorbid status showed that all deceased patients had the following average scores: according to the CIRS system, 24.8 ± 3.8 , Charlson 10.2 ± 5.0 and 16.0 ± 4.4 on the Kaplan-Feinstein scale.

A strong correlation between the CIRS comorbidity index and lethal outcomes with SCAP ($r_s = 0.85$, $p < 0.001$) and the Kaplan-Fenstein index ($r_s = 0.71$, $p < 0.0005$), as well as the average for the Charlson index ($r_s = 0.35$, $p < 0.05$).

A study of the predictive capability of the SCAP death-comorbidity scales showed that the CIRS scale is the most discriminatory (AUROC = 0.891, $p < 0.001$), although for the Kaplan-Fenstein and Charlson indices the area under the ROC curve was more than 0.5: 0.667 ($p < 0.001$) and 0.598 ($p < 0.001$), respectively. The results of the AUROC comparison for all these scales using the bilateral DeLong (Z) test did not reveal any significant differences between them.

In a pairwise comparison of all the above-described prognostic scales, it was found that the discriminatory capacity of the comorbidity scales is generally lower than the specialized scales for pneumonia. However, the discriminatory abilities of the CIRS and PSI scales do not have statistically significant differences.

From a practical point of view, the most important for the prognostic scale is its ability to predict the outcome of an event with a high degree of accuracy, or in other words, to predict the individual outcome of a SCAP treatment for a particular patient. Considering the high impact of comorbidity on SCAP current, the evaluation of comorbidity should be considered when predicting death in patients with SCAP. The high discrimination ability of the CIRS comorbidity scale makes it possible to use it for these purposes.

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慢性心力衰竭患者左室重构的特点

Features of left ventricular remodeling in patients with chronic heart failure

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该研究的目的是对慢性心力衰竭（CHF）I-III功能分级（FC）患者的左心室（LV）重塑。在患有CHF的患者中，左心室重构不仅导致LV的重新结构，伴随着腔的扩张和变薄，降低心肌收缩力，而且还导致左心室的几何形状的变化和LV的舒张功能障碍的控制。放松的干扰..

关键词：慢性心力衰竭，神经体液因子，利钠肽，醛固酮

Annotation. *The aim of the study was to of left ventricular (LV) remodeling in patients with chronic heart failure (CHF) I-III functional class (FC). In patients with CHF left ventricular remodeling leads not only to re-structure of LV which accompanied by dilatation and thinning of the cavity, reducing myocardial contractility, but also to changes of geometric shapes of left ventricular and to diastolic dysfunction of LV with domination of the disturbance of relaxation..*

Keywords: *chronic heart failure, neurohumoral factors, natriuretic peptide, aldosterone*

Chronic heart failure (CHF) is not only a medical but also a social challenge due to significant prevalence, high mortality rates. According to the Framingham Heart Study, conducted at Boston University School of Medicine, one of the leading causes of heart failure is coronary heart disease (CHD), which is more than 60% in the structure of CHF development [1,2]. The CHF remains to be one of the most important problems of a modern cardiology owing to a wide circulation and the adverse forecast, despite the significant progress in optimization of its treatment. The disease sharply worsens the life quality of patients, increases the risk of mortality by 4 times, and death rate of patients within a year makes 15-50%. The risk of sudden death in patients with CHF is 5 times higher than in those without heart failure. About 50% of patients with CHF, despite the use of combination therapy, die within 5 years after the onset of clinical symptoms [3, 4]. The left ventricular (LV) remodeling process is caused by the death of a large number of cardiomyocytes and continues after the cessation of the damaging effect of ischemia. The loss of part of a functioning myocardium is accompanied by

a complex of structural changes involving both the damaged and undamaged areas of the myocardium. This process is adaptive in its nature, aimed at maintaining a normal cardiac output and adequate myocardial stress. These changes in the structure and geometry of the heart chambers, referred to as “adaptive remodeling of the heart,” often precede the clinical manifestations of heart failure [5-7]. However, it is known that heart failure develops in the future in a significant proportion of post-MI patients. The cause of this complication is that the remodeling process becomes maladaptive in character with progressive dilatation of the LV, an alteration of its geometry, and final fall of the pumping function [8,9].

Purpose of research was to study left ventricular (LV) remodeling and diastolic function (DF) of in the patients with I-III functional class (FC) with CHF.

Methods: There were studied 91 patients with CHF. Control group included 20 healthy subjects. The clinical condition of the patients was assessed by 6MWT, the scale of assessment of the clinical state (SACS) modified by V.Y.Mareev (2000), and quality of life at the Minnesota questionnaire at baseline. The processes of cardiac remodeling and vessels were studied by echocardiography (EchoCG). Analysis DF was made on the basis of measurement of maximal velocity of LV early filling (E), maximal velocity of the late filling of the atrium (A), the ratio E/A, increase of LV isovolumetric relaxation time (IVRT). All patients underwent an electrocardiogram, the full range of clinical, functional and biochemical examinations. The structure of the basic therapy was as follows: ACE inhibitors have taken 92% of the patients, an ARB - 8%, BAB - 99.4%, diuretics - 36%, spironolactone - 68%, aspirin - 94%, nitrates - 28%, statins 98.2 % of patients. Statistical analysis of the data obtained. Obtained in the study data were subjected to statistical analysis on a personal Pentium-IV computer using the software Microsoft Office Excel-2012 package, including the use of built-in statistical processing functions. We used the methods of variational parametric and non-parametric statistics with calculation of the arithmetic mean of the studied index (M), standard deviation (σ), standard error of the mean (m), relative values (frequency,%), the statistical significance of the measurements by comparing mean values was determined by the Student criterion (t) with the calculation of error probability (P) in checking normal distribution (kurtosis criterion) and the equality of general variances (Fisher's exact test). For statistically significant changes was taken the confidence level of $P < 0.05$. Statistical significance was calculated for qualitative variables using the χ^2 test (chi-square) and z-test (Glantz). To analyze the dependences features steam Pearson correlation coefficient (r) was calculated.

Results. Study of tolerance to physical exercise as a result of 6MWT in examined patients with chronic heart failure showed that initially patients with CHF FC I passed distance of 461.5 ± 14.21 meters. In CHF FC II and III this distance was 332.4 ± 16.47 and 228.3 ± 10.13 m respectively. The clinical condition of pa-

tients by SACS was characterized by increasing indicators of SACS with disease progression: in patients with CHF FC I this index was 3.6 ± 0.76 points, in FC II patients – 5.7 ± 0.90 points (ie, 57% higher than FC I), in FC III it was 8.8 ± 0.81 points (i.e., 142.8% higher on FC I), respectively. The quality of life studies in patients with chronic heart failure showed that initially the total index of quality of life for Minnesota questionnaire in patients with CHF FC I was 27.2 ± 1.42 points, while in FC II patients it was 35.5 ± 1.96 points, in FC III - 48.5 ± 1.54 points, respectively.

The study of left ventricular remodeling processes revealed that the patients examined in the initial stages of CHF as a result of the adaptation process remained normal levels EF and Fs with unreliable rise ESV, EDV, EDD and ESD versus the normal values. By increasing the degree of heart failure progressively decreased LV ejection fraction and Fs, as basic indexes of systolic function. In patients with CHF FC II heart failure there was EF decrease in 17.4% ($P<0.05$) versus the indicators of EF in patients with CHF FC I, which was also followed by the fraction decrease in anteroinferior LV in systole (Fs) in 21.4% ($P<0.05$), respectively, versus the indicators Fs in patients with CHF FC I. In patients with CHF FC III the disease progression was followed by the reliable decrease: EF in 30.3% ($P<0.001$) and Fs in 31.5% ($P<0.01$), respectively, versus the indicators of the patients with CHF FC I.

Indicators of EDD and EDV in patients with CHF FC II were some higher than the indicators in patients with CHF FC I. The indicators of ESV in patients with CHF FC II were authentically higher at 30.1% ($P<0.001$) and 16.2% ESD ($P<0.01$), respectively, versus the ESV and ESD indicators in patients with CHF FC I. The increase in LV EDV in patient at the initial stage of remodeling is the early compensatory response to reduction of contractility and kinetics of walls and allows supporting the stroke volume (SV) and LV EF. The indicators of the meridional systolic myocardial stress (MS) characterizing the load on LV walls in patients with CHF FC II were higher at 23.5% ($P<0.01$), probably, due to increase of intra-myocardial tension of LV. Despite the increase in intra-myocardial tension of ventricles, dilatation of chambers of heart the stroke volume indexes remained within normal range, there was only a trend towards a decrease in the stroke volume.

In patients with CHF FC III was followed by more expressed LV restructuring, the degree of LV dilataion increased and it characterized by the increase: EDD in 15.2% ($P<0.001$) versus the indicators of patients with CHF FC I and EDV in 31.4% ($P<0.001$). Indicators of ESD were authentically higher at patients with CHF FC III at 35.4% ($P<0.001$), respectively versus the indicators of patients with CHF FC I, and the indicators of ESV increased more in 67.1% versus the indicators of patients with CHF FC I. Increase of intra-myocardial pressure in the

end and systolic period was characterized by reliable increase of MS –in 35.4% ($P < 0.02$) versus the indicators of patients with CHF FC I.

Study of structural and geometrical parameters of the left ventricle in investigated patients depending on the indicators of EV revealed that in patients with $EF > 50\%$ reliable changes of indicators of geometrical parameters were not marked, whereas in patients with $EF < 50\%$ the reliable decrease SV, increase LV EDV and ESV, which confirmed the marked lesions of LV myocardial contractility.

Analysis of diastolic function showed reliable decrease in the maximum rate of early left ventricular filling (E) versus the control ($P < 0.05$), increase of the maximum rate of late atrial filling (A) ($P < 0.05$), decrease the ratio of E/A ($P < 0.01$), the degree of reduction of indicators E и E/A, which were more pronounced in patients with CHF FC III ($P < 0.05$, $P < 0.01$).

Analysis of the results revealed the following types of LV diastolic dysfunction showed the CHF patients relaxation violations determined in 45.9% of cases, pseudonormalization - in 27,5%, restrictive changes - in 14% of cases, and normal diastolic function detected in 12,6% (28) of cases. Patients with CHF were divided into 2 groups to assess the interrelation of violations of left ventricular function and left ventricular diastolic dysfunction: group with preserved left ventricular systolic function ($EF \geq 50\%$) and a group with a reduced $EF < 40\%$. Analysis of the prevalence of left ventricular diastolic dysfunction of various types showed that severe violations of left ventricular diastolic function - pseudonormal and restrictive types - were significantly more frequent in patients with reduced left ventricular systolic function. Types of diastolic dysfunction were distributed as follows: in patients with CHF disturbances of relaxation were determined in 46.2% of cases, pseudonormalization - 21.3%, restrictive changes - in 18% of cases, normal diastolic function were identified in 14,5% of patients.

Analysis of the prevalence of left ventricular diastolic dysfunction of various types showed that severe violations of left ventricular diastolic function - pseudonormal and restrictive types - were significantly more frequent in patients with reduced left ventricular systolic function.

Analysis of EF, SMWT and QL parameters showed reliable direct dependence distance of SMWT from EF ($r=0.64$), high inverse correlation between EF and QL index by Minnesota questionnaire ($r=-0.58$).

Thus, in patients with CHF left ventricular remodeling leads not only to re-structure of LV which accompanied by dilatation and thinning of the cavity, reducing myocardial contractility, but also to changes of geometric shapes of left ventricular and to diastolic dysfunction of LV with domination of the disturbance of relaxation.

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与分娩过程中的医疗保健协助相关的感染发生率：动态，结构，病因

The incidence of infections associated with health care assistance in delivery: dynamics, structure, etiology

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与提供医疗保健有关的感染（IRMC） - 医疗机构患者安全的最重要问题之一，包括。 产科机构。 产科医院中的大多数这些感染都表现为产后期产妇和新生儿期新生儿的各种化脓性脓毒性并发症。

以梁赞地区为例，分析了产科医院患者IRMC的发病率。

关键词：与提供医疗，发病率，流行病学，产科医院，产妇，新生儿相关的感染。

Annotation. *Infections related to the provision of medical care (IRMC) - one of the most important problems of the safety of patients in medical institutions, including. institutions of obstetrics. Most of these infections in maternity hospitals are represented by various purulent-septic complications that occur in the puerperas in the postpartum period and in newborns in the neonatal period.*

The morbidity of IRMC among patients of obstetrical institutions is analyzed on the example of the Ryazan region.

Keywords: *infections associated with the provision of medical care, morbidity, epidemiology, maternity hospitals, puerperas, newborns.*

According to the literature in Russia there is a tendency to increase the frequency of complications of pregnancy and childbirth, diseases among newborns [1]. Infections related to the provision of medical care (IRMC) can be used as complications of rhomboids, as well as diseases that occur in neonatal infants. IRMC - cases of infection associated with the provision of any type of medical care (in medical, inpatient and outpatient, educational, sanatorium and health institutions, social security institutions, in the provision of emergency medical care, home care,), as well as cases of infection of medical workers as a result of their

professional activities. Due to the wide spread and damage to the health of citizens and the economy, the IRMCs are an integral and essential part of the problem of ensuring the quality of medical care and creating a safe environment for patients and personnel of medical organizations. In patients with IRMC, the risk of a fatal outcome is 5-7 times higher, and the economic damage for the country from this group of infections is 10-15 billion rubles per year [2]. In the Ryazan region from 2012 to 2014, 1120 cases of IRMC were registered, with more than half (623 cases) of all IRMCs occurring in obstetric hospitals [3]. Economic damage only from IRMC newborns and puerperas for the Ryazan region in 2015 is about 874,385 rubles. It should be noted that the economic damage caused by the IRMC in case of epidemiological trouble grows many times due to the fact that in addition to the costs of treatment, the costs of conducting an epidemiological investigation and a set of preventive and anti-epidemic measures are added [4, 5].

Responsibility for quality medical care in the matter of population reproduction is largely due to the establishment of the obstetric and gynecological profile [6]. Provision of epidemiological safety is realized through the epidemic process control system, one of the components of which is epidemiological surveillance, including the identification, registration and registration of IRMC [7]. At the same time, monitoring of infectious morbidity, as an element of epidemiological surveillance, should ensure dynamic monitoring of the state and changes in the course of the epidemic process [8].

The relatively wide spread of IRMC among patients in maternity hospitals, a significant risk of deaths, significant economic losses from this group of diseases, indicate the continuing relevance of the IRMC problem among newborns and puerperas, and accordingly the necessity of justifying the correction of their prevention measures, taking into account the specific morbidity of this pathology in modern conditions.

Materials and methods of research. The data of the FBU "Center for Hygiene and Epidemiology in the Ryazan Region" were used in the work. Statistical processing was carried out using the MS Excel 2013 software package.

Results and discussion. The incidence of IRMC puerperas in the period from 1999 to 2017 fluctuated over a wide range - from 0.9 ‰ ($m = \pm 0.3$ ‰) to 4.5 ‰ ($m = \pm 0.6$ ‰). The average annual incidence rate for 19 years was 2.5 ‰ ($m = \pm 0.3$ ‰). The average annual rate of increase in the incidence rate for the analyzed period is 3.2%, which indicates a moderate tendency towards an increase in the incidence rate.

Incidence rates among newborns in the same period are significantly higher than those among puerperas and fluctuate with a larger amplitude from 3.7 ‰ ($m = \pm 0.2$ ‰) to 23.1 ‰ ($m = \pm 1.2$ ‰). The average annual incidence of IRMC of newborns is 3.6 times higher than that of puerperas and is 9.0 ‰ ($m = \pm 1.3$ ‰).

The dynamics of neonatal morbidity, unlike puerperas, has a pronounced tendency to decrease, with an average annual growth rate of -8.6%.

Nosological structure of IRMC of puerperas in 2005-2017. characterized by the prevalence of postpartum endometritis, which accounts for 90.3% ($m = \pm 1.5\%$) of all nosological forms of IRMC, the proportion of infections in the surgical intervention area is 6.1% ($m = \pm 1.2\%$), the smallest shares account for mastitis and generalized infections (sepsis, peritonitis) - 1.8% ($m = \pm 0.7\%$).

In the nosological structure of IRMC of newborns, diseases such as conjunctivitis-32.3% ($m = \pm 1.6\%$), omphalitis-24.6% ($m = \pm 1.4\%$) and pneumonia-19.4% ($m = \pm 1.3\%$), much smaller shares fall on acute respiratory diseases - 9.4% ($m = \pm 1.0\%$), skin and subcutaneous tissue infection - 7.0% ($m = \pm 0.9\%$), acute intestinal infections - 5.1% ($m = \pm 0.7\%$), generalized infections (sepsis, meningococcal sepsis, osteomyelitis) - 1.6% ($m = \pm 0.4\%$), urinary tract infections - 0.6% ($m = \pm 0.3\%$).

The presented nosological structures are dominated by infections with a predominantly contact transmission mechanism, which emphasizes the paramount role of hand hygiene in medical personnel and patients for the prevention of IRMC.

The bacteriologic confirmation of the IRMC of the puerperas was 61.0% ($m = \pm 2.5\%$). Among the pathogens IRMC of the puerperas, the representatives of the Enterobacteriaceae family, whose proportion was 40.1% ($m = \pm 2.5\%$), are dominated by this group of microorganisms in the etiologic structure, in most cases they are represented by *E.coli*, moreover, they occur with equal frequency representatives of the genera *Enterobacter* and *Klebsiella*, less frequently *Citrobacter*. The second most frequent are bacteria of the genus *Enterococcus*, their share is 20.1% ($m = \pm 2.3\%$), a slightly smaller proportion is in *S. aureus* - 18.4% ($m = \pm 2.3\%$). Also a significant place in the etiologic structure belongs to coagulase-negative staphylococci, the main representative of which is *S.haemolyticus*, their share is 17.3% ($m = \pm 2.2\%$). A significantly smaller role in the aetiology of the IRMC of the puerperas belongs to fungi of the genus *Candida* (2.4%, $m = \pm 0.9\%$), non-fermenting gram-negative bacteria represented by *P. aeruginosa* (1.0%, $m = \pm 0.6\%$), and bacteria of the genus *Streptococcus* (0.7%, $m = \pm 0.5\%$).

From infants with IRMC, the flora was isolated somewhat less frequently than from puerperas - in 55.0% ($m = \pm 2.8\%$) of cases. In contrast to the etiologic structure of IRMC, *S. aureus* puerperas occur in almost half of infants with IRMC (46.1%, $m = \pm 2.0\%$). The second ranking place in the etiologic structure belongs to the bacteria of the Enterobacteriaceae family, which share is 29.2% ($m = \pm 1.9\%$), most of the bacteria in this group are *E.coli* and *Klebsiella*. The third place is occupied by coagulase-negative staphylococci with a share of 12.9% ($m = \pm 1.4\%$), this group of microorganisms is practically completely represented by *S.epidermidis* and *S.haemolyticus*. On the bacteria of the genus *Enterococcus*,

there is a much smaller proportion than in the etiological structure of the IRMC of the puerperas; among newborns, they occur in 6.4% ($m = \pm 1.0\%$) cases. The least shares in the etiologic structure are attributable to non-fermenting gram-negative bacteria (2.3%, $m = \pm 0.6\%$), which in addition to *P. aeruginosa* are *B. cepacia* and *Acinetobacter*; bacteria of the genus *Streptococcus* (2.0%, $m = \pm 0.6\%$); fungi of the genus *Candida* (1.0%, $m = \pm 0.4\%$).

Conclusions.

1. Newborns are more likely than infants at risk of developing IRMC, while the dynamics of the incidence of IRMC in women in the Ryazan region over the past 19 years has a moderate upward trend, and the dynamics of the incidence of IRMC of newborns has a marked downward trend.

2. Postnatal endometritis predominates in the nosological structure of incidence of IRMC puerperas. The nosological structure of the incidence of newly born IRMC is mainly represented by conjunctivitis, omphalitis and pneumonia.

3. The leading pathogens IRMC among the puerperas are the bacteria of the Enterobacteriaceae family, the bacteria of the genus Enterococcus and *S. aureus*. Among the infants IRMC of newborns is dominated by *S. aureus*, bacteria of the Enterobacteriaceae family and coagulase-negative staphylococci.

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领土特征在俄罗斯欧洲部分中心的发病率hantavirusny感染
**Territorial features morbidity hantavirusny infections in the Centre of
the European part of Russia**

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汉坦病毒感染在现代世界中广泛存在，导致患有肾综合征出血热（HFRS）和汉坦病毒肺综合征（HPS）等疾病的人的发病率。本文介绍了HFRS在俄罗斯欧洲部分地区的气候和地理条件不同的流行病学特征，同时考虑了动物流行病监测的数据。

关键词：自然病灶感染，汉坦病毒感染，发病率，流行病学。

Annotation. *Hantavirus infections are widespread in the modern world, causing the incidence of people with such nosologies as hemorrhagic fever with renal syndrome (HFRS) and hantavirus pulmonary syndrome (HPS). The epidemiological features of HFRS in the areas of the center of the European part of Russia, differing in climatic and geographical conditions, taking into account the data of epizootological monitoring, are presented.*

Keywords: *natural focal infectious diseases, hantavirus infections, incidence, epidemiology.*

In the Russian Federation, cases of diseases of the HFRS population are recorded annually, the epidemic situation for this natural focal zoonotic infection is characterized by high rates of incidence with a predominant lesion of persons of working age and significant socioeconomic losses [1,2,4]. Since the beginning of the official registration of HFRS in Russia, more than 250 thousand cases of diseases have been identified. A significant part - 80% of all cases, annually marked on the territory of the European part of the country. Epidemic manifestations of HFRS have territorial differences, which are determined by a number of factors, with particular importance to the intensity of the circulation of hantaviruses in the outbreak, the landscape-geographical proximity of the terrain and the degree of

population's contact with natural foci [3,5,6,8].

The center of the European part of Russia is located mainly in the southern taiga and forest-steppe natural and climatic zones. In this paper, the southern taiga zone is represented by the Moscow region, the forest-steppe zone by the Tula region, and the region located equally in both natural zones is the Ryazan Region [7].

Materials and methods. The materials used by the Department of Rospotrebnadzor and FBUZ "Center for Hygiene and Epidemiology" in the Moscow, Ryazan and Tula regions were used:

- forms of the Federal State statistical supervision "Information on infectious diseases" for 1992-2016: №1 (annual), №2 (monthly, annual);
- state reports "On the state of sanitary and epidemiological welfare of the population" in Moscow (2005-2016), Ryazan (2012-2016) and Tula (2000-2016) regions.

Statistical processing of data was carried out using the software packages Microsoft Excel 2010 and Statistica 6.0 in the operating system Windows 7.

Quantitative changes in incidence of HFERS in the long-term dynamics were calculated using the average growth rate (Tpp.pr.). The homogeneity of the statistical population under study was estimated by calculating the coefficient of variation of the mean index (V).

The relationship between the signs was analyzed using the Pearson criterion for parametric data (r). The degree of correlation was estimated as:

- weak at a correlation coefficient of 0.1 to 0.29;
- moderate at r from 0.3 to 0.69;
- strong at a coefficient value of 0.7 to 1.0.

The correlation coefficient was considered reliable for the Student's criterion ($t > 3$).

Results and discussion. The incidence of HFERS in the Moscow Region over the period under study does not exceed the national average (5.2 ± 0.6) and averages 0.2 ± 0.1 per 100 000 population, while a low incidence rate shows a pronounced upward trend ($T_{avg} = 7.0\%$).

The level of incidence of HFERS during the 25-year period ranged from 0.01 per 100 000 population in 1996 to 0.40 in 2014 ($V = 50\%$) (Figure 1). The dynamics of incidence is represented by 6 periods of significant rise in its level and 4 periods of decline. Thus, high incidence rates were registered in 1997 - 0.30 per 100 000 population, in 2003 - 0.31, in 2007, - 0.28, in 2009 - 0.37, in 2014 - 0.40 and in 2015. - 0.34. Reduction of incidents occurred in 1994. - 0.01 per 100 000 population, in 2006 - 0.12, in 2008 - 0.23 and in 2011. - 0.22.

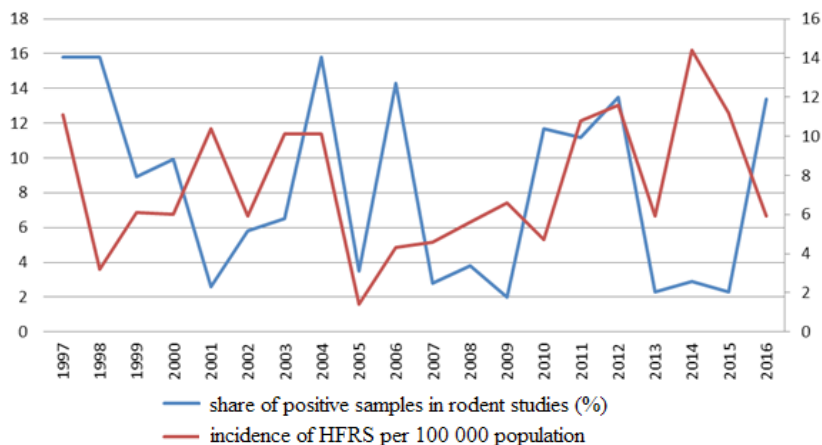


Figure 1. The dynamics of the incidence of HFRS, per 100 000 population

During the observation period, many-year variations in the incidence rate were recorded with intervals of incidence rise of about 6-7 years.

The average for 25 years of the incidence of the population of the Ryazan region of the HFRS is 3.8 ± 1.1 per 100 000 population, which also does not exceed the average national average, while there is a moderate tendency to its growth ($T.p. = 3.9\%$).

During the study period, the incidence of HFRS ranged from 0.2 per 100 000 population in 1996. to 7.54 in 2007. ($V = 51.3\%$). There are 6 periods of a significant rise in the incidence level: in 1997, - 4.3 per 100 000 population; in the year 2004. - 5.1; in 2007 - 7.5; in 2011. - 6.2, in 2014. - 6.2 and in 2015. - 6.6, and the same number of decreases: in 1993. - 1.2 per 100 000 population; in 1995. - 1.1; in 1996. - 0.2; in 2006 - 1.9; in 2010. - 2.6 and in 2013 - 3.6. Attention is drawn to the significant depression of the incidence of HFRS in 1996 and 2006.

The periodic increase in the incidence of HFRS in the Ryazan region occurs on average every 4-5 years. The most pronounced cyclical fluctuations in incidence were observed in 1992, 1997, 2004, 2007, 2011, 2014 and 2015.

The average annual incidence of HFRS in the Tula region, in contrast to the other two oblasts, exceeds the all-Russian index, amounting to 6.9 ± 1.2 per 100 000 population, while it shows a moderate tendency to further growth ($T.p. = 2.7\%$).

The incidence of HFRS in this region has values from 1.3 to 100 000 in 1995.

to 14.4 in 2014. ($V = 48.7\%$). The dynamics of incidence is represented by 6 up-lifts of its level: in 1993, - 7.0 per 100 000 population; in 1997, - 11.1; in 2001, - 10.3; in 2003 and 2004 - by 10.1, in 2011, 2012 - 10.7 and 11.6 respectively, in 2014, respectively. - 14.4, and 5 recessions: in 1995, - 1.3 per 100 000 population; in 1998, - 3.2; in 2005 - 1.4; in 2010, - 4.8 and in 2013 - 5.8.

In general, in the region for the period 1992-2004. Cyclic fluctuations in the incidence rate are observed with increasing incidence of HFRS approximately every 4-5 years. In 2005 there is a significant depression of the incidence rate. Interestingly, a similar decrease in the incidence occurred in 1995. The main difference of these years is that since 2005 the marked cyclicity of incidence has been lost, and from 2005 to 2010, the influence of periodically acting factors on the formation of the incidence of HFRS in the region did not exist at all.

From the data presented, it can be seen that HFRS is essential for all areas studied. At the same time the incidence rate increases in the direction from the north to the south - from the southern taiga climatic-geographical zone to the forest-steppe zone. The highest incidence of this nosology is registered in the Tula region, the lowest - in the Moscow region. In all the regions studied, there is a trend towards an increase in the incidence rate.

The dynamics of morbidity has a pronounced cyclical nature. It is typical to increase the incidence of morbidity from the south to the north: 4-5 years in the Tula and Ryazan Regions, 6-7 in the Moscow Region. At the same time, there are periods of increase in the incidence rate, largely coinciding in three areas - in 1997, 2001, 2003-2004, 2011, 2014. A similar picture indicates the existence of general mechanisms for the activation of natural foci of HFRS in the regions studied. The expressed depression of a level of morbidity with an interval in 10 years is of interest: in 1995 and 2005 in territory of the Tula area and in 1996 and 2006 - in the Ryazan region.

The intra-annual dynamics of the incidence of HFRS also changes when moving from south to north: a seasonal increase in the incidence rate in the Tula region - from July to December, the maximum number of cases falls on August and autumn months; in the Ryazan region - in the period from August to January, the greatest number of cases occur in October and December; in the Moscow region - from September to January, and the greatest number of cases is registered in November and January.

In order to study the causes and patterns of the epidemic situation in the regions of the European part of Russia in the regions of the European part of Russia, a correlation analysis was made between the level of the incidence of the population with this nosology and the rates of infection with hantaviruses of rodents in the Ryazan and Tula regions.

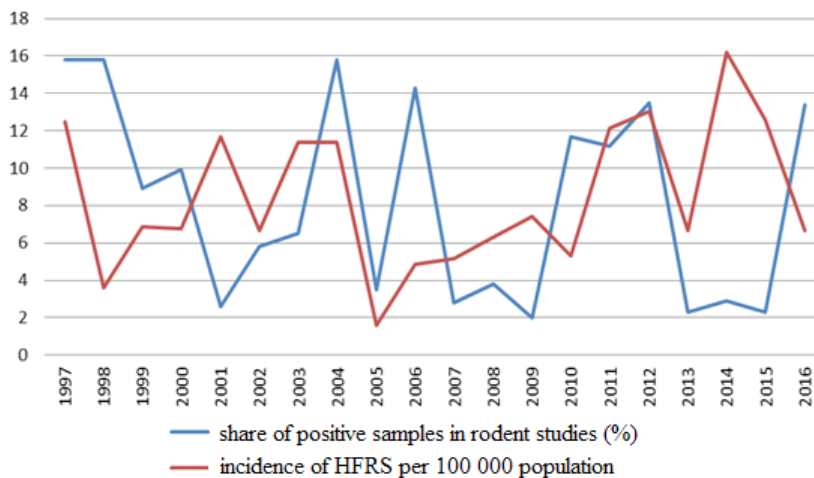


Figure 2. Results of serological studies of rodents and incidence rates of HFRS in the Ryazan region

In the Ryazan region, the incidence of HFRS throughout the follow-up period (1992-2016) directly depends on the rodent infestation rate - the correlation coefficient is $+0.6$ ($m = 0.13$) (Figure 2). The dynamics vector of the phenomena under study coincides and is characterized by a tendency to increase. In the Tula region, no such relationship was found. But in this region, the peculiarity of the morbidity dynamics lies in the fact that its level basically repeats the fluctuations in the index of rodent infection with a shift of 1 year, which differs sharply from the situation in the Ryazan region (Figure 3).

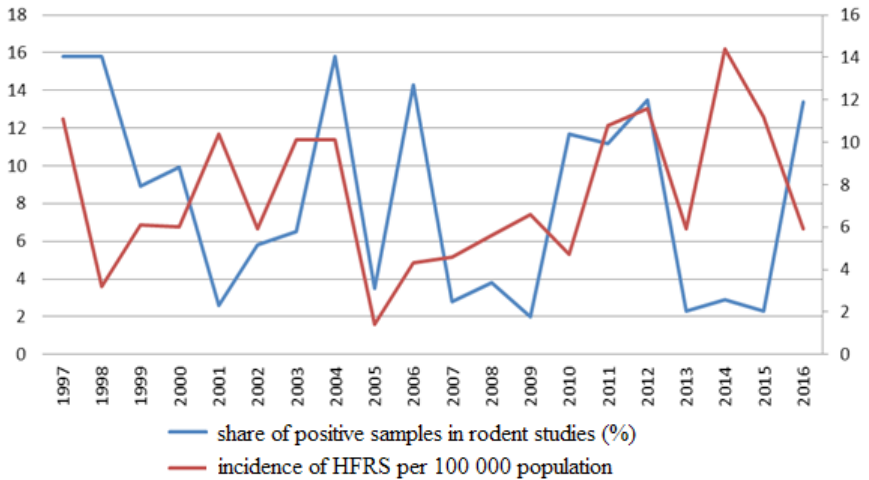


Figure 3. Results of serological studies of rodents and incidence rates of HFRS in the Tula region

Conclusions:

1. Hemorrhagic fever with renal syndrome is an actual hantavirus infection for the Moscow, Ryazan and Tula oblasts, as evidenced by the observed annual increase in the incidence of HFRS in these regions.
2. There is a definite dependence of the incidence level on the territory belonging to a particular physical and geographical area: the morbidity rate increases from north to south from the southern taiga natural and climatic zone to the forest-steppe zone.
3. One of the determining factors indicative of the prognosis of the complication of the epidemiological situation according to HFRS is the increase in the infection of rodents with hantaviruses.

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参数化激活函数对CNN模型的影响 Effect of Parameterised Activation function for CNN model

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卷积神经网络（CNN）的一个重要特征是激活函数。它可以是隐藏的形式或开放的。本文重点研究了Sigmoid, ReLU和TanH激活函数的广义形式及其对CNN基本线性模型的影响。

关键词：CNN, DNN, ReLU, tanh, S形

Annotation. One of the significant characteristic of convolutional neural network(CNN) is activation function. It can be in the hidden form or open. This article focusses on generalised form of Sigmoid, ReLU and TanH activation function and their effect on some basic linear model of CNN.

Keywords: CNN, DNN, ReLU, tanh, sigmoid

1. Introduction.

The advent of CNN is modifying the scenario of computer vision. In a typical CNN architecture, some set of functions can be parametrised for the forward operation and hidden layer of CNN can approximate any function arbitrarily [3]. In this paper, we study the use of parameterised activation function with some learnable parameter on the basis of non-linearity and linearity.

2. Parametrisation

2.1 Parameterised TanH Function

$$f(a) = \tanh(\beta_1 + \beta_0 \sum_j v_{i,j} a_j) \quad (1)$$

we denote equation (1) as $\tanh(\beta_1, \beta_0 \cdot v)$.

Where β_0 & β_1 must satisfy certain conditions for convergence.

2.2 Parametrised sigmoid function

$$f(a) = \mu \frac{1}{1 + e^{-\alpha a + k}} \quad (2)$$

where $|\mu|$ is maximum value of $|f(a)|$, it also effects on scaling of the functions.

α controls steepness of the curve and k is horizontal displacement to $f(a)$.

We denote equation (2) as $\text{sigmoid}(\mu, \alpha, k)$.

2.3 Parameterised ReLU

$$f(a) = \{\gamma \cdot a \text{ if } (a \leq 0), \eta \cdot a \text{ if } (a > 0)\} \quad (3)$$

Where γ and η are real valued scaling factors for positive and negative parts [4].

We denote equation (3) as $\text{ReLU}(\gamma, \eta)$.

3 Experimental output

We used these parametrised activation in CNN MNIST (tensor flow). After using all these activation function in dense layer, we got some improvement.

Result of tanh function is listed in Table 1.

Table 1: Accuracy after using tanh

ID	Activation function	Accuracy before	Accuracy after
1	$\tanh(\beta_1, 0, v)$	88%	91%
2	$\tanh(0, \beta_0, v)$	88%	90%
3	$\tanh(0, 1, v)$	88%	92%

Result of sigmoid function is listed in Table 2.

Table 2: Accuracy after using sigmoid

ID	Activation function	Accuracy before	Accuracy after
1	$\text{Sigmoid}(\mu, 1, 0)$	90%	90.8%
2	$\text{Sigmoid}(1, \alpha, 0)$	90%	91.6%
3	$\text{Sigmoid}(1, 1, k)$	90%	92%

Result of ReLU function is listed in Table 3.

Table 3: Accuracy after using ReLU

ID	Activation function	Accuracy before	Accuracy after
1	$\text{ReLU}(\gamma, 0)$	92%	92.6%
2	$\text{ReLU}(0, \eta)$	92%	92.5%
3	$\text{ReLU}(\gamma, \eta)$	92%	93%

During training of these functions for some specific parameter, we get step and logistic function.

3 Conclusion

Use of parameterised activation function improved the accuracy rate in all three cases. In the case of tanh the difference is about 4% and in ReLU we have best accuracy rate. In the future it can be modified for some another DNN(deep neural network) or CNN model.

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光缆中的张力
Tension in an optical fiber cable

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在现代世界中，信息在人类生活中起着巨大的作用。因此，在短时间内以最小的损失高质量地传输信息是信息通信技术领域的主要任务。所有现有通信手段中的最高带宽都有光纤。但是当使用光纤时，会出现问题，其中之一就是光缆的张力。

关键词：光纤，布里渊反射计，光纤张力。

Annotation. *In the modern world, information plays a huge role in human life. Therefore, the transfer of information in high quality in a short time with a minimal amount of losses is the main task in the field of infocommunication technologies. The highest bandwidth among all existing means of communication has optical fiber. But when using fiber, problems arise, one of which is the tension of the optical cable.*

Keywords: *optical fiber, Brillouin reflectometry, optical fiber tension.*

Each optical cable has a limiting value of tension and if it is exceeded, it will be difficult to keep the technical characteristics of the fibers. The magnitude of the longitudinal tension (elongation) of the optical fiber in the optical cable is an important parameter that must be taken into account in its production, laying and operation. The permissible loads on the optical fiber are determined conditionally: this is the load of the «KSN», in which the extension of the self-supporting cable should not cause the "rectification" of the optical fiber before its breakage. In order to have a margin along the length, the optical fibers inside the module are not spirally arranged, but spirally. If the cable starts to pull, then the spiral straightens, while still working. Even after full rectification, the optical fiber continues to work without loss of properties. However, further tension will lead to a change in its geometry and structure. The optical cable is tested for tensile load resistance in accordance with the requirements of IEC 60794-1-2: 1999 /

The task of the service engineer as soon as possible to detect the critical tension in the optical cable, find out on what length and fix the problem. Consequently, we need a device that measures the tension of the optical fiber.

Measurement of the tension of optical fibers is carried out using the method

of Brillouin reflectometry. This is practically the only optical method that allows you to measure the absolute tension of a fiber. To do this, it is sufficient to measure the frequency of the maximum signal in the Brillouin scattering spectrum, and the fiber will not be subjected to additional voltage.

Brillouin scattering leads to the formation of a backward wave in the fiber. Therefore, probing the fiber with short pulses and scanning the carrier frequency of these pulses, one can find the distribution along the fiber of the Brillouin scattering

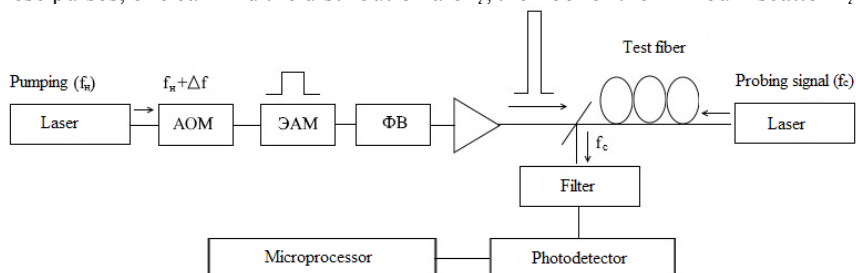


Fig. 1 - Scheme of the Brillouin analyzer (BOTDA)

f_c – frequency of the probing signal;

AOM – acousto-optical modulator;

Δf - frequency offset, which is created by an acousto-optical modulator

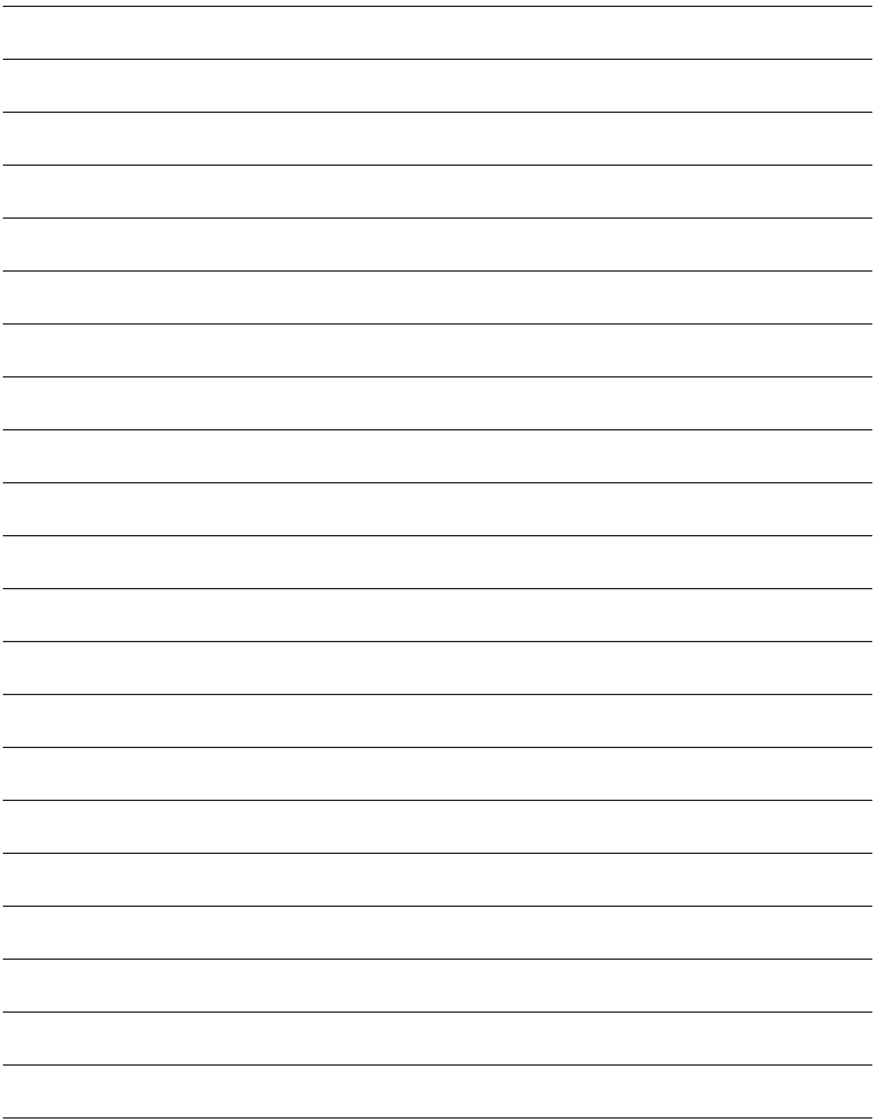
ЭАМ - electroabsorption modulator, for amplitude modulation;

ΦB – Farad'ev rotator (to eliminate fading in front of the optical amplifier, periodically changes the polarization state of the radiation passing through it)

For each pump frequency $f_i + \Delta f$ a reflectogram is taken, which ultimately allows obtaining a three-dimensional distribution of the Brillouin amplification spectrum along the fiber. Further along the distribution along the fiber of the frequency corresponding to the maximum of the Brillouin amplification, the tension distribution along the fiber.

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