



SCIENTIFIC RESEARCH OF THE SCO COUNTRIES: SYNERGY AND INTEGRATION

上合组织国家的科学研究：协同和一体化

Proceedings of the
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参与者的英文报告

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“Scientific research of the SCO
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Part 2 - Participants' reports in English

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

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These Conference Proceedings combine materials of the conference – research papers and thesis reports of scientific workers. They examine technical and sociological issues of research issues. Some articles deal with theoretical and methodological approaches and principles of research questions of personality professionalization.

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



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CONTENTS

ECONOMICS

- 社会人口特征对领导者形象的影响。 图像基础
Impact of socio-demographic traits on leader's image. Image basis
*Korshunova Natalia Evgenievna, Shataeva Olga Vladimirovna,
Akimova Elena Nikolaevna*.....11

JURISPRUDENCE

- 违反兽医法规，建立的控制植物病虫害的法规以及保护水生生物资源的法规：
确定侵害主体的问题
Violation of veterinary rules, rules established to control plant diseases and
pests, as well as rules for the protection of aquatic biological resources: issues of
determining the subject of encroachment
Golubev Stanislav Igorevich.....16
- 违反《无线电规则》关于参与共享建筑的法规的要求，在《刑法》中引入吸引
公民金钱的罪行的背景介绍
Background introduction in the criminal code of the offense for attracting monetary
funds of citizens in violation of the requirements of RF legislation on participation
in shared construction
Terekhov Alexey Yurievich.....23

PEDAGOGICAL SCIENCES

- 媒体教学法的基本概念-网络人格
The basic concept of media didactics - network personality
Monakhova Lira Yulevna, Riabokon Elena Aleksandrovna.....31
- 多元艺术方法作为提高中国学生钢琴演奏水平的一种手段
Poly-artistic approach as a means of improving the piano training of students of
the People's Republic of China
Guan Cong, Krasovskaya Elena Pavlovna.....38
- 为小学生教授“技术”科目的特点
Features of teaching the subject "Technology" for primary school students
*Ismailov Gafurzhan Mamatkulovich, Lomovskaya Sofia Anatolyevna,
Nevinitsyna Victoria Sergeevna, Tursunbaev Nurulla Tursunbaevich*.....46

俄国教育管理中项目活动法的国家性质 The state-public nature of the project-activity approach in the management of Russian education <i>Budaeva Tatiana Tchagdurova</i>	52
比较分析在教师和音乐家的专业培训中电子教育资源的引入，以数字方式支持中俄两国的教育进程 Comparative analysis of the introduction of electronic educational resources in the professional training of a teacher-musician as a digital support for the educational process in China and Russia <i>Liu Qun, Osenneva Marina Stepanovna</i>	63
在“嘻哈”舞蹈的基础上发展5-7岁儿童的运动能力 Development of motor abilities in children 5-7 years old on the basis of the "Hip-Hop" dance <i>Snigur Marina Evgenievna, Streltsova Ekaterina Romanovna</i>	70

PHILOLOGICAL SCIENCES

书面体英语文本的语言风格特征（关于S. Achern的著作） Linguostylistic Features of English Texts of the Epistolary Genre (on the Material of the Work by S. Achern) <i>Bulaeva Natalya Evgenyevna, Straykova Ekaterina Eduardovna</i>	74
标题是文学作品中前景的要素（关于科幻小说的材料） Title as an element of foregrounding in a literary work (on the materials of science fiction) <i>Bulaeva Natalya Evgenyevna</i>	78
单位的情感语义及其从汉语到俄语的翻译 Emotive semantics of units and their translation from Chinese into Russian <i>Ma Jian</i>	83
将“人家”一词翻译成俄语的一些功能 Some features of the translation of the word "人家" into Russian <i>Bogdanova Nadezhda Andreevna, Solntseva Elena Georgievna</i>	90
俄国古典修辞学对话语质量的要求 Requirements for the qualities of speech in classical Russian rhetoric <i>Wen Suya</i>	95
二十世纪的俄罗斯商人：从人格特质到言语品质 Russian businessman in the XIX century: from personality traits to speech qualities <i>Yi Huihui</i>	102

PHILOSOPHICAL SCIENCES

全球文化资本与教育系统中的知识经济学

Global cultural capital and the economics of knowledge in the system of education
Andreeva Svetlana Mikhailovna, Andreeva Anna Mikhailovna.....108

HISTORICAL SCIENCES

COVID-19大流行对聚类过程的影响

Impact of the COVID-19 pandemic on the clustering process
Senutkina Olga Nicolaevna, Luppov Maxim Andreevich.....115

中国：从上海合作组织领导到世界领导

PRC: from the SCO leadership to the world leadership
Syzdykova Zhibek Saparbekovna.....119

PSYCHOLOGICAL SCIENCES

青少年内感和怨恨的性别差异

Gender differences of guilty conscience and resentment in adolescents
Lebedeva Marina Vladimirovna, Verbina Galina Georgievna.....124

PHARMACEUTICAL SCIENCES

伏安法测定间苯二酚钠

Voltammetric determination of Metamizole sodium
Zherebtsova Eugenia Yuryevna, Terentyeva Svetlana Vladimirovna, Shinko Tatiana Gennadievna.....130

TECHNICAL SCIENCES

采矿和建筑业的研究与创新

Research and innovation for the mining and construction industries
Ushakov Leonid Semenovich.....135

缺乏深海北极油气田水下开发的替代方案

The lack of alternatives for underwater development of deep-sea Arctic oil and gas fields
Huseynov Chingiz Saibovich.....140

关于国防企业基地的信息资源

On information sources for base of defense enterprises
Akinshin Anatoly Anatolievich, Dybenko Alexey Nikolaevich, Polak Yuri Evgenievich.....146

针对个人营养的矫正目标饮食

Corrective targeted diets for personalized nutrition
Vasyukova Anna Timofeevna, Kononenko Marina Mikhailovna, Kulakov Vladimir Gennadievich.....151

钻铣夹头的形态合成	
Morphological synthesis of drill-milling chucks	
<i>Gao Xingmin, Kuznetsov Yurii Nikolayevich</i>	156

当需要通过增加压力管道中的势能来防止反向水流和减轻水力冲击时，启动和停止抽水设备的工艺流程	
Technological process of starting and stopping pumping equipment when it is necessary to prevent reverse water flow and dampen hydraulic shock by increasing the potential energy in the pressure pipeline	
<i>Shiryayev Vadim Nikolaevich, Urzhumova Yulia Sergeevna, Trushev Valery Valerievich, Tarasyants Sergey Andreevich</i>	162

能量饱和和非均质复合材料结构形成的理论基础	
Theoretical foundations of structure formation of energy-saturated heterogeneous composite material	
<i>Aleh K. Kryvanos, Aliaksandr Ph. Ilyushchanka, Yauheni Ya. Piatsiushyk</i>	168

AGRICULTURAL SCIENCES

不同品牌干粮喂养对服务犬生长发育的影响的比较特征	
Comparative characteristics of the effectiveness of feeding dry food of different brands on the growth and development of service dogs	
<i>Nikulin Yuri Petrovich, Tsoy Zoya Vladimirovna, Nikulina Olga Azgatovna</i>	175

滨海边疆区的喂食服务犬分析	
Analysis of feeding service dogs in the Primorsky region	
<i>Tsoy Zoya Vladimirovna, Nikulin Yuri Petrovich, Nikulina Olga Azgatovna</i>	179

去势对公牛肉生产率的影响	
Effect of castration on meat productivity of bulls	
<i>Nikulina Olga Azgatovna, Nikulin Yuri Petrovich, Tsoy Zoya Vladimirovna</i>	183

罗斯托夫州灌溉土地上甜菜栽培的资源节约技术特点	
Peculiarities of resource-saving technology of table beet cultivation on the irrigated lands of Rostov Oblast	
<i>Mikheev Nikolay Vasilyevich</i>	187

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, Belarus, Kazakhstan, Azerbaijan, Kyrgyzstan).

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

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

Fan Fukuan,

Chairman of the organizing committee of the conference

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

Full Professor, Doctor of Economic Sciences

前言

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

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

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

范福宽，
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”

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社会人口特征对领导者形象的影响。 图像基础
**IMPACT OF SOCIO-DEMOGRAPHIC TRAITS ON LEADER'S IMAGE.
IMAGE BASIS**

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在本文中，我们将分析领导力的要素和形象塑造的原则。 现代世界处于不断变化的状态。 人的一生变成了争夺“阳光下的地方”，在那里只有最强大的人才能生存。 领导者与众不同的素质是什么，要取得成功而不失去下属的信任，您需要发展什么？ 显示有关学生对领导者形象的看法的调查结果。

关键字：领导元素，形象塑造原则，从学生的角度看领导形象

Annotation. *In this paper we will analyze the elements of leadership and principles of image building. Modern world is in the state of constant change. Person's life turns into a fight for "a place in the sun" where only the strongest survive. Which qualities set leader apart from the masses, what do you need to develop to be successful and not lose trust of your subordinates. Showcased results of survey on students' opinion about leader's image.*

Keywords: *leadership elements, principles of image building, leader's image from students' point of view.*

We are all living in the modern world that abides by its laws. It dictates us its terms, rules of behavior, which are difficult to adjust to. Human life turns into a race, fight for «a place in the sun» where only the strongest survive and take everything. Instinctively people are always going to be attracted and follow more successful and enterprising individuals. Early studies were aimed at trying to reveal those qualities that would distinguish «great people» in history from the rest.

Researchers believed that leaders had some unique set of fixed and established qualities that separated them from common people [3]. Due to that many questions have arisen: Which philosophy helps attaining successful career? What separates a leader from the faceless mass of people? Which traits make person a leader? What knowledge and skills are necessary for that?

In the beginning of XX century, an American sociologist Emory Bogartus listed a dozen of qualities necessary for being a leader: sense of humor, tact, foresight, ability to attract and hold attention, likeability, being ready to take responsibility and so forth. He believed intelligence, energy and character to be the main qualities that make a leader.

In 1948 his fellow countryman Ralph Stogdill compiled the results of a variety of studies and named as many as 124 traits of a leader. He tried to prove that a leader needs to have a higher intellect than people surrounding him. Though he was met with disagreement: in business higher intelligence does not guarantee success. Other qualities also play a big role, for instance, dedication.

According to an English writer C. Northcote Parkinson there are six main elements of leadership, that are possible to acquire through learning and practice.

The first element is imagination. If you need to create, build, move or organize something, you should clearly see the desirable outcome. For that you need to imagine something that doesn't exist yet. That image, a mental picture, consists of real things, that we witnessed at some point, but changed and adjusted as needed.

The second element is knowledge. It's necessary in order to plan the path to achieve a goal that imagination has pictured. Knowledge gives leader confidence.

The third element is talent. There is a difference between talent and skill. A skillful person is someone able to do with easy something that would be difficult for other people. But go ascend beyond that, organizing work of other people, a talent is needed. A talented person controls the situation.

The fourth element is determination. It is something more than a strong desire to succeed. Determination consist of three parts. Firstly, leader knows that a task at hand is within limits of human capabilities. Secondly, he believes that everything that needs to be done, will be done. And lastly, he needs to pass his conviction to others. His calm confidence will strengthen other members of the team.

The fifth is firmness. Probably not many are willing to accept it today, but the evidence shows success can only be achieved if you're ruthless to your opponents, idle and lazy people.

And finally, the sixth element is attraction. Leader needs to be a magnet, the central figure that everyone else will follow.

Nowadays image plays a major role. In particular, the crafted picture formed in social and individual conscious by means of mass media and psychological influence. Image is created by propaganda, advertisement with a goal to form a certain

attitude towards the subject in the mass conscious. It can incorporate real qualities of the object, as well as something made up. Business image specifically is projected for the benefit of an individual or a company, with attention to specifics of activity of internal and external factors [2].

In the foundation of image lie following principles:

a. Repetition principle, a trait of human memory: the more some information is repeated the best it is remembered. To internalize perceived information, people need time. Continuous repetition of information adapts people's mind;

b. Principle of ceaseless force of influence, i.e. increase of substantiated and emotional appeal. Due to that human sensory system resists spikes of information, a gradual increase of force is perceived more positively than sudden rise. And when the amount of information goes beyond limits, sensory channels block any coming information;

c. Principle of «double calling», that is perception not just on conscious, but also on unconscious level. Unconscious psychological processes, emotional area of human mind play crucial role in perception of information.

Proper manners are a very important part in creating business image of a modern leader. The way person conducts themselves creates a certain picture, displaying some personal traits that surrounding public either likes or disapproves of [1].

A leader, having to be a public person, needs to learn how to competently present himself in various situations, pay attention to his posture and body language. The way he moves should show confidence. As well as he needs to remember about assertive and friendly facial expression, expression in the eyes etc. All of these visual signals display specific emotions, thoughts and intentions. They define the key information about the person.

Another component of image of the modern leader is his speech and the sound of voice. There are certain recommendations for speech image as well. Technique, proper articulation, the tone of voice, ability to express thoughts in a clear and efficient way, well timed remark, skill to negotiate, ability to navigate the audience, confidence in public speaking — all of this are necessary signs of leader's professionalism, who needs to possess certain charisma, train himself and create some speaking field of influence. Although inner qualities are also equally important: mental balance, kindheartedness, loving life, emotional maturity and spirituality of a leader.

Another important thing in business life is leader's office. Interior can tell you a lot about how the company is doing. Every item in the office should neatly and logically «fit in» and showcase the status of its owner.

Not the least importance, also, pose physical qualities, such as height, weight, physique and appearance, energy and vitality. Although just being taller and bigger than most people in the group doesn't grant you a right to be the leader. History

shows that smaller people would go on to achieve big things and become influential figures in the world history, Napoleon, for example (barring the fact his height is still a matter for debate).

Ultimately, leader's image is affected by how his directive are understood and followed by subordinates. Perceived image of the boss can reinforce his ideas or, conversely, distort them. Another point – leader's influence is showing even in his absence. If he has proper reputation his subordinates will likely respect him and will not try to deceive or slack at the job even if their senior does not supervise them at the moment.

There was a small study on the chosen topic aimed to survey views of unemployed students. It included students from faculties of Sociology, Philosophy, Physics and Mathematics. They were offered to voice their opinion on the topic, with respect to certain positions.

Analysis of the collected information showed the following:

1. Preferred traits of a leader being: responsibility (85% of interviewed), commitment (60%), authoritativeness (57%), determination (50%), reserve (40%), discipline(25%), firmness (15%), sense of humor (10%).

2. Potential leader should speak foreign languages. Majority of students believed leader needs to know English (around 95%), the rest said it depends on the situation and field of work. In addition to English it's encouraged to know German (60%) and French (20%).

3. There's a place for honesty and dignity in modern business, believe 80% of interviewed. Business is a mirror of relationship between people, being courteous plays not the least role in getting a deal.

4. To the question of what exactly they're ready to do to become a leader, students said they're willing to learn, study for a second degree, raise their qualifications, get noticed on the job.

5. Although to the question of what they are willing to sacrifice, 45% replied «nothing». The rest were ready to sacrifice their free time, as long as it does not harm their relationships with their significant other. 5% said managerial positions do not interest them at all.

6. The absolute majority of the interviewed agreed that power corrupts a person. Such individual will become ruthless and lose themselves.

7. 67% believed that no goal should justify absolutely any means. The rest said that if you aim at leadership, and that is usually difficult, you need to be ready to overcome any obstacles on your path.

8. 73% thought that a potential leader should go through all steps of the career ladder. 17% disagreed, and 10% said it does not matter.

To sum it up, they came to the conclusion that as a leader, students picture an educated, strong-willed individual, that knows foreign languages. All the while, he

is honest and kind with strong moral principles.

To become a leader, first of all, there needs to be a desire for a higher position that not everyone has, since it also entails responsibility that comes with it, and taking risks.

Those who have certain ambitions and decide to try their hand at being a leader need to first give it a very good thought. They need to clearly understand advantages and the undersides of it. People follow the leader because he is able to satisfy their most important needs and direct them.

Power of a leader is based on knowing your subordinates, being able to control them, analyze the situation, assess immediate and long term consequences of their actions, give the group confidence, inspire them to do what needs to be done, since most often actions of subordinates are based on what's expected from them. Leader perfectly understands psychological traits of business partners, opponents, his seniors, and skillfully uses it in his interest. Persuading people he shows flexibility and is willing to compromise. But the true source of his power over people is independence, readiness to vacate his position at any time, since being a person to convey company's interest does not mean there is personal loyalty to him.

Ultimately, image of modern leader is mix of human traits and etiquette that needs to be complemented by strong character and natural determination.

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3. *How to be a leader. URL: <http://infomanagement.ru/referat/40/3> (accessed 10.07.20)*

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违反兽医法规，建立的控制植物病虫害的法规以及保护水生生物资源的法规：确定侵害主体的问题

VIOLATION OF VETERINARY RULES, RULES ESTABLISHED TO CONTROL PLANT DISEASES AND PESTS, AS WELL AS RULES FOR THE PROTECTION OF AQUATIC BIOLOGICAL RESOURCES: ISSUES OF DETERMINING THE SUBJECT OF ENCROACHMENT

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该条涉及与俄罗斯联邦《刑法》第249、257条有关的犯罪主体分配的正当性问题。在对环境保护领域的规范性法律行为进行分析的基础上，本文介绍了俄罗斯联邦刑法第249条规定的犯罪构成。司法实践中的例子说明了理论上的规定。该研究确定并证明了ka-causasia的立场，缺乏针对一般犯罪及其动物（家庭或野生）的犯罪选择对象的正式和事实依据，特别是针对犯罪分子第249条和第257条的情况 码。

关键词：环境安全，环境，兽医法规，植物有害生物，犯罪主体，环境犯罪。

Annotation. *The article deals with the issues of justification for the allocation of the subject of crime as such in relation to articles 249, 257 of the criminal code of the Russian Federation. Based on the analysis of normative legal acts in the field of environmental protection, the article describes the composition of the crime under article 249 of the criminal code of the Russian Federation. The theoretical provisions are illustrated by examples from judicial practice. The study identified and justified the position of the ka-causasia the lack of formal and factual grounds for the selection of the subject of crimes in General and his animals (domestic or wild) in particular in relation to article 249 and article 257 of the criminal code.*

Keyword: *Environmental safety, environment, veterinary regulations, plant pests, subject of crime, environmental crime.*

Describing the crime under part 1 of article 249 of the criminal code, O. L. Dubovik notes: "To establish the subject of the crime ... you must determine that:

a) an infringement is committed on one of the species of the animal (not plant) world;

b) encroachment is directed at the health of animals;

C) animal health is protected by rules, including those that prevent the spread of epizootic diseases»¹. Based on this, the author recognizes any kind of animal world as the subject under consideration.

E. N. Zhevlakov also considers the subject of domestic or wild animals².

A. V. Naumov and N. A. Iopashenko recognize veterinary regulations as such³. In addition to what has already been said about the scientific failure of such a position, we emphasize the inconsistency of the authors: considering the rules to be the subject of a crime, they at the same time refer them to the essence of the act specified in article 249 of the criminal code. It turns out a strange construction of the mechanism of causing damage to the object: violation of the rules in this case should affect the rules themselves, which can not be by definition.

However, the main problem with regard to the crime under consideration is not in different approaches to the characterization of its subject, but in General in the validity of its allocation. Many authors do not mention it when analyzing the crime under part 1 of article 249 of the criminal code.

In our opinion, the legislative description of the crime does not give grounds for highlighting the subject of this crime. This is evidenced, in particular, by the text of the criminal law. Part 1 of article 249 of the criminal code says: "Violation of veterinary rules that caused the spread of epizootics or other serious consequences...". Thus, according to the given wording of the criminal law norm, it is impossible to determine the circumstance under consideration: the mandatory signs are the act, its nature and the consequences of the crime. All other attributes are optional.

The position of the authors who single out the subject of a crime in violation of veterinary rules is unfounded not only for formal reasons, but also incorrect in essence, although the literature also contains the statement that "...the law does not designate the subject of a crime, but there is one in this composition – these are wild and domestic animals»⁴.

Such errors can be caused by misinterpretation of veterinary rules, which are normative legal acts in the field of veterinary medicine, i.e. in the field of scientific

1 Dubovik O. L. Environmental law: a textbook for University students / O. L. Dubovik. P. 269

2 See: Criminal law of the Russian Federation. Special part / ed. By I. E. Zvecharovsky, P. 415.

See also: Commentary on the Criminal code of the Russian Federation: scientific and practical (article-by-article) / ed. by S. V. Dyakov, N. G. Kadnikov, M., 2013, P. 637.

3 See: Naumov A.V. Russian criminal law, Vol. 3, P. 236; Iopashenko N. A. Environmental crimes: Commentary to Chapter 26 of the criminal code of the Russian Federation, Saint Petersburg, 2002, P. 250.

4 Commentary to the Criminal code of the Russian Federation: in 4 vols. (article by article) / ed. V. M. Lebedev, Vol. 3, P. 264.

knowledge and practical activities aimed at preventing animal diseases and treatment, producing full-fledged and safe veterinary products of animal husbandry, and protecting the population from diseases common to humans and animals⁵. It is clear from the legislative definition of veterinary medicine that its scope is not limited to the prevention of animal diseases and their treatment. This is even more evident from the legal nature of the nature of veterinary regulations. In article 2.1 Of the law of the Russian Federation "on veterinary medicine", they are presented as normative legal acts containing mandatory requirements for individuals and legal entities:

1) when carrying out preventive, diagnostic, therapeutic, restrictive and other measures, establishing and canceling quarantine and other restrictions on the territory of the Russian Federation aimed at preventing the spread and elimination of foci of infectious and other animal diseases;

2) when preparing veterinary accompanying documents, appointing and conducting veterinary and sanitary expertise, implementing measures to ensure veterinary safety in relation to catches of aquatic biological resources and products produced from them;

3) identification and registration of animals;

4) carrying out regionalization, epizootic zoning, determination of the zoosanitary status;

5) breeding, rearing, keeping, moving (including transportation and driving), turnover and slaughter of animals;

6) production, movement, storage and (or) turnover of animal feed and feed additives;

7) when moving, storing, processing, and disposing of biological waste (corpses of animals and birds, aborted and stillborn fetuses, veterinary seizures, and other waste unsuitable for human food and animal feed);

8) the nature, form, content and provision of information on these types of activities.

These rules are specified in a number of other laws and regulations, including:

Federal law No. 498-FZ of December 27, 2018 (ed. 27december 2019) "on responsible treatment of animals and amendments to certain legislative acts of the Russian Federation»⁶;

Veterinary and sanitary rules for the collection, disposal and destruction of biological waste, approved by order of the Ministry of agriculture and food of the Russian Federation No. 13-7-2/469 of December 4, 1995 (as amended on August

5 See: Law of the Russian Federation No. 4979-1 of may 14, 1993 (ed. from April 24, 2020) "on veterinary medicine" (article 1) // Vedomosti SND and VS RF. 1993. no. 24. St. 857; Sz RF. 2020. no. 17. Article 2725.

6 See. RAIN ПФ. 2018. No 53 (am. 1). Ct. 8424; 2019. No 52 (am. 1). Ct. 7765.

16, 2007)⁷;

Veterinary rules for import (export) to the territory of the Russian Federation, processing, storage, transportation, sale of animal products and products of their primary processing that have not been subjected to industrial or heat treatment, approved by order of the Ministry of agriculture of the Russian Federation No. 453 of October 6, 2008⁸, and others.

Thus, there are no formal or factual grounds for distinguishing the subject of a crime in General and reducing it to animals (domestic or wild) in particular. In the regulations referred to catch fish. In this case, it would be just as well to say that the victim is present in this crime as a sign of the object, since some diseases are common to both animals and humans.

Kukmor district court of the Republic of Tatarstan found guilty of committing a crime under part 1 of article 249 of the criminal code of the Russian Federation. When he found out that a recently purchased heifer was ill with anthrax, he decided to carry out its slaughter. F., who took part in the cutting of the carcass, injured his finger with a bone, which led to his infection with this disease⁹. B., according to his position, was obliged to monitor, in particular, the organization and conduct of veterinary and sanitary and anti-epizootic measures aimed at preventing diseases of animals common to them and humans. His negligent attitude to the performance of duties led to an outbreak of anthrax, infecting five rural residents. The Tselinny district court qualified his actions under part 1 of article 249 of the criminal code of the Russian Federation¹⁰. Violation of the veterinary rules of S. resulted in infection with brucellosis of 14,232 heads of animals and 13 people. He was convicted under part 1 of article 249 of the criminal code¹¹. In all these cases, as it appears from the materials of criminal cases, there were victims, but they are not a sign of the object of the crime.

Part 2 of article 249 of the criminal code of the Russian Federation refers to violations of the rules established for the control of plant diseases and pests that have caused serious consequences due to negligence. All the problems that were identified when determining the subject of the previous crime are applied to this feature and the crime under consideration. In the literature, the following range of opinions emerged on this issue: the subject of the crime should be recognized as "vegetation of all kinds: forest plantations, crops, gardens, garden vegetation, grasses, shrubs, etc. (E. N. Zhevlakov); "recognized natural properties of plants that are protected by the rules and can be violated as a result of disease or under the influence of plant pests" (O. L. Dubo-Vic); plants (L. G. Ovsepyan); rules for the

7 See: Rossiyskaya Gazeta. 1996. 22 February.

8 See: Bulletin of regulatory acts of Federal Executive authorities. 2008. № 47.

9 See: Case 1-77/2014 // <https://sudact.ru>

10 See: Case 1-95/2013 // <https://sudact.ru>

11 See: Case 1-3/2011 // <https://sudact.ru>

control of diseases and pests of plants (N. A. Iopashenko), etc. None of them can be considered justified. Without stopping this time on the last point of view, we will try to determine our position in relation to other approaches to establishing the subject of the crime. At the same time, we note that the criminal law norm under consideration is similar in its construction to the norm reflected in part 1 of article 249 of the criminal code of the Russian Federation. Consequently, the law does not contain any indication of this element of the crime, and it is not mandatory.

The factual side of the case is also different from what these and some other authors claim. First, let's pay attention to the violation of the logical series in the characterization of the subject in the interpretation of E. N. Zhevlakov. From the point of view of the Russian language, a garden is a plot of land planted with trees, bushes, flowers; a room in a house, building (winter garden), etc.¹², therefore, it is illegal to include it in the list of plants.

Federal law No. 206-FZ of July 21, 2014 (ed. from April 23, 2018) "on plant quarantine"¹³ establishes the concept of quarantine, which is defined as a legal regime that provides for a system of measures to protect plants and products of plant origin from quarantine objects, i.e. from harmful organisms that are absent or restricted in the territory of the Russian Federation¹⁴. Their list was approved by the Ministry of agriculture of Russia¹⁵. Thus, this law distinguishes both plants and products of plant origin.

Plant disease (infectious, problems of lack or excess nutrition, external conditions for light, wind or moisture) is a process that causes a violation of functions (photosynthesis, water flow, nutrients, etc.), the structure of the body and causes premature death of the plant or damage to its individual organs¹⁶. Plant pests are living organisms that have harmful effects on them or feed on them. Highlight: 1) monophages-eat a certain type of plant; 2) oligophages – prefer several species of plants that are related; 3) polyphages-eat a number of different cultures.

Protection of forests from harmful organisms is also carried out in accordance with the Federal law "on plant quarantine". At the same time, harmful organisms are understood as viable plants of any species, varieties or biological types, animals or pathogenic organisms of any species and biological types that can harm forests and forest resources. The latter include stocks of wood, fruits, berries, mushrooms, medicines, plants, as well as forage and hunting and fishing resources. According to article 11 of Federal law No. 209-FZ of July 24, 2009 (as amended). April 24,

12 See: Ozhegov S. I., Shvedova N. Yu. / Explanatory dictionary of the Russian language (S-Ya) // 1992. P. 681.

13 See. RAIN РФ. 2014. No 30 (am. 1). Ct. 4207; 2018. - The 18, the. Ct. 2571.

14 See. about this in detail: Commentary to the Federal law of July 21, 2014 No. 206-FZ "on plant quarantine" (article-by-article) / ed. by O. A. Slepenskova // SPS "Consul-tantplus", 2015.

15 See: order No. 501 Of the Ministry of agriculture of Russia dated December 15, 2014 "on approval of the List of quarantine objects" // Rossiyskaya Gazeta. 2015. 23 Jan. (special issue)

16 See more about this: Sokolova E. S., Semenkova I. G. Forest Phytopathology, Moscow, 1981.

2020) "on hunting and conservation of hunting resources and on amendments to certain legislative acts of the Russian Federation»¹⁷ hunting-hunting resources that include mammals and birds are considered commercial.

Thus, it can be concluded that the rules established for the control of plant diseases and pests are simultaneously aimed at protecting plant products, as well as forest resources. Therefore, at least for this reason, the authors' position on the presence of the subject of the crime in the form of various plants in the article 249 part 2 of the criminal code of the Russian Federation cannot be recognized as justified.

The subject of the crime under article 257 of the criminal code of the Russian Federation is generally defined in the same way in the literature; it is recognized as water biological resources.¹⁸; Gaevskaya, E. Y. – harvesting of marine plants¹⁹, although in both cases they are covered by the concept of "water biological resources". N. A. Iopashenko characterizes this feature of the crime as the rules for the protection of water biological resources²⁰.

In our opinion, the allocation of the subject as part of the crime under consideration is not conditioned either by law or theoretically. In art. 257 of the criminal code States: "Production of wood alloy, construction of bridges, dams, transportation of wood and other forest resources, carrying out explosive and other works, as well as operation of water intake structures and pumping mechanisms in violation of the rules for the protection of aquatic biological resources, if these acts resulted in the mass death of fish or other aquatic biological resources, destruction of significant amounts of feed stocks or other serious consequences...". Thus, in the criminal law norm, the legislator explicitly specified only two criminal characteristics: the act and the consequences. The consequences themselves cannot simultaneously have a second criminal legal status – to act as the subject of a crime.

Let's briefly summarize the above. The elements of environmental crimes provided for in articles 249 and 257 of the criminal code of the Russian Federation do not contain the subject of the crime as a mandatory feature. Its isolation in the theory of criminal law does not agree with the content of the relevant criminal law norms, as well as with the doctrine of the subject of the crime.

17 See: Sz RF. 2009. № 30. 3735; 2020. № 17. Article 2725.

18 See: Criminal law of the Russian Federation / ed. by I. E. Zvecharovsky. P. 419.

See also: Knyazev A. G., Churakov D. B., Chuchaev A. I. Environmental crimes. P. 75.

19 See: Gaevskaya E. Yu. On the issue of differentiation of theft and faunal crimes // Electronic Appendix to the "Russian legal journal". 2017. No. 2. P. 136.

20 See: Iopashenko N. A. Environmental crimes: Commentary to Chapter 26 of the criminal code of the Russian Federation. SPb., 2002. P. 291.

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违反《无线电规则》关于参与共享建筑的立法要求，在《刑法》中引入吸引公民货币资金的罪行的背景介绍

BACKGROUND INTRODUCTION IN THE CRIMINAL CODE OF THE OFFENSE FOR ATTRACTING MONETARY FUNDS OF CITIZENS IN VIOLATION OF THE REQUIREMENTS OF RF LEGISLATION ON PARTICIPATION IN SHARED CONSTRUCTION

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本条款专门研究导致将第200.3条引入俄罗斯联邦刑法的原因和条件，该条规定了违反公民权益法规定从公民那里吸钱的责任。施工。作者评估了俄罗斯股份制建设问题的现状，证明了改革俄罗斯立法规范的相关性，这些规范规定了开发商对违法行为的责任。这项研究是基于对俄罗斯法律和司法实践中有关股本建设领域法律关系的理论分析。作者得出的结论是，在共同建设的领域内修订关于责任的刑法的过程是一致的，满足了现代社会和国家的需求，此外，确定刑法第200.3条的引入是合理和必要的。保护公民的权利-股份建设协议的参与者。

关键词：股权建设；公平；参与参股的协议；为参与式建设筹集资金；违反有关共同建设的立法；共同建设领域的刑事责任

***Annotation.** The article is devoted to the study of the reasons and conditions that contributed to the introduction of article 200.3 into the criminal code of the Russian Federation, which provides for liability for attracting money from citizens in violation of the provisions of the legislation on shared-equity construction. The author evaluates the current state of the problem of shared-equity construction in Russia, justifying the relevance of reforming the norms of Russian legislation that provide for the responsibility of developers for their violations of the law. The research is based on a theoretical analysis of Russian legislation and judicial practice regarding legal relations in the field of shared-equity construction. The author concludes that the process of amending criminal legislation on responsibility*

in the sphere of shared construction is consistent and meets the needs of modern society and the state, in addition, it is established that the introduction in the criminal code article 200.3 is reasonable and necessary to protect the rights of citizens – participants of share construction agreements.

Keyword: *the construction of equity; equity; agreement of participation in share building; raise funds for participatory construction; violation of legislation on joint construction; criminal responsibility in the sphere of shared construction.*

According to the researchers, state regulation of shared-equity construction is designed to balance the interests of participants in the shared-equity construction agreement, as well as the state and society as a whole. In order to prevent violations of legal provisions, the Russian Federation provides for a mechanism for applying civil, administrative and criminal liability measures [Chugunova, 2017]. Meanwhile, the introduction of effective criminal liability measures in the field of shared-equity construction into Russian legislation has been gradual.

The most acute problem of defrauded shareholders faced the state in 2003-2004, when the construction of shared-equity housing was massively developed throughout the country, and along with it, cases of fraud on the part of developers became more frequent. Researchers saw the reasons for the deep crisis in the shared-equity construction market, including corruption that took place in the construction sector, insufficient development of the financial market, and dishonesty of construction companies, but the main reason was the imperfection of legislation regulating the sphere of shared-equity construction and providing for liability measures for violations committed in it [Asnis, 2016].

For the first time in the Russian Federation at the legislative level, the issues of concluding a contract for participation in shared-equity construction were consolidated with the adoption of December 30, 2004. Federal law No. 214-FZ " on participation in shared construction of apartment buildings and other real estate objects and on amendments to certain legislative acts of the Russian Federation "(hereinafter-the Law on participation in shared construction)¹. The adoption of this Federal law was a natural result of resolving the problems that had accumulated at that time related to the conclusion of contracts for participation in shared-equity construction. The purpose of this law was to streamline legal relations on the conclusion of equity participation agreements and ensure that developers fulfill their obligations to shareholders.

In 2016, Federal law No. 304-F3 of 03.07.2016 introduced a number of important changes to the Law on participation in shared construction, which tightened the responsibility of the developer, as well as expanded the control and

¹ On participation in shared-equity construction of apartment buildings and other real estate objects and on amendments to certain legislative acts of the Russian Federation: Federal law No. 214-FZ of 30.12.2004 (ed. of 27.06.2019) // Rossiyskaya Gazeta. 2004. №292.

Supervisory functions of authorized bodies.²

Simultaneously with the adoption of the Law on participation in shared construction in the Russian Code of administrative offences was introduced by article 14.28 imposing administrative liability for builders – legal entities and their officials for violation of legislation on joint construction. Article 14.28 of the administrative Code of the Russian Federation provides for fines ranging from 5 to 100 thousand rubles, depending on the nature of the offense. For legal entities, article 14.28 of the administrative Code of the Russian Federation provides for fines from 50 thousand to 1 million rubles.³

Despite the introduction of a new mechanism for bringing to justice in the field of shared-equity construction, it was obvious that such amounts of fines in practice are not able to stop the activities of unscrupulous developers, in particular, their officials who found ways to evade administrative responsibility. The need for more stringent measures was obvious.

Bringing officials of real estate developers to criminal responsibility before the introduction of article 200.3 in the criminal code of the Russian Federation in law enforcement raised many questions due to the specifics of this type of legal relationship and the lack of uniform practice. As a rule, if ultimately reached the criminal case, the founders and heads of the developer could be prosecuted under various articles of the criminal code.

In order to increase responsibility for unfair actions of developers, as well as to prevent other abuses that infringe on the housing rights of citizens, the legislator in 2012 amended part 4 of article 159 of the criminal code of the Russian Federation. Until then, part 4 of article 159 of the criminal code provided for liability for fraud committed by an organized group or on a particularly large scale. However, Federal law No. 207-FZ of 29.11.2012 in part 4 of article 159 of the criminal code of the Russian Federation introduced a provision providing for punishment for fraud that resulted in the deprivation of a citizen's right to residential premises.⁴

Analysis of the wording of part 4 of article 159 of the criminal code allows to conclude that this provision although can be called a kind of response to numerous violations on the part of developers in the sphere of shared construction, meanwhile, it is General and can be applied in other situations in which as a result of fraudulent actions of various individuals creates a threat of deprivation of the

² On amendments to the Federal law "on participation in shared-equity construction of apartment buildings and other real estate objects and on amendments to certain legislative acts of the Russian Federation" and certain legislative acts of the Russian Federation: Federal law No. 304-FZ of 03.07.2016 (as amended on 29.07.2017) // Russian newspaper. 2016. №151.

³ Code of administrative offences of the Russian Federation: Federal law No. 195-FZ of 30.12.2001 (as amended on 23.06.2020) // Russian newspaper. 2001. №256.

⁴ On amendments to the criminal code of the Russian Federation and certain legislative acts of the Russian Federation: Federal law No. 207-FZ of 29.11.2012 (ed. No. 325-FZ of 03.07.2016) // Rossiyskaya Gazeta. 2012. №278.

citizen of housing. In addition, illegal actions of developers do not always have the effect of depriving citizens of housing, as a rule, citizens suffer material damage in the form of deprivation of large sums of money, in certain cases they eventually get their living space, but with violations of the construction and commissioning deadlines.

In 2014, one of the members of the United Russia party, Alexander Khinshtein, made a proposal in the State Duma to introduce a new article in the criminal code of the Russian Federation, which would provide for punishment for violating the law on attracting funds from participants in shared-equity construction.

Meanwhile, a year earlier, A. Khinshtein already took the initiative to amend the criminal code of the Russian Federation, in addition to liability for illegal transactions to raise funds, it was proposed to introduce criminal liability for founders and managers of construction companies for misuse of funds raised under the contract of participation in shared construction.

However, this bill was not approved in 2013. Thus, in his response to the bill A. Hinstein, the Supreme court drew attention to the position of the constitutional Court of the RF expressed in its Decision of may 27, 2008 №8-P.⁵ The resolution, in particular, emphasized that criminal law norms are a last resort for the state to respond to the illegal behavior of participants in legal relations in order to protect public interests, and are subject to application in cases where the norms of a different industry are unable to prevent such violations and ensure respect for the rights and legitimate interests of citizens and the state.

Thus, the reason why the proposed innovation could not be adopted was that the developer of the draft law did not prove that all available other legal means of protecting the rights of citizens affected by participation in shared construction were exhausted. In other words, it was necessary to justify the ineffectiveness of civil and administrative rules that provide for the liability of unscrupulous developers.

With regard to initiatives to Supplement the criminal code special article providing for liability of unscrupulous developers, the aim of its introduction was primarily to protect the rights and legitimate interests of persons affected by the illegal actions of the developers at the conclusion of contracts of participatory construction, as well as the elimination of available contradictions in law enforcement. So, at the time of A. Khinshtein's speech, the actions of developers that violate the law were qualified by investigative authorities and courts under various articles, in particular under article 159-fraud, art. 160-misappropriation or embezzlement, article 165 - causing property damage by deception or abuse of

⁵ Resolution of the constitutional court of the Russian Federation of 27.05.2008 No. 8-P "on the case of checking the constitutionality of the provision of part one of article 188 of the Criminal code of the Russian Federation in connection with the complaint of citizen M. A. Aslamazyan" // Sz RF. 2008. No. 24. St. 2892.

trust, article 201-abuse of authority.⁶ Thus, the attributes of completely different acts were attributed to virtually homogeneous acts, which is unacceptable from the point of view of criminal law and criminal proceedings.

In judicial practice, before the amendments to the criminal code of the Russian Federation came into force, it was quite common to repeatedly conclude contracts for participation in shared construction in relation to the same real estate object. At the same time, the actions of founders and managers were most often qualified under part 4 of article 159 of the criminal code of the Russian Federation – fraud on a particularly large scale, in some cases the courts indicated the presence of a qualifying sign "using official position".⁷

Under part 4 of article 159 of the criminal code as fraud committed by an organized group in especially large size, were qualified the actions of the founders of the developer, which, in the absence of a feature permitting technical documentation, imitated the beginning of implementation of construction works, which were limited to the development of pits and installation of fences on several sites, initially with no intention to complete the construction of a house.⁸

In another criminal case, it was established that the Director of the developer organization stole funds belonging to a legal entity by misappropriation and embezzlement, in connection with which his actions were qualified under article 160 of the criminal code of the Russian Federation. Meanwhile, part of the money assigned to the defendants was transferred to the organization's settlement account in connection with the conclusion of contracts for participation in shared-equity construction by citizens.⁹

In another case, the preliminary investigation and the court qualified the actions of the defendant under several articles of the criminal code-part 3 of article 159, part 4 of article 159, part 4 of article 160, part 1 of article 201. The defendant, being the head of the organization-developer, attracted money from citizens, concluding contracts with them for participation in shared construction, while the construction of residential buildings was not consciously carried out. After concluding a number of contracts with citizens, the defendant received part of the money from the organization's cash register, without providing advance reports.¹⁰

In some cases of judicial practice before the introduction of article 200.3 of the criminal code of the Russian Federation, actions to use the attracted funds of citizens in connection with the conclusion of a contract for participation in shared

6 Right. <url> // <https://pravo.ru/news/view/102692/>

7 See e.g. Verdict of the Pervomaisky district court of Omsk of may 31, 2016 in case No. 1-174 / 2016; verdict of the Volgodonsky district court of may 05, 2016 in case No. 1-247 / 2016; Verdict of the Oktyabrsky district court of Novorossiysk of April 28, 2016 in case No. 1-295 / 2015.

8 See the Decision of the Samara regional court of may 05, 2016 in case No. 44U-80/2016.

9 See the Verdict of the Sormovsky district court of Nizhny Novgorod dated March 03, 2016 in case No. 1-266 / 2014.

10 See the verdict of the Tikhoretsky city court of February 15, 2016 in case No. 1-205 / 2015.

construction for other purposes not related to the performance of obligations under the contract were qualified under article 201 of the criminal code – abuse of authority.¹¹

Finally, in 2016, Federal law No. 139-FZ of 01.05.2016 introduced article 200.3 of the criminal code of the Russian Federation, which provides for liability for raising funds of citizens in violation of the requirements of the legislation of the Russian Federation on participation in shared construction, which was an important innovation for Russian legislation.

At the same time, the actions of the developer that entail administrative and criminal liability for raising funds in violation of the provisions of the law are differentiated based on the amount of damage caused, as well as on the subject of the committed act. Thus, the provisions of part 1 of article 200.3 of the criminal code it follows that criminal liability for the founder or head of the organization occurs in the presence of large amount of damage, which according to p. 1 notes to this article is the amount of 3 million rubles. If the amount of damage caused is less than 3 million rubles, the developer company or its officials are brought to administrative responsibility.

The wording of the crime under article 200.3 of the criminal code, leads to the conclusion that prosecution of perpetrators is sufficient to establish the fact of violation of legislation in the sphere of shared construction, as well as set the terms of certain limited provisions of the article, circumstances that greatly simplify the process of identifying the perpetrators and bringing them to justice, as well as evidence of their involvement and guilt in the Commission of criminal acts.

So, earlier, before the introduction of the article 200.3 of the criminal code in the criminal code, when the illegal actions in the sphere of shared construction persons were brought to criminal responsibility, investigative and judicial authorities were assigned the task of proving such facts as the use of guilty of fraud or breach of trust as ways of causing material harm to the citizen in the classification of acts under articles 159 and 165 of the criminal code, the presence of the suspect or the accused the purpose of extracting benefits and advantages for themselves or harm other persons with qualifications under article 201 of the criminal code. The presence of such additional circumstances that require proof created certain difficulties for the investigation and legal proceedings, delayed their process, and sometimes were difficult to prove at all, and in some cases this allowed the perpetrators to avoid responsibility.

As shows the analysis of judicial practice after the entry into force of article 200.3 of the criminal code for this article began to qualify the same actions of perpetrators, who had previously qualified the investigating authorities and courts under various articles of the criminal code or in their entirety. In particular, such

¹¹ See the verdict of the Pervomaisky district court of Kirov of March 31, 2016 in case No. 1-1 / 2016.

actions as failure to register contracts for participation in shared construction¹², implementation of construction in the absence of permits¹³, disposal of funds by the founder of the developer company on his own intent without intent to complete the construction of the object¹⁴ etc.

To the practice of law the importance of introducing this article in the criminal code it is difficult to underestimate, first, is the emergence of a new mechanism of regulation of the sphere of shared construction in the context of criminal law, and secondly, the introduction of this article enhanced the effectiveness of the enforcement of the rights of citizens to enter into contracts of participatory construction. Furthermore, from the point of view of prevention of illegal acts, the presence in the criminal code special provisions on liability for violation of legislation on share building, has a positive effect on the activity of construction companies whose officials are aware that their illegal actions may follow criminal liability.

The fact that article 200.3 was added to the criminal code of the Russian Federation indicates that the existing legal mechanism was not sufficient for the proper and effective protection of the rights and legitimate interests of citizens. Bringing to criminal responsibility perpetrators who encroach on the same object, often under similar conditions, under different articles of the criminal code of the Russian Federation, depending on the discretion of the law enforcement officer, did not fully meet the tasks of the state to protect the violated rights of shareholders.

Conclusion

The introduction of the legislation norms foreseeing criminal liability for violation of legislation when raising funds persons entering into contracts of participation in share construction testify, respect for the rights of shared construction participants is to state a priority for resolution.

Analysis of the provisions of the Russian legislation shows that the measures of responsibility for illegal actions of developers related to implementation of equity construction, introduced since the adoption of the Law on joint construction, first in the administrative code and then the code gradually and consistently, which indicates a conscious regulation of this sphere and taking decisions according to prevailing in the state of the situation concerning share participation in construction.

Introduction to criminal code article 200.3 providing responsibility for attracting monetary funds of citizens in violation of the legislation on share building, was

12 See the Appeal decision of the Salekhard city court of the Yamalo-Nenets Autonomous district of 28.01.2020 in case No. 10-3 / 2020; the Verdict of the Yaroslavl district court of the Yaroslavl region of 23.09.2019 in case No. 1-134 / 2019.

13 See the Verdict of the Central district court of Sochi, Krasnodar territory, dated 23.09.2019 in case No. 1-507 / 2019.

14 See The verdict of the Krasnogorsky district court of Kamensk-Uralsky, Sverdlovsk region, dated 08.08.2019 in case No. 1-69 / 2019.

the logical decision deriving from law enforcement practices and to ensure the rights and legitimate interests of citizens – participants of shared construction. The emergence of a new mechanism for holding developers accountable has had a positive impact on law enforcement practice and on ensuring the protection of the rights of citizens entering into legal relations in the field of shared-equity construction.

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媒体教学法的基本概念-网络人格
**THE BASIC CONCEPT OF MEDIA DIDACTICS - NETWORK
PERSONALITY**

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文章认识到有必要在教师培训课程的内容中包括媒体教学法。在媒体教学法的框架内，考虑了网络个性的关键概念。

关键字。信息技术，媒体教学，教育空间，网络个性，先进的培训系统。

Abstract. *The article actualizes the need to include media didactics in the content of teacher training courses. Within the framework of media didactics, the key concept of the network personality is considered.*

Keywords. *Information technology, media didactics, educational space, network personality, advanced training system.*

In the context of the rapid development and implementation of information technologies in all spheres of human life, a problem arose associated with the theory, methodology and practice of implementing technological solutions in the field of education.

A new concept has appeared - media didactics, which reflects the multimedia realities of modern times. Wide educational opportunities for using visualization tools and resources in teaching and learning require understanding and describing the practices of their use.

Media didactics is considered as a section of general didactics, in which the possibilities of using various media in the educational process are studied and algorithms and methods for their application are developed both in the classroom and in independent work with teaching and educational material. At the same time, media means can be presented both in audio or video format, which have already become traditional, and in a modern interpretation based on electronic technical

devices (Protopopova V.V.) and online learning platforms.

Media are considered as forms of presentation of information of an educational nature, which significantly expand the didactic toolkit of pedagogical influence on the student, including in a remote form (Utkina O.N.).

For a modern person, it becomes natural to function in several spaces: social, professional, virtual - network. More and more, the first two are realized in the third. It is in the network, more and more, that social communication and professional activity are carried out.

And since educational activity is also actively moving into network forms, the knowledge realized in the system of advanced training for teachers and related to media didactics becomes arch-actual.

In this article, we do not consider general issues related to the theory and practice of media didactics; we will focus on the characteristics of one of the central concepts of this direction, namely, the phenomenon of the network personality.

In the context of the network space within the framework of media didactics, a new terminological formation has appeared - the network personality. The semantic content of this concept has not yet been fixed in a dictionary form, but the scientific community is actively discussing issues of its semantic content.

Over the past three years, issues related to the network personality have been discussed at the International Scientific and Practical Conference "Educational Dynamics of the Network Personality", which is held under the auspices of the Russian State Pedagogical University. A.I. Herzen (Educational dynamics).

The main mission of the conference is to draw the attention of theorists and practitioners in the field of teacher education to the new realities of the organization of education at all levels, the transformation of which is conditioned by the Global Network Processes.

A.A. Akhayan, one of the active researchers of the phenomenon of the network personality in the field of media didactics, notes that such a quality as almost immediate satisfaction of the arisen cognitive need becomes characteristic of the network personality, while the network personality has the ability to quickly find an answer to emerging questions, which is essential a motivator for stimulating interest in the problem being solved, increases cognitive activity and, ultimately, leads to high learning outcomes (Akhayan A.A.).

At the same time, not only the content aspect of the information that it consumes, but also how friendly the site's interface is, how convenient it is to link, how freely it can, according to its interests, expand the boundaries of knowledge both in breadth and in depth, becomes significant for the network personality. A natural consequence of functioning in a network educational space is an increase in the level of subjectivity of the student, his responsibility for the learning outcomes.

For the network personality, deadline conditions dictating the deadline for completing the task become uncomfortable; it is not satisfied with the boundaries of the required material that the instructor offers or the content that the instructor has pulled from the web and broadcast in text or audiovisual format.

The network personality itself “directs its presence in the virtual educational environment” (Ahayan A.A.), chooses an adequate rate of assimilation of educational material, is determined with the sequence and volume of the course. The student always has the opportunity to turn back to the material he has viewed and determine the need to search for additional sources for a deeper understanding of the issue or to understand that the topic of study is of little interest to him and a minimum of effort is enough to get a positive assessment based on the control results.

An interesting characteristic of the network personality is given by A.A. Orlov, he talks about the so-called Google effect, which orientates the user to the fact that when working with educational information, it is not so much assigned to students, i.e. becomes his knowledge, but the ways of quickly finding options for ready-made answers to typical educational questions are mastered (Orlov A.A.). A stable skill is developed that allows the student to give an adequate answer to the teacher in a matter of seconds, the main thing becomes knowledge of Where and How to look for what the asking question wants to hear, and not whether the answer knows or not, and how long he will remember what he answered. It can be assumed that "protective" mechanisms are triggered here, which, in the context of an ever-increasing volume of information, protect the brain from memorizing information that is unnecessary and irrelevant at a given time, information that is of no interest to the student either in the short or in the long term. At the same time, the intellectual resource is freed up for creative activities according to interests.

The classical learning process is focused on learning for future use, in fact, the programs in subjects, especially in the natural sciences, have not changed since the fifties of the last century. A significant percentage of the material suggested to be studied is outdated. New tools and technologies have appeared that are used in professional activities, but they are not included in the content of the education of teachers of the advanced training system. In such conditions, it becomes quite understandable that they have no motivation to study such material, a formal attitude to the procedures for assessing the quality of assimilation, which is expressed in the use of "unauthorized" means in control procedures.

For generations Z and iDen, who come or will soon come to work in school, working with their hands becomes an anachronism: why write when you can type on a smartphone or laptop keyboard, or record from a voice; why read a long text when you can present it in the form of infographics; why practice on outdated equipment when it is possible to organize it on digital simulation models. At the

same time, in these generations, in comparison with the previous ones, there is a sharp reduction in the time of concentration. According to the National Center for Biotechnology Information, the time of "concentration of attention" tends to decrease, so the average time of concentration of a person's attention when referring to the information presented on the device screen was 8.25 seconds in 2015, while in 2000 this time was 12 seconds ("Window of attention").

An interesting conclusion was made by the French artist Leo Caillard watching the visitors of the Louvre. It turned out that five seconds is enough for the visitor to adequately perceive the artistic image and receive full satisfaction from what he saw. That is how much time a person spends consuming information of a visual nature from the screen of his device. Young teachers and their students are focused on saving their time, striving to use it efficiently and, at the same time, informatively. Biologists argue that under the influence of the "screen effect" a modern person changes the motor skills of his gaze, it becomes "jumping" - it does not linger on one object (Five seconds).

Thus, in addition to reducing the duration of concentration of attention against the background of hyperactivity, the network personality develops the so-called "clip thinking", focused on portioned, fragmentary, nonlinear and accelerated consumption of a large amount of information.

Multitasking becomes another characteristic quality of the network personality. Turning to several cases at once, it, as a rule, does them with insufficient quality.

At the same time, functioning on different pages of the web, the "internet aborigine" is in a multidimensional information space, which, in turn, forms a new model of thinking for him - a network one.

Modern young people carry out their activities in two parallel spaces: real and virtual. In this situation, they quite often act in different social roles (Soldatova G.U. Digital socialization). In the real world, they show some personal qualities, and in the virtual world, they are completely different.

A phenomenon called "the illusion of digital competence" is becoming characteristic of the network personality. This phenomenon is expressed in the fact that a person who is very active in social networks removes social restrictions from himself, exposing himself to the risks associated with fraudulent actions of a certain category of Internet users (Soldatova G. U. "The Reverse Side").

In modern society, there is a strong opinion that the younger generation - is the "Internet aborigines", and the adult population - the teachers, the parents are the "Internet immigrants". In this interpretation, those who train teachers in the advanced training system often turn out to be "Internet immigrants", and young teachers who come to improve their qualifications – "Internet aborigines".

In addition, modern young teachers are more focused on such training, which

takes into account their individual characteristics and preferences.

However, as can be judged from the state regulations of recent years, the system of advanced training for teachers is focused on the standardization paradigm.

For the sake of fairness, we note that nowadays more and more often one can hear critical reviews regarding this approach to the structure of education, which leads to the fact that the scientific achievements of progressive modern pedagogy, focused on personal development of an individual, go to the periphery of the priorities of state policy in the field of standardized educational outcomes.

It is interesting that not only in the ranks of the scientific and pedagogical community, concerns are expressed about the cultivation of a standardized approach to the content of education and the assessment of its quality. For example, in Japan, at the state level, the path of development of education in the direction of standardization was recognized as erroneous. Evidence was obtained that standards led to a slowdown in the development of the student's abilities (Suzuki Isao).

There are no public educational programs in decentralized states; curricula and programs in them operate at the state and district level. Moreover, in some countries, for example, Canada, there is no federal ministry of education, which does not affect the quality of education in the country (Educational Standards).

The tendencies towards the standardization of education all over the world are explained not only by the desire of the state machine for total control over the population, but also by technological progress - the development of artificial intelligence (AI), which, based on benchmarks and comparing them with the achievements of the individual, can guide the process of "bringing" intelligence person to a certain predetermined level. However, developers of AI systems are already expressing some concern about the emerging situation. So the worst-case scenario for the process of introducing AI into the educational environment, they see, is that this can consolidate "the global trend of standardized training and testing and will bring up a generation ill-prepared for quick adaptation in new working conditions." (Artificial Intelligence).

Specialists of the largest corporation Squirrel, specializing in the use of AI in education, emphasize that educational policy in the 21st century should focus on the interests and abilities of each individual person, and not on the transfer of knowledge that is the same for everyone, which can be easily verified by tests for compliance with the requirements of the standard, but in conditions the vital activity of the individual turns out to be irrelevant. In this sense, the standardized content of education and standardized procedures for assessing its level are useless in solving the main task of education - preparing a person for functioning in the future, which has the property of constant change.

The nature of the problems facing a person is diverse, and not all of them are solved by standard, learned methods. Moreover, as a rule, there are many solutions

for the same problem, therefore, a humanistic approach to the organization of the educational process is oriented to the ability to analyze and choose a method that corresponds to the individual (not standardized) characteristics of a person, his intellectual capabilities and interests (Monakhova L. Yu.).

The network personality is a new manifestation of a person in the digital world with a focus on variability, individualization and personalization. At the same time, the activities of teachers, focused on the formation of the ethical component of personality behavior in the network information space, a variety of methods used, focused on "the formation of flexible skills in students and the ability to learn all their lives in new situations" (Malenkiy A.), becomes paramount.

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多元艺术方法作为提高中国学生钢琴演奏水平的一种手段
**POLY-ARTISTIC APPROACH AS A MEANS OF IMPROVING THE
PIANO TRAINING OF STUDENTS OF THE PEOPLE'S REPUBLIC OF
CHINA**

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这篇文章专门研究一种多元艺术的方法，这种方法基于艺术之间的相互作用的思想，对于中国的音乐家培训系统来说是相对较新的。其本质特征在于，简要分析了俄罗斯音乐教育学中多元艺术倾向的形成和发展过程，并考虑了与学生一起开展的以音乐为导向的多元艺术活动的主要品种。结论是，多元艺术方法对钢琴班学生进行作品的掌握有积极的影响。提出了方法学上的建议，以改进中国学生的钢琴演奏训练。

关键字：联想机制，艺术互动，指导方针，音乐教育学，多元艺术方法，中国学生，钢琴培训，词库。

Abstract. *The article is devoted to the examination of a poly-artistic approach, which is relatively new for the Chinese system of training musicians, based on the idea of interaction between the arts. Its essence is characterized, a brief analysis of the process of formation and development of polyartistic tendencies in Russian pedagogy of music education is presented, the main varieties of music-oriented polyartistic activity in work with students are considered. Conclusions are made about the positive influence of the polyartistic approach on the process of performing mastering of works by students in the piano class. Methodological recommendations are given on its application to improve the pianistic training of students in the PRC.*

Keywords: *associative mechanisms, interaction of arts, guidelines, pedagogy of music education, polyartistic approach, PRC students, piano training, thesaurus.*

The modern system of teaching instrumental musicians in China is characterized by a steady tendency to accumulate the achievements of international experience in the field of performance and pedagogy of music education. One of its promising areas is the polyartistic approach developed in Russia under the guidance of Doctor of Pedagogical Sciences, Professor Boris Petrovich Yusov [1] for the general education system. This approach, contributing to the entry of the student into the world of artistic content, opens up new opportunities for educating the student's personality, contributes to his socio-cultural orientation, moral formation and creative development. Presenting a special system of methods aimed at revealing the internal relationship of various forms of artistic reflection of reality and translating (transforming) the studied content into another artistic modality, the polyartistic approach, under certain conditions, can act as a significant way to master performing activities, an exciting way of revealing musical content.

Based on the ideas of the interaction of arts [2], the polyartistic approach acquires special significance in the process of instrumental training of future music teachers, allowing them to reveal the musical phenomenon through the prism of polyphonic (stereoscopic) perception and reflecting artistic images by integrating the expressive possibilities of sound, plastic, movement, color, rhythm, word, sign, symbol. Knowledge of the mechanisms of this approach, mastery of the system of methods included in it contributes to the liberation of the musician's creative potential, the full implementation of his interpretive mission.

The term "polyartistic approach" appeared in the late 80s of the XX century in the research institute of artistic education of the USSR Academy of Pedagogical Sciences. Initially, the phenomenon of polyarticularity in pedagogy was considered by B.P. Yusov mainly applied to the visual arts, which corresponded to the field of scientific interests of the scientist. Over time, he studied it through the prism of aesthetics, pedagogy, psychology of art and artistic activity, analysis of the creativity of those representatives of art for whom the organic unity of its various types was the embodiment of artistic credo (R. Wagner, M.K. Čiurlionis, A.N. Scriabin, A. Duncan).

Today the history of the polyartistic approach in Russia goes back over thirty years. In the field of music education, its retrospective is presented in the research of E.P. Kabkova [3]. Analyzing the process of formation and development of polyartistic tendencies, she distinguishes 4 stages in it.

The first of these (1987–1989) is interpreted by the author as a stage in the emergence of scientific research in various directions of the polyartistic approach, the approval of the term "polyartistic" as applied to the process of development and education of a child, the definition of the initial methodological and theoretical foundations for the development of a fundamentally new paradigm of education aimed at the polyartistic development of a student by means of various types of art.

In these years, members of the staff of the Laboratory for Complex Interaction of Arts of the Institute of Art Education of the Academy of Pedagogical Sciences, working under the leadership of B.P. Yusov, focus on studying the possibilities of certain types of art to develop on their basis algorithms for interaction with other forms of artistic reflection of reality.

Second stage (1990–1995) is characterized by the researcher as a period of development of the theoretical and methodological foundations for the implementation of the polyartistic approach in the complex of school curricula, tested in 17 regions of Russia. At that time, the main attention was paid to the creation of experimental integrative programs based on certain types of art - fine arts (T.B. Dontsova, L.G. Savenkova, Yu.A. Tamm, E.A. Ermolinskaya), theater (T. G. Penya), cinema (E.A. Zakharova), music (E.P. Kabkova), artistic expression (T.I. Sukhova).

Third stage (1996–2005) is considered by E.P. Kabkova as a new stage in the development of the concept. The integration of various types of art for the purpose of the poly-artistic development of the child is studied by specialists at the philosophical, general scientific and specific scientific levels. Not only each of the art forms, but also each type of activity is analyzed through the prism of the influence of various factors that determine the emergence of polyartistic relationships. Within the framework of the stage, on the basis of already obtained experimental data, the discoveries of an earlier time are interpreted in a new way, when each researcher, accepting the idea of the interconnection of the arts, relied on the most significant, from his point of view, factors, conditions and features. The circle of analysis introduces such fundamental categories of culture as: "space" (fundamentally developed in the works of P.A. Florensky), "style" (based on the views of P. Valery), "rhythmic organization" (M.A. Voloshin and K.D. Balmont), "intonation" (V.V. Medushevsky).

Fourth stage (2005 – present time) is characterized by the fact that the polyartistic approach fits into the modern realities of the educational process, taking into account the latest achievements in the field of art education research. On the basis of the existing theory and newly obtained experimental data, researchers pay special attention to the study of the processes that arise under the influence of polyartistic interaction with the artistic environment. In this regard, special interest, according to E.P. Kabkova, present the works of the followers of B.P. Yusov, devoted to the study of the formation and development of the artistic and aesthetic environment [4; 5].

Speaking about the history of the development of polyartistic tendencies in the pedagogy of music education in the second half of the XX and first decades of this century, one should note the enormous contribution to the development of this problem made by D.B. Kabalevsky, E.B. Abdullin E.V. Nikolaeva, members of

groups of authors led by G.P. Sergeeva, V.V. Aleeva and others.

Thus, in preliminary remarks to the Music Program, developed by a team of authors headed by D.B. Kabalevsky, R. Rolland's words about the relativity and openness of the boundaries of individual arts are quoted: "... Arts every minute flow into one another, one kind of art finds its continuation and completion in another" [6, p. 94]. The reflections of the French writer and musician, acting as a kind of epigraph, are cited by the authors of the Program in accordance with the themes of two semesters devoted to establishing links between music, literature and the visual arts. The content of the Program is intended for the development of 5th grade pupils of secondary schools. It is at this age, according to the authors, that the most favorable conditions for the formation and effective development of the ability to generalize are created in the student's mental sphere. Under the guidance of a teacher, schoolchildren learn to highlight the general and the special in certain types of art, to realize the richness of connections between various ways of reflecting reality for a full (polyphonic) perception and development of artistic content.

In the context of the problem under consideration, the analysis developed by E.B. Abdullin and E.V. Nikolaeva methodological approaches to the organization of music-oriented polyartistic activity of students of secondary schools [7]. Using the example of the interaction of two types of art of music and art of movement, the authors, in accordance with the nature of the relationship between the musical and plastic components, identified two types of musical and plastic activity:

- *auxiliary-didactic*, aimed at solving predominantly technical educational problems and not involving the direct access of students to artistically-figurative comprehension of music;
- *artistically-figurative*, when the artistic principle itself comes to the fore in it.

The main purpose of auxiliary-didactic musical-plastic activity is to create the most favorable conditions for the development of students' musical-auditory ideas about space-time relationships in music by means of "translating" these relationships into visual, motor forms. The main varieties of this type of activity can be: modeling of pitch, rhythmic, dynamic and other relationships in the music being listened to by means of a certain system of movements; singing along the "ladder", according to hand signs of the relative system of solmization; clocking; the use for educational purposes of the varieties of the so-called "sounding gestures": claps, steps, clicks, etc.

With all the difference between these varieties, what they have in common is that in order to embody the spatial-temporal characteristics of music in movement, a system of conditional gestures, clearly indicated by a music teacher, is used. Its specific content depends on the pedagogical task to solve which it is aimed at, for example, developing pupils' pitch hearing, sense of rhythm, etc. When characteriz-

ing auxiliary-didactic musical-plastic activity, the authors distinguish two levels of its implementation: constructive (discrete) and intonational (continual), and their detailed analysis is given.

Artistically-figurative musical-plastic activity is designed to help students identify possible connections between music and the art of movement through the prism of categories such as the content and form of a work of art, artistic image, means of expression, etc. To its main varieties included in the content of music lessons, researchers attribute:

- creation of musical and plastic compositions based on the works heard;
- staging of the songs being learned using plastic means of expression;
- conducting.

The authors emphasize that each of the indicated varieties of artistically-figurative musical-plastic activity can be oriented both to an improvisational and a compositionally thought-out solution to the artistic task assigned to students. In accordance with this, it is advisable to include two types of tasks in the content of musical lessons:

- musical-plastic sketches, the execution of which presupposes an improvisational plastic response of students to a piece of music they listen to or learn, for example, "free dance", "free conducting", etc.;
- the composition of musical and plastic compositions, which provides for the thought by students under the guidance of a teacher of possible options for creating a musical and plastic image based on the specific musical material proposed by him and the choice of one of them, as the most fully realizing the relationship between musical art and the art of movement.

Concluding a brief analysis of the issue under consideration, we note that in modern conditions, the polyartistic approach is recognized as one of the most promising forms of introducing students to art. It "acts as a kind of original style in artistic pedagogy, capable of getting out of the rigid involvement in the professional art criticism methodology" [8, p. 55]. The most important feature of the polyartistic approach is that thanks to it the student becomes "a subject of cultural processes, while earlier the subject was the professional space surrounding the child, the artistic environment, the consumption of someone else's art and familiarity with it" [9].

At the same time, despite a fairly large number of studies in this area, Russian specialists emphasize the need to continue work, both in terms of further theoretical development of this area, and in terms of finding new pedagogical technologies for the implementation of interesting and relevant ideas [3; 7].

For the Chinese pedagogy of music education (and, in particular, that of its area, which is associated with teaching students in the piano class of a university), the problem of "polyartism" is of particular importance. Brought up predominant-

ly on mono-artistic teaching methods, students-pianists of PRC are often not ready to approach the disclosure of a sound image through the prism of wide-ranging, multidimensionality. After analyzing the musical text, having learned the piece by heart, they focus their efforts on improving the technical (technological) side of education. According to Chinese experts, skillful playing and perfect "dressing" today often continue to dominate the national method of teaching piano playing, acting for many students as much more significant factors in assessing the performing art of a pianist than the depth of design and individuality of interpretation [11].

Concentration on technical excellence, which is often achieved exclusively through repeated, stereotyped repetitions of fragments of the studied works, leads to the automation of students' play movements. Its consequence is the unconsciousness, the mechanistic nature of the performance process, testifying to the abstract perception of the musical content. The superficial, shallow level of elaboration of the artistic idea is expressed in the inadequate embodiment of the stylistic and genre features of music, the interpretation of the musical content outside the context of the era, the fuzzy construction of the drama of the development of the sound image. Underestimation of the possibilities of the polyart approach by PRC teachers has a particularly negative effect on the development of works by students of the program repertoire, which is based on the idea of interaction between the arts. Ignoring the need to include numerous figurative parallels from other poetic worlds in the work on the musical image leads to the inconsistency of the performing concept, a fragmentary reading of the composer's artistic idea by students.

Such an algorithm of actions is the antipode of the technology of disclosing the author's intention, adopted in the European (Russian) system of music education. This technology, based on modern polyart (integrative) principles, is aimed at activating the emotional sphere, expanding the horizons of creative consciousness, attracting mechanisms of imagination and fantasy to work on the product, stimulating the associative sphere to achieve integrity and depth of interpretation, and attaining the necessary freedom of creativity.

The experience of the authors of the article in piano classes of higher educational institutions in Russia and China allows us to propose the following as the main recommendations that contribute to increasing the level of instrumental training of PRC students:

- acquaint future pianists with the phenomenon of "poly-art" in the field of musical art and education, form ideas about the types of poly-art, the process of formation and development of the idea of interaction and synthesis of arts in the history of Chinese and European musical culture;
- acquaint students with the aesthetic views of F. Liszt, M. K. Chyurlionis,

A. N. Scriabin, A. Duncan, for whom the organic unity of various types of arts was a necessary condition for creative activity;

- raise the level of theoretical knowledge, historical thinking and auditory experience of perception by students of European music;
- improve the mechanism of performing mastery of the sound space by Chinese musicians in the context of B.V. Asafiev's intonation theory, ideas about the "intonation dictionary" of European musical culture and the logic of unfolding a musical image;
- form the ideas of students-pianists about program music, musical drama, applying in the process of work artistic parallels from European literature, the art of theater and cinema;
- stimulate the interest of Chinese students in the study of the psychology of musical performance, and, in particular, the functioning of the associative mechanisms of consciousness, which have a positive impact on the process of a musician's work on interpretation;
- supervise the independent work of students through special assignments aimed at expanding the artistic horizons, general thesaurus, associative sphere.

It seems that the proposed recommendations aimed at the formation of a solid artistic and aesthetic baggage, knowledge in the field of world culture in young PRC pianists, mastering the deductive method in mastering the musical and poetic idea of the studied works, will contribute to improving the quality of the performance training of Chinese students in the piano class. They will allow students to comprehend the essence of the "Europeanized model" of performing activities based on maintaining ties with the best national traditions of the followers of the Wenren art.

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为小学生教授“技术”科目的特点
**FEATURES OF TEACHING THE SUBJECT "TECHNOLOGY" FOR
PRIMARY SCHOOL STUDENTS**

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本文讨论了在小学教授“技术”科目的具体内容。特别注意劳动培训在学龄儿童的教育中的高度重要性。对教师在向小学生教授“技术”方面的任务进行了分析。通过一个特定的示例，介绍了综合性学校低年级的技术课程的组织方式。

关键字：技术，教学法，学校，初中生。

Abstract. *The article discusses the specifics of teaching the subject "Technology" in primary school. Special attention is paid to the high importance of labor training in the education of young schoolchildren. The analysis of the tasks of the teacher in teaching "Technology" to primary school students is carried out. Using a specific example, the organization of technology classes in the lower grades of a comprehensive school is presented.*

Keywords: *technology, pedagogy, school, junior schoolchildren.*

In the modern world, innovative technologies are not uncommon - they consistently arise and are updated every few years, which often adversely affects a person's professional activity. Many people, faced with the introduction of innovative technologies during their successful career, sometimes even have to change their profession or profile of their work. These examples serve as confirmation of the fact that before starting work, absolutely every person must at least minimally master the technological culture.

It is important to begin the formation of a technological culture in the elementary grades of school. An educational area such as "Technology" will be a great help for this. In technology lessons, students have the opportunity to get acquainted with the culture of work, graphic culture, and the culture of design. Thus, the study of technology allows students to acquire basic general labor, and in high school also special skills, because the main goal of the educational area "Technology" is to prepare students for an independent working life and enable them to adapt to modern realities.

Consequently, the study of technology in elementary school should stimulate the development of the polytechnic outlook of students, develop their creative abilities, and also form a technological culture [1]. To achieve these goals, it is important to pay enough attention to the process of labor education, to form the student's hard work and respect for work, both one's own and someone else's.

Among the main tasks in teaching children in technology lessons in elementary school, one can first of all, familiarize themselves with the labor and aesthetic culture, acquaintance with various tools and materials and the manufacture of simple products (for example, applications or crafts from plasticine). It is important to note that no other academic subject sets such tasks - this makes the subject "Technology" a unique and irreplaceable discipline for primary school students.

So, the purpose of this work is to identify the features of teaching the discipline "Technology" in the lower grades of secondary schools.

Technology lessons are unique and important enough to the overall development of younger students. In the primary grades - this is the first stage in the system of labor training and education.

The main feature of technology classes in primary school is that they are based on subject-based practical activity. In primary school age, it is the main and irreplaceable component of the process of spiritual, moral and intellectual development. The sensory experience of children is enriched, allowing the formation of rational cognition. Also, substantive and practical activity directly contributes to the formation of a practical mindset. That is why a fairly large part of the technology lesson (about 70-80%) should be devoted to the practical work of children [2]. However, it is important that younger students learn the basic principle of any work activity: before starting to perform any task, you need to think well.

It is necessary for a technology teacher in primary grades to remember that younger students should receive information not only about the production area in the learning process - it is important that technology lessons are of a polytechnic nature [3]. It is necessary to convey to children information about the role of modern science and technology in people's lives, to tell them about the possibilities of personal development and self-realization in the process of work. Polytechnic training implies, first of all, that children must master a fairly wide range of skills,

and not just a professional one, as many nowadays mistakenly believe. It is the general skills that will subsequently make it possible to quickly improve in various areas of material and non-material production, as well as undergo retraining if necessary.

Younger school age is considered to be the best period for bringing up a positive attitude towards work in a child. The main task of the teacher at this stage is to instill in the child an interest in work. The student must acquire the confidence that work is not a duty, but a need, a certain way of self-expression that can bring joy. The student's desire to engage in any activity should be fully realized, based on his interests and motives. However, given that younger schoolchildren often have personal motives for work (to do better than others, do for themselves, deserve encouragement), the teacher also needs to constantly remind the child of socially significant motives of work (to do for the team, work honestly and unselfishly) [4]. It is important to create the necessary conditions for the successful mastering of technology skills by junior schoolchildren, that is, the teacher needs to organize technology lessons in such a way that they bring positive emotions, joy, and foster a love of work.

Another feature of the labor education of younger schoolchildren is based on their age characteristics. In primary school age, increased physical activity and mobility are noted, the child is easily carried away by something, but also quickly loses interest in it. In this case, the teacher must have high-quality training, which allows him to constantly update the content of the subject, regulate the time allotted for various tasks, correctly choose various methods of teaching the subject, and also use a variety of activities to maintain a business environment in the lesson [5]. The teacher needs to maintain a high level of interest in the children, which is possible if the child feels confident in completing the assignment. To do this, he must understand, remember what the plan for the task looks like, and implement it without much difficulty. Therefore, the important task of the teacher here is the correct construction of the structure of the lesson, the creation of conditions for independent work of students in an individual rhythm.

Most often, tasks such as working with paper, fabric, appliques, origami, embroidery and modeling predominate in technology lessons in elementary school. This choice is explained by the need to develop fine motor skills in young children and the ability to perform sequential actions, following a certain, pre-drawn up plan. The teacher must remember this when drawing up a work program.

To draw up calendar-thematic plans for the subject of "Technology", modern Russian primary school teachers are reliant primarily on the Federal State Educational Standard of the second generation of primary general education and the concept of spiritual and moral development and upbringing of the personality of a citizen of Russia [6]. The author's program of N.I. Rogovtseva, S.V. Anash-

chenkova perfectly suits these criteria. It is also necessary to remember about the planned results of primary general education. So, for example, when drawing up work plans for technology lessons in primary grades at Moryakovskaya secondary school (Tomsk Oblast), teachers pay great attention to working with natural material. Thus, the subject connection between technology and biology (natural science) is realized, helping children in the study of the topic "Man and the Earth". Students, together with the teacher, grow various seeds, and also learn to make various crafts from cones, twigs, etc., which contributes to the development of fine motor skills. During the educational process, teachers strive to place a special emphasis on children's cognition of the world around them. To do this, they choose such textbooks on technology, in which the sections "Man and Earth" or "Man and Water", etc. appear. Primary school teachers note that in the process of studying these topics, psychological preparation of the child is carried out, which helps to smoothly prepare him for secondary school.

Considering various calendar-thematic plans for the subject "Technology" in primary grades, one can identify some patterns in their content. Throughout all four classes of primary training, schoolchildren in technology lessons study the same sections, gradually progressing in their development every year: "Man and Earth", "Man and Water", "Man and Air", "Man and Information" [7]. It is interesting that already from the first grade in the section "Person and Information" children begin to comprehend the basics of using computer technology, and in the fourth grade they are already actively working in text editors.

So, the basis of thematic planning for the entire period of teaching technology in primary school should be based on the idea of the consistent mastering by students of a set of knowledge and skills. It must be remembered that this knowledge and skills acquired by a younger student in technology lessons will subsequently be used in teaching other subjects.

Obviously, the effectiveness of labor training primarily depends on how thorough the teacher's preparation for classes will be. In elementary grades, it is very important to give the child an understanding of work activities, tools and products of labor. The teacher should remember that his preparation for technology lessons begins long before the lesson, even at the stage of his own learning the methodology of teaching the subject "Technology". After all, it is the breadth of the outlook and the depth of the teacher's pedagogical knowledge that determines how interesting and attractive a technology lesson will be for students.

Although the subject "Technology" in primary school is not considered a main subject, this does not make it less important. By doing manual labor at primary school age, children develop imagination and logical thinking. The teacher needs to remember the importance and benefits of instilling in students a love of work and, accordingly, technology lessons that are necessary for a child at the initial

stage of schooling.

Also, in the course of teaching the discipline "Technology" in elementary school, it is necessary to pay attention to the active development of motor skills in children, touch, eye and ingenuity [8]. It is in elementary school that children first have the opportunity to get primary ideas about blue-collar occupations, and for a teacher, technology lessons are a great chance to educate children to be industrious and teach a child to work in a team. It is necessary to focus not only on creating products according to the model, but also to teach the child to invent their own designs - thus developing imagination and acquiring skills for further making more complex crafts. An important task of the teacher at this stage is to teach the child to translate his ideas into reality, which is one of the criteria for his further happiness and well-being.

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俄国教育管理中项目活动法的国家性质
**THE STATE-PUBLIC NATURE OF THE PROJECT-ACTIVITY
APPROACH IN THE MANAGEMENT OF RUSSIAN EDUCATION**

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本文提供了政府在教育领域中的层级特征，分析了解释具有国家公共性质的“系统活动法”概念的方法，即“项目方法”，揭示了它们的一套相互关联的要素。作者研究了在现代教育实践中使用此工具集的可能性，并因此制定了“项目活动法”的概念，这是教育管理的现代发展阶段的基础，该阶段具有国家公共性质。字符。

关键词：系统活动法，项目法，项目活动法，管理的国家性质，指导主义，建构主义

Abstract. *The article provides a characteristic of the levels of government in the field of education, analyzes approaches to the interpretation of the concepts of "system-activity approach", which has a state-public nature, "project method", reveals a set of their interconnecting and interdependent elements. The author investigated the possibilities of using this set in modern educational practice and, as a result, formulated the concept of "project-activity approach", which is the basis of the modern stage of development of education management, which has a state-public character.*

Keywords: *system-activity approach, project method, project-activity approach, state-public nature of management, instructionism, constructionism.*

Russian education is managed at the federal, regional, and municipal levels, the first two of which are the levels of government in the field of education. Each of the levels has its own powers in terms of managing the education system.

The Ministry of Education and Science of Russia, which coordinates the activities of the Federal Service for Intellectual Property, Patents and Trademarks, the Federal Agency for Science and Innovation, as well as Rosobrazovanie and Rosobrnadzor, is responsible for the development of state policy and legal regulation in the field of education at the federal level.

In each of the constituent entities of the Russian Federation, there is an executive body that exercises management in the field of education (ministry, department, head office, etc.) within the boundaries of the respective region.

In municipal districts and urban districts, education is administered by the relevant local government bodies. Certain management issues are within the competence and sphere of responsibility of the educational institution.

Authority is the right to carry out certain actions or conduct one or another educational policy, fixed by law. Possession of certain powers also means that the higher level of management cannot determine the procedure and rules for the implementation of these powers, but only recommend their implementation in one way or another, unless otherwise specified by current legislation.

Given the presence of a large number of subsidized territories, in Russia there is a practice of subsidizing a higher level of government with a lower level of government in terms of the exercise by the latter of its powers to manage the education system.

The modernization processes taking place in modern Russian education have actualized the need to involve the public in the management and implementation of state and public education management. The introduction of such innovations presupposes an active search for methodological approaches for organizing activities.

Of interest is the system-activity approach, which is the methodological basis of new generation standards in the general education system. This approach is aimed at developing the student's ability to independently set educational goals, design ways to implement them, monitor and evaluate their achievements, and thus develop the ability to learn.

The concept of "system-activity approach" was introduced in 1985. Previously, researchers considered the system approach and activity-based approaches as independent quantities.

So, I.V. Blauberg, V.N.Sadovsky, E.G. Yudin define the system approach as a direction of the methodology of scientific knowledge, which is based on the consideration of an object as a system: an integral complex of interrelated elements, L. Bertalanffy - as a set of interacting objects ; A.D. Hall, R.I. Feijin - as a set of entities and relationships, interrelated elements (components).

The essence of the activity approach is to consider any mental phenomenon and process through the prism of the category of activity and is inherently universal, since it covers the widest range of cognitive processes and personal qualities.

The activity-based approach was the most intensively developed and at the same time was most productively used in such an area as education. Moreover, the advantage here clearly belongs to the followers of the school of AN Leontiev [20]. And this is no coincidence. The path of psychological research in the learning

process is organically linked with the main idea of the concept of A.N. Leontiev, according to which the development of human consciousness is understood as learning in its specifically human forms, that is, in the conditions of transferring social and historical experience from person to person.

A.N. Leont'ev believes that activity is not a reaction or a set of reactions, but a system that has a structure, its internal transitions and transformations, its own development. In the formation of consciousness in the learning process, it is activity that acquires central importance [21]. The idea of the activity approach is associated with activity as a means of formation and development of the subjectness of the participant in the process.

After a critical analysis of the ideas that existed in world psychology about the psychological process of mastering a concept by a child, A.N. Leontiev [20] comes to the conclusion about their inconsistency and outlines his own new understanding of this process. Based on Vygotsky's research, which established the important role of communication and cooperation as necessary conditions for learning, already in this article, A.N. Leontiev raised the question of the content of the process of mastering a scientific concept: although it is "performed in the process of communication", it is not limited to communication. "What lies behind the communication in which the transfer of a scientific concept to the student is carried out?" - asks Leontiev. And he answers: "Behind communication lies the student's activity organized in this process." It is necessary to build a system of psychological operations corresponding to the generalization contained in the content of a scientific concept.

On the question of the relationship between learning and development, Leontyev, following Vygotsky, supports the position of the leading role of education and upbringing: a child, learning, develops. P. Ya. Halperin, on the basis of an analysis of object and mental actions, as well as the operations included in these actions, creates the concept of a systematic step-by-step formation of mental actions and concepts, which has been confirmed and found effective application in the practice of school teaching [14].

In parallel with these studies in Moscow under the guidance of representatives of the activity approach D. B. Elkonin and V.V. Davydov, and in Kharkov - V.V. Repkin, starting from the 50s, theoretical and experimental research on the study of the educational activity of younger schoolchildren has developed on a wide front. On their basis, a theory of developmental education was developed, on the basis of which one of the three state educational systems currently operating in Russia was introduced since the beginning of the 90s.

At the same time, in modern educational practice aimed at the formation of competencies, there is a need to use other approaches and methods. In the National Educational Initiative "Our New School", the project-research method is defined

as a priority modern method.

Note that the project method in pedagogy is not fundamentally new. The essence of the concept of "project activity" is associated with such scientific concepts and categories as "project", "design", which have a diverse nature both from the point of view of various branches of scientific knowledge and from the point of view of different levels of scientific methodology.

The term "project" translated from Latin means "throwing forward". A project is a prototype, an ideal image of a supposed or possible object, state, in some cases - a plan, an idea of some action.

Its origin is associated with the ideas of the humanistic direction in philosophy and education, developed by J. Dewey and W.H. Kilpatrick. J. Dewey proposed to build learning on an active basis, through the purposeful activity of the child, in accordance with his personal interest in this particular knowledge. In domestic pedagogy, the project approach is reflected in the works of E.S. Polat, I.A. Winter, G.L. Ilyina, V.I. Slobodchikova, E.N. Solovova, E.V. Burtseva, V.V. Kapylova, S.P. Mikitchenko, O. M. Moiseeva, G.M. Nuriakhmetova, V.V. Safonova, T.E. Sakharova, Ya.K. Taraskina, V.V. Chernykh, T.G. Novikova and others. They note that the project (from the Latin *projectus* "pushed forward") is a realistic idea about the desired future.

According to V.I. Slobodchikov, design in education is the process of growing new forms of community of teachers, students, the teaching community, new contents and technologies of education, new methods and techniques of pedagogical activity and thinking of various participants in the educational space [27].

V.V. Davydov views design as a mechanism for moving from the past to the future. In designing the future, the use of the means of an activity-theoretic approach is of paramount importance, which makes it possible to overcome the illusion of controllability of all spheres of social life, the illusion of the possibility of "artificially forming and remaking these spheres" [17].

V.F. Aitov, Yu.V. Eremin define the project approach as the implementation of the leading, dominant learning strategy, which serves as the basis for organizing the educational process, in which all participants, being subjects of the cognitive process, make independent, purposeful, productive search, processing and updating of knowledge [3].

According to A.B. Vorontsov [10], the project approach is a set of techniques, operations of mastering a certain area of practical or theoretical knowledge, a way of organizing knowledge. This is a way to achieve a didactic goal through a detailed study of the problem (technology), which must end with a real practical result. Since the ways, methods, mechanisms and means leading to the goal are not known, the project participants seek them out, discover them through activity, discover or invent, build logical constructions, hence, according to L.B. Perever-

zeva, the design approach has another name - constructionism. Logical constructs can be built using a thought experiment. A hypothesis is put forward, that is, a conjectural idea, a thought flashed in one's head, a guess, and it is accepted as an initial assumption.

The authors begin to design, that is, to further develop, to test logically, to critically evaluate, to refine step by step in more detail, to change our original concept. Ability to design, mentally moving towards the goal according to the proposed design, without losing sight of anything significant, displaying thoughts in plans and diagrams, calculations in the course of their theoretical rather than practical implementation. Indeed, at the same time, it is relatively easy and quick to correct the most serious mistakes even before the plans become deeds, and their consequences become an irreversible fact of life. This is what design is for - imaginary (virtual) creation, testing and verification of what we want to create and build in practice. A mistaken hypothesis, a wrong assumption in our initial design, or a false step in our design — if discovered early enough — is relatively easy to fix in the project. Mistakes are not terrible in the course of a thought experiment and project search, omissions in a project can become a serious obstacle to the practical implementation of a project.

The above suggests that the design process has three stages. The first one puts forward an idea, a substantive core, a meaning capable of further development. At the second stage, a project image emerges from the initial idea, a detailed picture, a general panorama, clear sketches of the desired future emerge. A new norm, an unknown product, a complex of new connections can be the subject of such an advanced figurative representation; new network, organizational structure and system of relations; a new state of affairs or a regularly controlled course of events. The final phase of the design is the preparation of design and technological documentation, which describes in detail all the mechanisms necessary to implement the design concept, translate it into reality and translate the image of the desired from the possible future into the actual present.

Until the project is implemented, it is permissible to revise and recheck it many times in order to detect risks, adjust and minimize them. Once the project is implemented, correcting such errors can be too difficult, time consuming and impracticable.

Thus, the essence of project activities from the point of view of the activity approach is that the focus is on joint activities. At the same time, the activity approach takes into account the nature and conditions of changing types of activity in solving the problems of a particular project.

The project approach in modern educational practice reveals a universal character: a combination of research and prognostic, informational - educational and social - transformative principles is traced, which makes it possible to predict the

allocation of the project approach as the basis of the educational paradigm of the XXI century.

The project-activity approach in education management represents certain actions for: defining a goal, putting forward hypotheses, analyzing them, identifying possible alternatives, allocating resources necessary to achieve the goal, designing and creating a management system and organizing a complex, organizing model experiments to test them, synthesis of final conclusions and creation of a mechanism for the functioning and management of the project.

The project-activity approach in education is expressed in the fact that the content of joint projects is an activity aimed at solving the problem and the activity of communication as mastering a social norm. From this perspective, solving the school problem through a project is:

- interaction between the school and the parent community, representatives of local self-government bodies and public organizations;
- the process of solving problem (social) tasks.

Considering the implementation of the design and research method through the prism of the development of state and public education management, it is important to note its impact on improving the efficiency of education in the following indicators:

- giving the results of education a socially and personally significant character;
- deeper understanding of education issues;
- possibility of differentiated training of public managers while maintaining a unified structure of theoretical knowledge;
- significant increase in the motivation and interest of public managers in the implementation of a socially significant project;
- provision of conditions for taking into account social needs on the basis of the project-activity approach in education management, ensuring the successful implementation of the project.

Interaction in activity is diverse in content, problematic in the way of mastering the activity. A prerequisite for the organization of interaction are relations in the educational environment, which are built on the basis of trust, cooperation, equality of partnership, communication. For the organization of joint activities, the most interesting are problems of a problematic nature, which are recognized by the project participants as minimizing risks, the need to master methods of action, as a desire to solve school problems.

So, the project-activity approach in the organization of state-public administration acts as a way of organizing joint activities of the school and public administrators, in which they are not passive "receivers" of information, but they themselves actively participate in the process of creating and implementing the project. The essence of the project-activity approach in the state-public management of edu-

cation consists in directing all resources and measures to the organization of intensive joint activity, "because only through his own activity a person assimilates science and culture, methods of cognition and transformation of the world, forms and improves personal qualities" [14].

The task of solving problems becomes an integrative part of the activity. In this case, the most important component of action is joint action. In this regard, special attention is paid to the process of developing strategies of action, which are defined as ways of solving problematic tasks. The function of the school, municipal and regional education authorities in the project-activity approach is manifested in the organization of joint activities with the public (parents, trustees, representatives of local government, public organizations) to develop and manage the project implementation process.

Based on the foregoing, it is possible to determine the **basic principles** that ensure the project-activity approach in the management of Russian education, which has a state-public character:

1. The principle of activity, assuming an activity mode of work of public managers in expert-analytical, design workshops, project seminars, trainings.

2. The principle of continuity, which provides not a one-time participation, but provides an opportunity for constant and continuous development and implementation of project activities.

3. The principle of targeting, implemented through a variety of proposed topics, forms, technologies, targets of events and the ability of public managers to choose their own trajectory of development, depending on problems and interests.

4. The principle of relevance, which consists in realizing the goals and solving problems of an individual organization, but in the context of the priority areas of the municipal education system and in accordance with its development program.

5. The principle of effectiveness, which sets the condition for the mandatory obtaining of the final result in accordance with the goals (this can be the development and implementation of a project, a joint product, the development of technology, replenishment of the common piggy bank with new techniques and means, etc.), and as a strategic result - quality of education.

6. The principle of psychological and social comfort, aimed at relieving stress-forming factors, providing for the benevolence and tact of the project participants, material and moral motivation, getting an opportunity to solve educational problems.

The state-public nature of management in the field of education involves the involvement of the public in the formation and implementation of educational policy at all levels, reaching a consensus on indicators for assessing the quality of education. It should be noted that the interest of public administrators in the

acquired competencies, which can and should be useful to them in education management, is very important.

Of all the variety of innovative directions in the development of state and public education management, the use of the project-activity approach is effective for several reasons:

- this technology is well combined with educational programs implemented in educational institutions, without violating the content of education and training, which is determined by the educational program;
- when integrated into the learning process, the project method allows you to achieve the goals set using alternative teaching tools: creating a single educational space in groups, using a personal computer to solve the problem, adult experimentation, experimental research, modeling, joint productive activities of children, parents, teachers, etc.;
- it is a truly pedagogical technology that provides not only the development of program material, but also the intellectual and moral understanding of adults, which allows them to form the prerequisites for research skills necessary for the successful implementation of a joint project;
- the method of projects satisfies the needs of adults in innovative activity, increases their competence.

The project - activity approach causes a change in the general paradigm of state - public education management, which is reflected in the transition:

- from defining the goal of state and public education management as expanding public participation in education management within the framework of improving the quality of education to defining this goal as the formation of a project culture of public administrators to solve educational problems;

- from the spontaneity of the activities of public managers to the strategy of its purposeful organization and systematic formation;

- from isolated communication of the pedagogical community, to the inclusion of public administrators in the context of solving significant life tasks of education;

- from the individual form of solving educational problems to the recognition of the decisive role of cooperation based on the project-activity approach in achieving the goals of education.

Thus, the development of state - public education management on the basis of a project - activity approach makes it possible to involve parents, local authorities, public organizations in the process of active joint activity. Therefore, the ability of an educational institution, as a basic link in education, to involve public administration bodies in the organization of a modern educational space and in education management on the basis of a project-activity approach is of great importance for the implementation of modern educational policy and achievement of the results planned in accordance with the requirements of the Federal State Educational Standard.

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比较分析在教师和音乐家的专业培训中电子教育资源的引入，以数字方式支持中俄两国的教育进程

COMPARATIVE ANALYSIS OF THE INTRODUCTION OF ELECTRONIC EDUCATIONAL RESOURCES IN THE PROFESSIONAL TRAINING OF A TEACHER-MUSICIAN AS A DIGITAL SUPPORT FOR THE EDUCATIONAL PROCESS IN CHINA AND RUSSIA

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本文致力于对电子教学资源引入音乐老师的专业培训进行比较分析，以作为中国和俄罗斯教育过程的数字化伴奏。比较中国和俄罗斯联邦的数字教育模型，作者揭示了教育界对于理解教育过程中多媒体设备过程的意义和前景的共同态度，这自然对应于技术发展水平这些国家和世界空间的全球化趋势。同时，俄中教育的数字化模式不仅具有共同特征，而且具有特征性，这决定了各国在解决现代高科技数字化教育过程中存在的问题上的共同利益。

关键字：教育过程，比较教育学，现代化，数字技术，电子教育资源

Abstract. *The article is devoted to a comparative analysis of the introduction of electronic educational resources into the professional training of a music teacher as a digital accompaniment of the educational process in China and Russia. Comparing the digital models of education of the PRC and the Russian Federation, the authors reveal a common attitude of the pedagogical community towards understanding the significance and prospects of the process of multimedia equipment of the educational process, which naturally corresponds to the level of technology development in these countries and the globalization trend of the world space. At the same time, digital models of Russian and Chinese education contain not only common but also characteristic features, which determines the mutual interest of*

countries in the existing experience in solving problems of ensuring the educational process at a modern high-tech digital level.

Keywords: *educational process, comparative pedagogy, modernization, digital technologies, electronic educational resource.*

The use of multimedia capabilities, as a combination of various types of digital content, naturally continues a number of technical means of audiovisual equipment that appeared in China at the end of the XIX century. First they used slides, then tapes and silent films. In the 1940s, tape recorders were actively involved, in the 1950s - televisions, in the 1970s - electronic computers, since the 1980s - multimedia and now digital technologies.

Today, digital content in education in China is one of the symbols of modernization, which plays an important role in improving the effectiveness of teaching and the quality of professional training in universities, which is confirmed by:

- legislative acts of the PRC, and in particular, "*The Concept of the National Reform of Higher Education in China*", the Resolution "*On the Plan for Improving the Quality of Bachelor's Education and Pedagogical Reforms during the 12th Five-Year Plan*", in which the universities of the PRC are tasked with creating 5000 open electronic courses to showcase the rich teaching experience of Chinese university teachers;
- state projects of the PRC, and in particular, "Project 211", developed by the Ministry of Education of China, the purpose of which is to build a system of innovative information infrastructure in universities, and the result is the creation of a Chinese computer network for educational scientific research (CERNET - China Education and Research Network), as well as the China Academic Library & Information System (CALIS), 3 technology centers, 15 provincial centers, 16 digital resource processing centers and 22 digital library platforms [1];
- development of specialized sites by the Ministry of Education of China (<http://www.icourses.cn/home/>; <http://www.jingpinke.com/>), the electronic resources of which are available to any registered user.

Studies by Gunn Peizeng, Li Na, Li Xiangmei, Li Shaobing, Mo Yuping, Jin Lei, Zhang Jingsheng, Yang Fengmei and others are devoted to the application of digital technologies in music education in the PRC.

The use of multimedia in music education, according to Chinese music teachers:

- is bright, focused on visualization of perception and motivates cognitive interest in self-education;
- turns abstract things into concrete, making them easy to understand and remember;

- adapts to individual differences and developmental levels of students;
- makes music education more mobile.

These positions explain the attention of Chinese teachers to the development of electronic textbooks. The difference between printing and digital format is that a traditional textbook mainly contains textual materials, while its electronic counterpart uses not only text, but also images and sound. In this regard, in China, there are three types of electronic textbooks: visual, auditory textbooks, and audiovisual materials. Such content includes instructional slides, films, recordings, audio recordings. The functions of an electronic textbook in digital format are: compilation of the proposed materials, a kind of reproduction; creative development of presentations and other visual resources.

The use of an electronic textbook in music education, according to Zhou Jia, Mo Yuping: activates the active principle in the music lesson; combines the characteristics of text, sound, film and image, which provides the most ideal learning environment and stimulates learners' interest in learning. Dynamic capabilities mobilize visual, auditory and other organs of students, for example, contribute to the visualization of visual material (for example, the musical score of a song); allows students to learn easily and naturally; contributes to the introduction of emotional discharge into the lesson (for example, small animations in order to preserve the health of the psyche of students); promotes the development of general and musical abilities; stimulates all-round stimulation of musical consciousness, increasing the amount of information received; optimizes mental processes (memory, will, thinking); develops the imagination of students as the main quality of aesthetic thinking; partially "performs" the function of a music teacher in providing educational information, thereby simulating a new quality of *teacher-student* relationship [2].

Chen Tsong sees digital information technology as one of the symbols of the modernization of the practice of not only music, but also music-pedagogical education. Chen Tsong explains his position as the realities of modern society - information society in its essence. In such a society, science and technology develop rapidly, and the content of knowledge is constantly updated [3]. Students in modern society live in an open social space. Consequently, the technologies for acquiring knowledge should differ from the methods of the past and require the use of a digital format in mastering the basic theory of music, solfeggio, harmony, composition, musical form, instrumentation, etc.

In this regard, an information and communication environment has been created in modern universities in China. According to studies by Fanfan Yuan, this is understood as a systemic set of information and technical, educational and methodological support, which is created using innovative electronic media, computer telecommunication technologies, including virtual libraries, distribution databases, educational and methodological complexes [1]. For example, in the Nanjing Uni-

versity Library, the "Lectures" section includes over two hundred academic lectures by prominent Chinese and foreign scholars, including Nobel Prize winners.

If the materials of lectures, as Fanfan Yuan notes, allow students to expand their scientific ideas, then digital content in the form of electronic educational resources, as applications to university textbooks, form the competence of practical activity. In particular, in music and pedagogical education in China, the discipline "Methods of Music Education" is equipped with a textbook by Yu Wenwu, Xie Jiaying with a DVD supplement, which, according to the authors, not only expands the channels of student learning, but also transforms the way of thinking of future music teachers.

Russian teachers, similar to their Chinese counterparts, consider a number of significant events on a global scale as the prerequisites for the emergence of modern multimedia digital products.

Legally, electronic educational resources are reflected in the Law "On Education" (Articles 13, 16, 18, 98). So, at the legislative level in the Russian Federation:

– the possibility of e-learning was approved, which is understood as "the organization of educational activities using the information contained in databases and used in the implementation of educational programs and ensuring its processing of information technologies, technical means, as well as information and telecommunication networks that ensure the transmission of this information through communication lines, interaction of students and teaching staff "[4];

– the necessary conditions for the implementation of educational programs with the use of distance learning technologies for the functioning of an electronic information and educational environment, including electronic information resources, electronic educational resources, a set of information technologies, telecommunication technologies, appropriate technological means, and ensuring the development of educational programs by students in full;

– measures have been developed to protect information in the implementation of educational programs using e-learning, distance educational technologies, an organization carrying out educational activities;

–the need for libraries in organizations carrying out educational activities in order to ensure the implementation of educational programs, including digital (electronic) libraries is substantiated, access to professional databases, information reference and search systems, as well as other information resources is provided [4].

Electronic educational resources contain libraries of educational organizations and publishing houses, transformed in the age of computer technology into information and library centers. An example is the electronic library of the Moscow State Pedagogical University <http://elib.mpgu.info/login.php>; EBS "University Library Online" <http://biblioclub.ru/>, EBS "Yurayt" <https://www.biblio-online.ru/> and others. Along with the listed electronic library systems, there are Internet stor-

ages. For example, Unified Collections of Digital Educational Resources <http://scool-collection/edu.ru/about/>; <http://fcior.edu.ru/> and others.

With the development of network technologies and requirements for a competence-based approach in education, which presupposes not only the acquisition of knowledge by students, but the readiness to apply it in their own professional activities, electronic educational resources of an interactive nature appear. In contrast to the textographic electronic educational resource, the interactive one contains not only a module for receiving information by students, but also a module for practice-oriented tasks of current control and intermediate certification. Each of the modules considered, being an element of a single electronic educational resource, has autonomy and is aimed at solving a specific educational problem in the development of an academic discipline.

The use of electronic educational resources allows not only to modernize the forms, but also to expand the range of pedagogical technologies and teaching methods, to ensure the variability of education. So, in the practice of mastering the discipline "electronic educational resource" National images of the world in traditional culture "(authors: Professor E.V. Nikolaeva E.B. Abdullin). Variability is realized in the analyzed EER at the levels:

– *substantive* (comfortable conditions in the development of educational material to meet the cognitive needs of students with varying degrees of motivation for educational activities, interests and abilities are provided by the authors' clear formulation of the sections and detailing the content of each structural component. For example, Section 2 "Samples of folk musical culture of different countries" contains audio - and video materials with recordings of folk songs of Australia, Asia, North America, South America, Africa, Europe. At the same time, visual musical material is grouped so that the student can get an idea of the general that unites the musical folklore of a particular region of the world and identify the peculiarities of the folklore of a particular people. In this regard, songs of the peoples of India, China, Japan, Korea, Iran, Malaysia, Israel, etc. are "woven" into the "Wreath of children's songs of the peoples of Asia";

– *technological* (depending on the didactic goal, the student can turn to educational materials for initial acquaintance, further assimilation of the educational material, self-control and self-education. It is not only the orientation of the manual on the acquisition of knowledge of cultural studies and, in particular, the peculiarities of the phenomenon of international cultures, but also modeling by the authors of the manual of possible pedagogical approaches to the introduction of samples of folk culture into the content of the educational process).

When developing the electronic resource "National Images of the World in Traditional Culture", the authors took into account the competence-based approach, which is implemented in the educational and methodological manual, aimed at

equipping students of pedagogical universities with a certain level of knowledge, as well as the formation of the ability to implement them in pedagogical work. Along with the content and procedural components of the competence of E.B. Abdullin, E.V. Nikolaeva, as the developers of this electronic educational resource, pay attention to the personal component and, in particular, to the formation of an individual's internal motivation for the high-quality implementation of pedagogical activity, attitude to professional work as a value.

Performing a teaching function, EER "National Images of the World in Traditional Culture" contains:

– static elements (text information). For example, Section 1 reveals the essence of the term "national image of the world", understanding the nature of sound in the tradition of musical culture, peculiarities of folk ideas about the origin of music and its purpose, the originality of folklore intonation among peoples of different countries of the world;

– dynamic elements (sound, video, animation and other visual effects). Thus, the "Musical tour of the countries of the world continues" allows you to "visit" several regions of Russia, Australia, South Africa, festivals of ethnic music of Indian tribes inhabiting the USA, Indonesia, Malaysia, China, Mongolia, Japan and other countries.

EER materials "National Images of the World in Traditional Culture" are adequate to innovative educational *technologies*:

– *motivational and value support* of preparation of the teacher for educational work and, in particular, the formation of students' tolerance. In this regard, the authors of the manual rightly note that folk music gives a person the opportunity to cognize another - his emotions, feelings, spiritual world, value guidelines, promotes unity through sympathy and empathy. In addition, folk music is presented in the manual as an ideal model of moral relations, colored by genuine sincerity;

– *informative-substantive*, actualizing the individualization of education. The role of the teacher changes significantly. Thus, when working with ESM, the teacher acts as an "initiator", "moderator (mediator)" and "advisor" who explains how to learn and apply the experience gained in practice. G.A. Bordovskiy, in this regard, rightly noted that the activities of a teacher-tutor, like that of a teacher-consultant, are aimed not at reproducing information, but at working with the subject's experience of the student. Applying EER in the educational process, the teacher analyzes the cognitive interests of students, intentions, needs, personal aspirations of each student; develops special exercises and assignments based on modern communication methods, personal and group support; thinks over ways of motivation and options for fixing achievements [5];

– *activity-practical*. Video recordings of lessons conducted by students of universities of the Russian Federation and other countries of the world at the interna-

tional competitions "Music teacher of the XXI century" named after D.B. Kabalovsky, as well as brief comments on the lessons, not only reveal the richness and diversity of the national musical culture of a particular country, the originality of its intonation system, but also contribute to gaining experience in applying the knowledge gained in pedagogical activity.

Similar EERs are designed for students to undergo educational and industrial practices, which is explained by the fact that the functions of a unified information environment for the network interaction of universities with educational organizations are currently being modernized. So, V.G. Manyakhina and S.D. Karakozov note that the current electronic information environment of the MSPU is more focused on ensuring the intra-university educational process, it lacks components that ensure the interaction of university staff and students with teachers of schools, preschool institutions and other educational organizations; opportunities to provide distance interaction between students and children - online teaching practice (e-learning, organization of network projects, Internet contests, etc.), which is no less important than traditional teaching practice, in the context of the increasing integration of e-learning and distance learning technologies into school education [6].

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在“嘻哈”舞蹈的基础上发展5-7岁儿童的运动能力
**DEVELOPMENT OF MOTOR ABILITIES IN CHILDREN 5-7 YEARS
OLD ON THE BASIS OF THE "HIP-HOP" DANCE**

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本文讨论了5-7岁儿童的运动能力发展问题。本文介绍了在Surgut的学前机构“Kolokolchik”中进行的基于“嘻哈”舞蹈手段的5-7岁儿童运动能力发展的研究结果。

关键字：5-7岁的儿童，运动能力的发展，舞蹈手段“嘻哈”

Abstract. *This article talks about the problem of the development of motor abilities in children 5-7 years old. The article presents the results of a study of the development of motor abilities in children 5-7 years old based on the means of "Hip-hop" dance, conducted in the preschool institution "Kolokolchik" in Surgut.*

Keywords: *children 5-7 years old, development of motor abilities, means of dance "Hip-hop"*

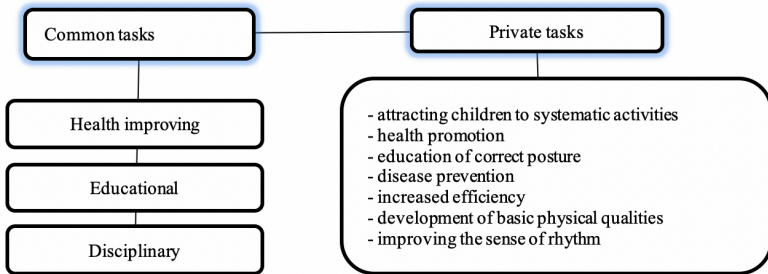
Introduction

In preschool organizations, with the introduction of the Federal State Educational Standard of preschool education, changes are taking place in educational processes, since the attention of preschool teachers is focused not only on the development of the creative and intellectual abilities of children, but also on the correction of the emotional-volitional and motor spheres. According to many authors, the traditional methods of teaching and upbringing are replaced by active forms of physical education, aimed at developing the activity of the child himself [Akulova A.I., Snigur M.E.].

The variety of existing methods, traditional and modern forms of physical exercise, aimed at non-versatile development of children, give the teacher a choice. Two components are used to develop motor skills: gymnastics and rhythmic dance.

Many teachers used such programs as "Rhythmic Mosaic" by A. I. Burenina and "Sa - Phi - Danse" by E. Zh. Firileva, E. G. Saykina. These programs are being replaced by modern dance compositions and complexes.

The use of dance elements, ligaments or holistic compositions with preschoolers in physical education lessons can solve both general and particular problems (Scheme 1).



The solution of these tasks is aimed at bringing up a harmoniously developed personality.

Modern dances have a large arsenal of various movements, elements and combinations. Each element has its own name and is performed to the corresponding music, all this creates a positive emotional mood. While dancing, children get an idea of the diverse world of movements, which, especially at first, is new and unusual for them.

Organization of the study

The study was carried out on the basis of the Municipal budgetary preschool educational institution, kindergarten No. 37 "Kolokolchik" in Surgut and consisted of three stages. At the first stage of the research, we have compiled a program for testing motor abilities in children 5-7 years old based on the means of dance "Hip-hop", consisting of tests of technical and physical readiness.

The content of technical training included three areas: (musical and rhythmic basis of dancing, choreography, accuracy of movements, was focused on improving the accuracy of movements of body links and muscle-joint sensitivity).

The content of children's physical fitness included three areas (speed of movement, flexibility, vestibular stability).

At the second stage of our research, we conducted a pedagogical experiment. For older children of preschool age, rhythmic classes were held, including a complex of modern dance "Hip-hop", which is conditionally divided into two blocks of technical and physical training, which constitute a single foundation for the development of motor abilities of children 5-7 years old. The "Hip-hop" dance means complex contained the basic elements of various motor actions that have

their own names (Old school, Smurf, Prep, Reebok, Kriss kross, Happy Feat Steve Martin, Cabbage patch, Steve Martin, BK Bounce, Janet Jackson, etc.).

Results and discussion

At the third stage of our research, we re-tested the motor abilities of 5-7 years old children. Analyzing the obtained indicators, we found that as a result of purposeful training in children there were statistically significant positive changes in all the studied indicators of readiness (Table 1).

Table 1 - Comparative indicators of the motor abilities of children 5-7 years old

№	Readiness indicator	Start of the experiment	End of the experiment
Technical readiness	Musical-rhythmic coordination (<i>max-16 errors</i>)	7,7±4,1	1,5±0,2
	Rhythmic coordination (<i>max-16 errors</i>)	8,9±1,5	2,8±0,6
	Assessment of the technique of performing basic movements of modern dance	2,2±1,3	3,9±1,1
Physical readiness	Spine flexibility (<i>cm</i>)	8,9±1,9	18,9±1,3
	Swiftness of movement (<i>quantity in 10 sec</i>)	11,7±2,9	24,7±1,9
	Jumping ability (<i>cm</i>)	23,4±6,2	43,4±2,2
	Vestibular stability (<i>cm</i>)	120,3±23,5	180,7±30,1

The number of errors during the reproduction of the rhythmic pattern of a given dance to the music decreased in children, the indicator “musical-rhythmic coordination from the initial data 7.7 errors to 1.5 errors. The result of the indicator “rhythmic coordination, which reflects the number of errors during the task, has also improved. At the beginning of the experiment, out of 16 possible errors, 8.9 errors were made. At the end of the experiment, the children easily coped with the task, making, on average, only 2.8 errors out of 16 possible, which amounted to a high qualitative increase in the result. The average assessment of the technique of performing the basic elements of modern dance was 2.2 points (on a five-point scale).

At the end of the experiment, the children significantly improved their technical readiness indices up to 3.9 points. Among the indices of physical readiness of novice dancers after the pedagogical experiment, significant changes also occurred. In the "Spine flexibility" indicator, children significantly improved their results by almost 10 cm on average. In the indicators "Jumping ability" and "Swiftness of movement" we also noted an increase. A high increase in physical readiness indices is due to the fact that the complex impact aimed at the formation of specific physical qualities of 5-7 years old children coincides with the sensitive

period of their development. Many studies show that this age is favorable for the development of motor qualities, it is in the period from 5 to 7 years that the greatest annual increase in speed of movement and flexibility is noted, progressing under the influence of special training. Indicators of "vestibular resistance" by the end of the experiment showed that the distance to deviation from a straight line increased in children.

Thus, the means of modern dance "hip-hop", performed to music of different tempo, contributed to the effective growth of not only indicators of technical readiness (choreography, musicality, rhythm), but also indicators of physical readiness of children 5-7. As a result of purposeful classes, statistically significant positive changes in all the studied indicators of technical and physical fitness occurred in children.

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文献类型的英语语言学特征（关于S. ACHERN的作品材料）
**LINGUOSTYLISTIC FEATURES OF ENGLISH TEXTS OF THE
EPISTOLARY GENRE (ON THE MATERIAL OF THE WORK BY S.
ACHERN)**

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本文专门介绍了书信体裁及其语言风格特征。作为对科学文献的分析的结果，确定了书信体类型的英语文字的最常用手段。该研究基于S. Ahern的小说“彩虹尽头”的材料。

关键词：书信体裁，交流，话语，文体学，表达语言手段。

Abstract. *This article is devoted to the consideration of the epistolary genre and its linguo-stylistic features. As a result of the analysis of scientific literature, the most common means of English-language texts of the epistolary genre were identified. The research is based on the material from the novel of S. Ahern "Where Rainbows End".*

Keywords: *epistolary genre, communication, discourse, stylistics, expressive language means.*

The epistolary genre, being flexible and plastic due to the nature of its predecessor - oral dialogue, is able to adapt to the style of communication [2] and the genre of text and transform itself when necessary within any required framework [5].

The epistolary genre can be divided into several options for its use: everyday epistolary (private correspondence between people), journalistic epistolary (a letter that can be addressed to one person or a whole community, but published in one form or another in the media or other channels of mass communication) and epistolary fiction - the transmission of the thoughts of the author of a work of fiction using all the rules of the epistolary genre [5].

Modern researchers of the epistolary genre cannot come to a single and clear definition of terminology – whether the epistolary genre should be considered an

independent genre with subgenres distinguished or a part of fiction [4].

The nature of the epistolary genre makes it so flexible that it can adapt to the needs of communication among communicants [3]. This is due to the fact that the epistolary genre is a direct descendant of oral communication - mediated written dialogue between people [1].

The popular Irish writer Cecilia Ahern is one of the modern writers who use epistolary writing in their novels. The author's use of this genre of writing, however, serves a different purpose than that of other, more radical innovators. Although her fiction is about women and is primarily directed at female audience, Ahern resorts to letters to express the feelings and thoughts of both male and female characters.

Ahern's novel "Where the Rainbow Ends" is written entirely in an epistolary style, albeit in a modified modern manner, in both letters and emails. The author also uses various media: handwritten short notes and letters, emails, chat conversations, short instant messages, postcards, greeting cards, printed invitations (for weddings, birthdays), faxes, newspaper clippings, bills, etc. Unlike her first novel, there is a real exchange of messages between several correspondents: the main characters Rosie and Alex, Rosie's family, her daughter Katie, her parents, brother and sister, and her friends. Since the story covers a very long period of time (several decades in the life of the two main characters, Rosie Dunn and Alex Stewart, as well as their families and friends) and unfolds over 400, sometimes 500 pages (depending on the edition), the processing of such a comprehensive material requires certain skills.

The widespread use of epistolary forms of communication sometimes makes it difficult for the reader to follow the storyline, as opposed to direct linear narration. Since the novel includes the most important events in the life of the main characters, the narrative shows all the characteristic features of the epistolary, such as breaks in the chronology and logical structure of the text, fragmentation.

Considering a work of art from the point of view of figurative and expressive means of the language, it should be said that the author makes the extensive use of hyperbole:

I am never ever going to work in an office in my life [6, p.13].

In this example, hyperbole is used to emphasize the unreality of an action. It should be noted that this technique is more often used in Rosie's speech, as the author emphasizes her excessive impressionability and liveliness of character.

Ironic statements and situations in the literature arouse interest among readers. This makes the piece of literature more intriguing and forces readers to use their imagination. Moreover, the speech of the main characters is full of ironic expressions and situations. For example:

Rosie: OK then Alex and I are madly in love and we're going to run away and have a passionate love affair [6, p. 45].

Irony is also used to express ridicule behind an outwardly positive action.

Frequent use of irony occurs in the dialogue between Alex and Rosie, Rosie and her friend Ruby, Alex and his brother Phil:

Ruby: Hey you, happy Monday.

Rosie: Oh great, hold on while I get the champagne [6, p.66].

Situational irony is used when the outcome is very different from what is expected. It can often be found in the speech of Rosie's friends. In this way, they try to cheer her up and make her laugh when something bad happens.

Rosie: Have you even said hello to her or has your future wife yet to acknowledge your existence? [6, p.14]

Irony takes place when a character says something in stark contrast to the real meaning of his words. The speaker often makes a statement that appears to be very direct, but indicates that the opposite is actually true.

Such figure of speech as simile is also used in the novel. Consider the following extract:

Mum is guarding the door like a vicious dog [6, p.11].

Simile is used here to convey the manner of the action. Mom is compared to a guard dog, as she forbade the heroes to communicate and date.

I feel like a complete zombie [6, p.48].

A simile is made up with a fictional creature to convey the state of a person. Alex is so tired that he compares himself to a zombie.

Let's move on to the next example:

She sounds like a giraffe [6, p.14].

The author compares a person with another living being, endowing him with the characteristics inherent in it. The external features of a person, in this case, height, are compared with the features of an animal.

I raced around Dublin city like a woman on a mission [6, p.35].

The author uses simile to convey the speed and importance of the given action for the reader to understand how important it is for the heroine.

A metaphor in a work creates an implicit comparison between two things that are not related, but which share some characteristics. In other words, the similarity of two conflicting or different objects is created based on one or more common characteristics. In this case, the thoughts of the heroine literally flow into a pen for expression in writing.

Have gone off the rails [6, p.178].

From this example, the reader learns what Rosie feels. There is no connection with the railway, the metaphor conveys that everything is going at random.

...a lifetime of memories [6, p. 68].

Rosie uses a metaphor to indicate a huge amount of shared memories.

the fat raindrops hitting off the glass echoes around the quiet foyer [6, p. 161].

The metaphor is used to describe common background information, helping the

reader to imagine the setting of the action more easily.

In the process of writing letters, Ahern's main characters enter the phase of re-thinking their lives, reorienting and reorganizing their future. Her heroines, very eloquent and witty, make full use of a wide range of new ways of communication. The speech in this kind of communication is not interrupted by the interlocutor and his reactions, which opens the way for careless, spontaneous expressions of feelings. This is especially true for instant messaging when such an impulsive character as Rosie, for example, does not always have the ability to cross something out, as she sometimes does in her notes or letters, or where messages may be received by the wrong person.

The use of epistolary writing in the novel does not show any innovation in terms of form or content, but it demonstrates a skillful handling of both traditional and new media.

In the process of the analysis of the work "Where Rainbows End", the following expressive means and stylistic devices were identified: metaphor, allegory, personification, simile, irony, sarcasm, zeugma, pun, ambiguity, epithet, metonymy, oxymoron, periphrasis, hyperbole, allusions. All in all, 165 linguistic means were analyzed, of which 48 examples made the use of hyperbole, 31 - epithets, 27 - metaphor, 11 - simile, 10 - irony. There are 38 examples registering other linguistic means, namely personification, zeugma, pun, ambiguity, interjection, exclamatory words, metonymy, oxymoron, antithesis, periphrasis, hyperbole and allusions. They all help to make the speech of the characters realistic and emotionally colored, reveal their character as much as possible.

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标题作为文学作品中基础知识的要素（关于科幻材料）
**TITLE AS AN ELEMENT OF FOREGROUNDING IN A LITERARY
WORK (ON THE MATERIALS OF SCIENCE FICTION)**

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本文旨在讨论标题在科幻作品中的重要地位的作用。由于该流派具有特定的特征，因此科幻小说的标题通常包含时空符号，以使读者能够适应新的和不寻常的想象世界。此外，还有具有象征意义的标题与文学作品的信息有关，这使得很难对主要思想进行解码。

关键字：科幻小说类型，前景，强势元素，标题。

Abstract. *The present article aims at discussing the role of a title as an element of a strong position in the works of science fiction. As the genre is noted for specific features, the titles of science fiction works often contain spatio-temporal signs to enable the reader to get oriented in the new and unusual imaginary world. Moreover, there are titles with symbolic meaning connected with the message of a literary work which makes it difficult to decode the main idea.*

Keywords: *science fiction genre, foregrounding, elements of a strong position, title.*

Nowadays science fiction is one of the most popular genres of literature. It may be proved by the dozens of movies released mainly by the American “dream factory”, books – thousand and half titles annually, commercials, computer games and many other things. Science fiction managed to win recognition as a unique instrument to reconnoissance the future. Science fiction is a literary work and first of all it expresses the personality of its author both in terms of the aggregate of his ideas as well as in terms of their linguostylistic implementation. As L.G. Babenko and Yu.V. Kazarin put it, a text is created to objectify the author’s thought, implement his creative concept, convey knowledge and idea of a human and the world, bring these ideas outside the author’s mind and make them the property of other people. [2].

Among compositional-thematic units of the text a special attention should be paid to the elements taking the so called strong positions, i.e. located in the be-

ginning or at the end of the text. A strong position is one of the foregrounding elements studied by the decoding stylistics. I.V. Arnold defines the foregrounding as "...ways of formal arrangement of the text focusing the reader's attention on particular elements of the message and establishing semantically relevant relationship between the elements of one or more frequently various levels" [1, p. 99]. The importance of the strong position elements as the foregrounding elements is high since their special influence on the reader is caused by the nature of human psychics: the beginning and the end are taken as the most memorable and prominent elements. Among the foregrounding elements a special part is given to a title. For the reader a title is the starting point from which he departs towards the text. At the beginning a title is not informative for the reader, however, title semantics serves as a reference point on the basis of which text perception is arranged into an integral whole. [4]. A title fulfills a number of important functions among which one can distinguish information-nominative, signal, prospective, etc. However, first of all a title is an organizing component of a text. It is shown not only by the fact that the reader having read the text starts to retrospectively comprehend a title from the point of the whole text of the fiction work but also by the fact that a title in the full or modified form functions in the text as one or several categories and thereby takes part in the semantic arrangement of the text.

Being an independent genre of literature, science fiction uses the same methods and devices as the works of other genres. It is also true for the foregrounding principles, in particular for strong position, and for strong position element – the book title. Due to specific features of the genre the strong position elements have specific characteristics: thus, the titles of science fiction works often contain dates pertaining as a rule to the described imaginary future, for example titles of A. Clark's Space Odysseys "2001: A Space Odyssey", "2010: Odyssey Two". "2061: Odyssey Three" or so called quasiterms, i.e. lexical units, "occasional words" invented by the author to designate things, technologies or phenomena that do not exist in the real world that are specifically used in science fiction only. It is very important exactly for the science fiction authors to arrange spatio-temporal signs in such a way to enable the reader to get oriented in the new and unusual imaginary world and to perceive it as plausible as possible. According to the titles the events in the A. Clark's aforementioned novels develop in the 21-st century. Availability of absolute time localizers "2010" and "2061" in the titles of the works in this case predicts the subject matter of the works and specifies the time frame of events. Thus, the reader gets a definite landmark of time and space described in the science fiction work. As noted by P. Stockwell, the early works of this genre (called "pulp science fiction", i.e. "subliterary" science fiction) featured extremely simple structure: either a proper name (name of the character or a planet etc.) or a noun phrase (for example, "The Jameson Satellite"). Such titles directly show the

subject matter of the work and are directly connected with its contents becoming similar to the newspaper headings. And on the contrary, the latter works that do not belong to “pulp science fiction” feature a sophisticated structure and more poetical tone (“The Golden Apples of the Sun”, “The Doors of his Face”) [6].

Let’s consider the functions of the title in the short story “The Smile” by R. Bradbury.

The action in the analyzed work takes place in the distant from the modern reader future where people having survived the nuclear war live in barbaric conditions just partially maintaining statehood and civilization. Such society is characterized by exacerbation for the whole world, for the past, for civilization that destroyed itself in that war. People also associate with civilization all things that were widely used by the society prior to the war and arrange special festivals where almost all people take part in destroying the things somehow related to the past. The works of art fall under that category and the story tells us about one of such festivals where Leonardo da Vinci’s painting Mona Lisa is given to the crowd to be torn into pieces. The main character is a little boy named Tom who came to the festivity. However, when he comes to the portrait he gets impressed by its beauty and especially by the smile of Gioconda and he is unable to fulfill the required ritual. Being pressed by the crowd Tom is pushed through the painting and tears away a part of the canvas. And he finds in his hands this very smile that impressed the boy so much. In the world of devastation and hate the Smile becomes the symbol of beauty and hope.

From the pragmatic point of view the title under consideration is prospective-pragmatic since it triggers a series of assumptions and expectations with the reader. The title is connected with the contents of the story by a noun denoting expression of positive emotions in people by way of special facial expression. The dictionary defines the lexical unit *smile* as:

- 1) *a facial expression characterized by an upturning of the corners of the mouth, usually showing amusement, friendliness, etc., but sometimes scorn, etc;*
- 2) *favour or blessing*
- 3) *an agreeable appearance* [5]

Out of the dictionary definitions in our case all three are suitable, since it is widely accepted that a woman portrayed in the described painting although smiles with mysterious smile in general leaves a very pleasant impression thanks to this smile and appearance on the whole. To prove that a smile becomes a symbol of beauty and hope let’s refer to the text of the story and show its general mood.

As previously stated, the post nuclear world created by the author is characterized by obvious cultural and moral decline, decrease in the quality of life. The reader recollects the picture of this miserable world from the short remarks of the author and from the dialogues of the characters.

“All about, among the ruined buildings...” [3, p. 174].

Synonymic epithets “ruined”, “tumbled”, “bombed-out”, “bomb-pitted” are repeated throughout the whole story. People living in such world are poor, epithets “gunny-sack”, “grimy”, “greasy” very keenly convey the idea of poverty typical for the people of the described future. To make the depicted depressive picture more believable the author uses stylistically sub neutral expressive vocabulary and the rude language of the people standing in a queue abounds in it.

“Right! The whole blooming caboodle of them people in the Past who run the world. So here we are on a Thursday morning with our guts plastered to our spines, cold, live in caves and such, don’t smoke, don’t drink, don’t nothing except have our festivals, Tom, our festivals” [3, p. 177].

Festivals for them is the only thing that brings diversity and fun in their disastrous life. However even this fun is of ill nature since the described society calls the “festivals” the public acts of destroying the things from the past.

It should be noted that lexical unit “festival” is the key one in the story under consideration since it increases its semantic load as the reader continues with the text and reveals the main idea of the story: desperate hate of the people who have to live in the destroyed world towards those who brought this world to such condition. The fact that people reserved a place in a queue at five o’clock in the morning, i.e. very early despite of the morning cold, proves that the upcoming festival is of crucially important nature. Thus, this ill fun arose from the hate to the past – highlighting of the word “past” with the capital letter is not accidental – it contains everything that is associated with the past – people who ruled the world and brought it to such condition, war and civilization in general.

The reader gets quite clear and credible vision of the future where people live in poverty, hate and desperation. Moreover, Mona Lisa painting doesn’t fit into such world and the smile of a portrayed woman is an alien element for such people. However, Tom even before he had seen her got interested that she smiled:

“They say she smiles”, said the boy” [3, p. 175].

Highlighting the verb “to smile” in italics already shows the key part of this element. But unless Tom sees the painting he can’t imagine how this smile looks – he is still patiently standing in a queue having prepared to spit as done by everyone. And only when he stands up against the canvas he understands that she is beautiful:

“But,” said Tom, slowly, ‘she’s BEAUTIFUL!’

The woman in the portrait smiled sincerely, secretly, at Tom, and he looked back at her, his heart beating, a kind of music in his ears.

‘She’s beautiful,’ he said” [3, p. 179].

Graphical highlighting of the lexical unit “beautiful” is also important since it draws attention to the quality unusual to this world. Moreover, the verb “to smile”

is repeated here and its meaning is revealed to the full extent: if before Tom knew that a woman in the portrait smiles then now he sees that she smiles sincerely and secretly.

A bit later the boy comes running to his house with a piece of canvas torn out of the frame and tucked in his jacket without knowing what is drawn there. Only after making sure that his family fell asleep he carefully unfolds the canvas and sees the Smile:

“And there on his hand was the Smile”.

He looked at it in the white illumination from the midnight sky. And he thought, over and over to himself, quietly, *the Smile, the lovely Smile* [3, p. 182].

Thus, the connection between the title of the story and its contents is done by the key word “the Smile” put to the strong position of the fiction work and expanding its semantics as the reader goes through the text. The image of the Smile gains the symbolic status being associated with beauty and hope. The smile of Mona Lisa, the mystery of which is tried to be unraveled nowadays turns into the symbol of kindness, beauty and humanity lost in the imaginary war-ravaged world.

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单位的情感语义及其从汉语到俄语的翻译
**EMOTIVE SEMANTICS OF UNITS AND THEIR TRANSLATION FROM
CHINESE INTO RUSSIAN**

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本文致力于识别语言手段的特殊性以及汉语和俄语中带有情感语义的单位表达的特征。分析的材料是中国作家莫言的小说“生死疲劳”，并由I. A. 翻译成俄语。伊戈罗夫。这篇文章考虑了具有V. I. 情感情感的单位的类型学Shakhovsky，揭示了从中文翻译成俄文时，每种情感单位的表达方式的细节。事实证明，讲俄语的情感直接和准确地反映了汉语中的相似单位；含义通常以等价形式表示，并在不同语言中具有风格上的特点；潜在的情感要求翻译人员对原始语言的文化特征和语言选择有很好的了解。莫央的艺术作品反映了带有情感语义的单元的整体。

关键字：情绪，情绪语义，情感词汇，内涵词汇，潜在动机，翻译

Abstract. *This article is devoted to identifying the specifics of linguistic means and the features of the expression of units with emotive semantics in Chinese and Russian. The material of analysis is the novel of the Chinese writer Mo Yan “Tired of being born and dying” (“生死 疲劳”) and its translation into Russian by I.A. Egorov. The article considers the typology of units with emotional semantics of V.I. Shakhovsky, reveals the specifics of the expression of each of these types of emotive units when translating from Chinese into Russian. It is demonstrated that Russian-speaking affectives directly and accurately reflect similar units in the Chinese language; connotatives are often represented by equivalence and have stylistic specifics in different languages; potential emotionality requires the translator to have a good knowledge of the cultural characteristics of the original language and options for their verbalization. The artistic text of Mo Yang reflects the totality of units with emotive semantics.*

Keywords: *emotiveness, emotive semantics, affective vocabulary, connotative vocabulary, potential emotives, translation.*

Emotions play a big role in all types of human activity. Human thinking unites the emotional and rational world. These positions today refer to well-grounded and proven positions of psychology and linguistics [Apresyan, Apresyan, 1993; Ionova, 1998; Krasavsky, 2002; Shakhovsky, 2004, Wierzbicka, 1985, etc.]. Like any linguistic sign, the signs of emotions in the text reflect various manifestations of the subject's feelings, his emotional attitude to the subject of speech, ways of emotional impact on the feelings of the addressee. Emotiveness as a linguistic category is presented at the verbal level with the help of emotives - special linguistic means that are described taking into account the specifics of specific languages [Wierzbicka, 1985]. The issue of studying the specifics of the expression of the inner world of a person in different cultures remains relevant for several decades and today acquires great theoretical significance in the context of the expansion of cultural contacts, when new translations of cultural texts by foreign language authors should replenish our ideas about subjective life and the possibilities of their transmission in society [Shakhovsky, 1994].

In this article, as a source of research material, the work of the modern Chinese writer Mo Yan is used - the novel "Tired of being born and dying" ("生死 疲 劳") - and its translation into Russian by I.A. Egorov. The subject of study is units with the emotional semantics of the Chinese and Russian languages. The purpose of this article is to identify the specifics of linguistic means and features of the expression of units with emotive semantics in the Chinese and Russian languages. To achieve the goal, the following tasks were set: to define the concept of "emotive semantics" and highlight their types; to identify units with emotive semantics in the translation of the Chinese novel "Tired of being born and dying" into Russian and correlating them with the units of the original source; make a conclusion about the peculiarities of the transmission of emotional content by means of non-closely related languages.

1. Emotive category and emotive semantics

The category of emotiveness is today a well-studied area of linguistics, however, "it is still one of the most vague properties of the text" [Ionova, 1998, p. 3], since in speech works emotive language units acquire potential meanings and diverse variants. Unlike emotionality, which serves as a property of the human psyche, emotivity belongs to linguistic categories, characterizes the ways of expressing the verbalization of the speaker's emotions. In modern linguistics, the concept of emotivity is used in a narrow and broad sense. In a narrow sense, this term denotes all emotive lexemes of the language and is associated with the connotation of the meaning or with one of the components of the connotation of the word. In a broad sense, this category includes all linguistic means serving to express emotions, as well as means used to characterize a linguistic personality, its emotions in relation to objects of reality [Zotova, 2010, p. 15]. In our opinion, the

last of the above definitions is justified in the study of a literary text.

It is known that emotiveness is closely related to all human speech activity and is fixed in the semantics of a word as specifiers of various emotional states of a person. In addition to logical and subject semantics, emotive semantics makes a plan for the content of linguistic units and text, which is why determining the emotive semantics of a word means revealing its content in full, and the totality of the content of such units makes it possible to correctly understand the complex and multifaceted content of the text.

In accordance with the concept of V.I. Shakhovskiy, linguistic means of expressing the meanings of emotive vocabulary are divided into the following three types: *affectives*, *connotatives*, *potential emotives*. Emotive semantics can have the status of the meaning of words, it is obligatory for an affective word in emotional statements. The semantic structure of affectives - interjections, invectives, swear words, emotionally evaluative adjectives (for example, *ой-ой-ой*, *ах*, *тьфу*, *ура*, *милый*, *скверный*), i.e. words with an emotive meaning, can be the content of emotive statements (*Ах!*, *Ужас!*, *Блеск!*). The type of lexical meaning is determined by the peculiarities of the organization of the semes included in its structure. The constituents of emotive meaning are predominantly emotive semes. Another status of emotive semantics of a word is connotation, which is formed by emotive semes that are outside the logical-subject macrocomponent of word semantics. These emotive semes can be associated with certain logical-object, nuclear semes or associated with them. In connotations, emotiveness is combined. For example, the word "pig" has two meanings: 1) an animal that...; 2) a person who The second word-meaning has emotional content and denotes an attitude towards a dirty person. When the first of the stated lexical-semantic variants of communicants is used in speech, associations with the second word-meaning may arise. Potential emotives themselves do not include emotive components, and a certain context gives such vocabulary potential semes of emotions. There are names of goods in an advertising context, for example, the names of perfumes "Contact", "Dialogue", "Once", "Dreams", "Delight" and some examples of associative vocabulary, *birch*, *mother*, *homeland*, which generates emotions of carriers of the Russian linguistic culture. Such emotiveness in the word is secondary in contrast to emotiveness in the status of emotive meaning. Potential emotiveness can appear in the status of inherent and adherent varieties, which are revealed in a statement or text. The distinction between emotive meaning, emotive connotation and emotive potential, which in terms of diachrony follow each other, is important not only for the general and particular theory of language, but also for the theory and practice of lexicography and phraseology, as well as translation studies [Shakhovskiy, 1994, p. 20].

2. Emotional vocabulary of affectives in the Chinese novel "Tired of being born and dying" and its translation into Russian. In emotional vocabulary, there are a number of words that carry a certain emotional meaning through affectives, i.e. with the help of affectives, thereby reflecting the emotions of the speakers to the designated objects. For example:

(1) 四个逃跑者中有一个身材瘦高、脑袋呈长方形、如同旧时更夫打更所用梆子的，正是西关的小恶人于干巴 [Mo Yan, 2012, p. 512]。

Translated text: У одного из убежавших, тощего верзилы, прямоугольная голова походила на колотушку, какой в прежние времена ночные сторожа отбивали стражи. Это был злодей с западной окраины Тоуцуй Юй [Egorov, 2014, p. 446].

Here in Chinese, 小恶人 means *bad person*, that is, this unit refers to affectives. 小恶人 is an emotive unit with negative evaluative semantics. Thus, the translator chooses *злодей* in Russian instead of 小恶人 in Chinese, and expresses an emotional connotation identical to the original.

(2) 会场舞台两侧的两根立柱上，悬挂着两个巨大的喇叭，将西门金龙的讲话放大了起码有五百倍，我猜想整个高密东北乡都能听到这小子吹牛皮的声音 [Mo Yan, 2012, p. 249]。

Translated text: Огромные громкоговорители на столбах по обеим сторонам сцены усиливали речь Цзиньлуна по меньшей мере раз в пятьсот. Думаю, во всём Гаоми было слышно, как пускает пыль в глаза этот паршивец [Egorov, 2014, p.162].

The phrase 吹牛皮 is a Chinese folk vernacular, which literally means *brag, trick someone into misconceptions about one's abilities*. Here the phrase 吹牛皮 in the Chinese language appears as an affective, and the Russian phraseological unit *пускать пыль в глаза* adequately describes a similar situation, expresses a negative emotional coloring, using different ways of expression. The word *паршивец* in Russian means an antipathetic person and an annoying person.

In the above examples, it can be seen that the affectives used in the Russian translation quite directly and accurately reflect similar units in the Chinese language.

3. Connotatives in the Chinese novel "Tired of being born and dying" and its translation into Russian. Connotatives differ from affectives in that their specific-referential meaning does not directly express the emotive meaning, but in conjunction with the component of rational assessment, expressive, emotive and pragmatic components, functional-stylistic macrocomponent. The connotative semantics of emotives is only a part of the meaning of a word, and therefore is more complex semantically. For example:

(1) 新来的书记。.....就是给陈县长当过秘书的那个人，姓范名铜，外号“饭桶”，食量惊人 [莫言2012;100]。

Translated text: *Новый партсекретарь... прежде служил секретарем у уездного Чэня, Фань Тун, которого за глаза звали «фаньтуном», бездонной бочкой то есть* [Egorov, 2014, p. 80].

The Chinese proper name 范铜 and the common word 饭桶 in this constitution (means “bottomless barrel”) are consonant units, on the basis of which the proper name is used to implement the use of a stylistic pun - a play on words. But in Russian there is no direct correspondence of the name 范铜 *Fan Tun* to the designation *бездонная бочка*, since it is a constellation of two units. In this regard, in addition to using the transcription technique for the word 饭桶, a footnote is also needed for an additional explanation of the interpretation, in order to reveal the pun as a result of the consonance of the proper name 范铜 (*russ. ФаньТун*) and the common word 饭桶 (*russ. фаньтун*) and achieve a humorous effect in translation. This subgroup also includes Chinese phraseological units in the following examples, which differ from the units of the Russian language in stylistic characteristics or emotional coloring.

(2) 你这个缩头乌龟，你这个孬种，看到牛顶我，你不救我，反而往前推我 [Mo Yan, 2012, p. 512].

Translated text: *Увидел, трус, что вол на меня попер, так нет, чтобы выручить, наоборот, перед собой выпихнул* [Egorov, 2014, p. 95].

(3) 碰上您这样的角色，天王老子也没脾气 [Mo Yan, 2012, p. 166].

Translated text: *С таким почтенным человеком, как вы, даже правитель небесный не станет норов выказывать* [Egorov, 2014, p. 137].

The referential meaning of the vulgarisms «缩头乌龟» is conveyed by the Russian word *трус*, and 天王老子 - by the phrase *правитель небесный*. Vulgarisms of the original language belong to the colloquial emotive vocabulary, and their correspondences in the Russian language relate to the vocabulary of common use. The result is a stylistic difference. In addition, in vulgarism 缩头 乌龟, a metaphor is used: a coward is compared to a turtle, which in Russian culture means phlegmatic and does not have additional negative connotations. Thus, the specified vocabulary of the original has become inequivalent in terms of stylistic characteristics and stylistic coloring in the Russian translation. The use in translation of such colloquial words as in the above examples *норов* and *выказывать* in the example, makes it possible to reproduce the emotional coloring at the sentence level, which can be called a compensation technique at the level of a broader context. In our opinion, this technique turns out to be effective, due to which the translated text can be equivalent to the original text in terms of emotional coloring.

4. Potential emotives in the Chinese novel "Tired of being born and dying" and its translation into Russian.

Potential emotives are the result of the action of a certain emotional situation. The emotional situation is an important factor in determining the semantics of

potential emotives. Here are examples from the text we are researching:

(1) “给我烙点干粮，我要上访去” [Mo Yan 2012;110].

Translated text:*Приготовь мне чего поесть в дорогу, пойду правды искать*[Egorov,2014, p. 71].

In the literal sense, the Chinese combination 上访 (*russ.пойду правды искать*) means that ordinary people in China can ask questions to a state body at the highest level, skipping a lower body, turn to senior officials or the authorities for help from the Chinese dictionary, and here the hero In the novel, Lan Lian turns to a state body at the highest level in order to seek the truth, i.e. ask a question about whether it is necessary to join a commune, whether it is possible to become a sole owner. In addition, the phrase *правду искать* in the Chinese language itself does not have an emotional connotation, but in the context of 上访 (*russ.пойду правды искать*) expresses a negative assessment, i.e. here this phrase acts as the realization of a potential emotive seme. Thus, the translation correctly conveyed the intended meaning of the original and the implicit emotiveness, so that the communication goal of the speaker in the original text is preserved.

(2) 马智伯的儿子马聪明紧张地说：“不得了了，这是太岁！当年地主西门闹挖出的太岁就是这个样子” [Mo Yan 2012;15].

Translated text:*Сынок МаЧжибо, МаЦунмин, перепугался: «Худо дело, это же Тайсуй! В тот год помещик СимэньНао точно такого выкопал»* [Egorov,2014, p.11].

When the hero of the novel saw that Taisui had formed in a transparent glass bottle, MaJibo's Son, Ma Tsunming, was very surprised. Note that in ancient China it was believed that Taisui is the head of all other saints and the most respected saint who cannot be offended. There is even a saying in China 太岁头上动土 (*ворошить землю над головой Тайсуй – вызывать гнев сильного мира всего, играть с огнём* –translation by our M.C.). The appearance of the Taisui image on the construction site meant for the heroes of the novel that they offend the Taisui shrine and that means that some kind of trouble must happen. In the Russian translation, the expression *худо дело* retained the emotional function of the original, expressing the emotion of fear of frightened people. Thus, potential emotiveness is a deep, complex form of expression of cultural specificity, expressed in linguistic units, which have become firmly established in the fund of precedent statements, cultural connotations, situations and contexts in which the subjectivity of the people is encoded. Translation of potential emotives requires the translator to have a good knowledge of the cultural characteristics of the original language and the options for their verbalization.

The examples given in this article and their analysis show that emotional units are an important element of a literary text, in which typical emotional situations, cultural values, and traditions of the people are directly or indirectly hidden. In this

respect, the most "independent" in the translation process are words-affectives, which, as a rule, convey the universal elements of a person's subjective world and are translated using the corresponding units in another language. Connotatives and potentially emotive units of different languages do not convey emotion explicitly, therefore they require not so much interlingual decoding as translation of cultural meanings, for which the translator selects units of another language that are equivalent or as close as possible in emotional content.

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将“人家”一词翻译成俄语的一些功能
SOME FEATURES OF THE TRANSLATION OF THE WORD "人家"
INTO RUSSIAN

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本文考察了现代汉语词汇学中“人家”一词的含义。具体示例显示了名词和代词“人家”到俄语的翻译特征。作者得出结论，认为有必要提高学生的汉语词汇学知识。

关键词：中文；词的构成；词汇学“人家”一词的涵义；翻译。

Abstract. *The article examines the meanings of the word "人家" in modern Chinese lexicology. Specific examples show the features of the translation of the noun and the pronoun "人家" into Russian. The authors come to the conclusion about the need to improve the knowledge of students in the lexicology of the Chinese language.*

Keywords: *Chinese; word formation; lexicology; the meaning of the word "人家"; translation.*

The Chinese language is quite difficult to learn, so students often make phonetic, hieroglyphic, grammatical and lexical errors. So, grammatical errors consist in a shift in the grammatical structure of a sentence, in the incorrect use of official words. Errors of this order often arise due to different constructions of sentences in the native and target languages. For example, in Russian, the predicative stem can change location: depending on intonation, as well as the nature of the utterance. For example,

1. Ты **доделай** эту работу сегодня! – Imperative mood
2. Доделай-ка (ты) **эту работу** сегодня. – Request
3. Доделал бы **сегодня** ты эту работу. – Advice

In Chinese, the grammatical structure of a sentence, regardless of intonation, usually remains unchanged. Imperative mood, mitigation, request are conveyed using service words such as: 吧、呢、啊。

For example, the same sentences in Chinese:

1. 你今天一定要做这种工作！ - Ты **доделай** сегодня эту работу!
2. 你今天这种工作一定要做完呢。 - **Сегодня** доделал бы ты эту работу.
3. 请今天把这种工作做做吧。 - Доделай-ка (ты) **эту работу** сегодня.

A much more difficult task for a teacher is to explain the subtleties of using a particular word from the point of view of lexicology. The fact is that in the Chinese language there is a large number of synonyms, homonyms, words that are close in meaning, but the use of which is not synonymous. Knowledge of lexicology for a translator is extremely important, since "it gives him information not only about the meaning of a word, but also about the possibilities of its use." [I. D. Klenin, V.F. Shchichko, 2013, p.8] Vocabulary is directly related to:

A) - grammar (formalization of verbs with suffixes -了, 过, 着; nouns - suffixes 子, 儿, 着);

B) - history (for example, the word "大夫" – dàifu, meant a dignitary in feudal China who knew medicine, who was in charge of the empress's medical chamber; in modern language, the word means "doctor, healer");

C) - phonetics (for example, "巴"bā – boa constrictor" is phonetic in the words 爸爸 bàba - dad, 酒吧 jiǔbā - bar).

As an illustrative example, consider the use of the noun "人家" (rénjiā), which, through conversion, becomes the pronoun "人家" (rénjiā, from the point of view of the connection of vocabulary with phonetics, grammar and history.

One of the first mentions of the word "人家" was recorded in documents of the early Qin dynasty in the meaning of "他人" "other" and represented an abbreviation for "他人 之家" (members of his family).

[Yang Xiao. <http://www.cqvip.com/read/read.aspx?id=88898989504849544857484952>]

In modern Chinese grammar, the meaning of a word (noun or pronoun) depends on the place in the sentence and the context. For example, in the sentence "她生在有钱人家, 从小没受过苦"。(She was born into a wealthy family, so she was not in need since childhood) In this case, "人家" is a noun. And in the sentence "你来了, 快坐, 玛丽给人家倒水" (You finally came, sit down, Marie, pour water for the man). Here "人家" is a pronoun, meaning "other people". [<https://max.book118.com/html/2017/0523/108470275.shtm>]

The Chinese synonym dictionary "汉语近义词典" defines "人家" as follows: "这两个词词性不同, 用法也不同, 不能互换。但由于汉字相同, 读音相同 (只是 "家" 的声调不同), 容易混淆, 因此进行比较"。("汉语近义词典", 北京语言大学出版社, 2005年, p. 353.) (The meaning of these two

words, the way of use is different, they cannot be used interchangeably. Despite the fact that these words have the same spelling, and they are pronounced almost the same (in the second word the last syllable is unstressed), but they should not be confused).

As a noun "人家" has a meaning besides "family, yard, household", also "to be engaged, to have a fiance." The following are examples of translation of the noun "人家".

1. "Yard, household" - means that the family (earlier several generations of people),

connected by blood ties and leading a common household on the land, has a land plot: 村南有一户人家. This sentence has a hint for the translation "一户人家", the counting word "户" ("yard") indicates that "人家" is a noun and should be translated as "there is one yard in the south of the village", meaning that in the south of the village there is one family household.

-百里之内都是沙漠, 根本没有人家. The essence of this sentence is that the local land, due to its proximity to the desert, is unsuitable for cultivation, so it is worth "人家" to translate as "household", the translation "there is not a single household for a hundred li in the desert."

2. "Family" - "a group of relatives living together (husband and wife, parents with children) [S.I. Ozhegov, 1975, p. 655]

他生在有钱人家. In this sentence, "有钱人家" is translated not as "household with money, but as "family with money, "that is, "rich family". Therefore, the translation will be like this: "he was born in a wealthy (rich) family"

不少商业人家的子女, 长大后都继承父母的事业. In this phrase "商业人家的子女", where the meaning of "人家" is not "household", but the whole combination should be translated literally as "children of families engaged in business." The full translation will be as follows: "Many children of businessmen, becoming adults inherit the work of their parents."

3. "To be engaged, to have a groom" - usually it is about a girl "to be engaged".

她的大女儿今年二十岁了. 她的大女儿已经有了人家. If you look at the basis of the sentence "有了人家", then it can be translated as "there is a yard, there is a family." And many students, not knowing another meaning of the word "人家" ("to be engaged"), would translate as "her daughter already has a family" or "her daughter has her own household." However, in this case we are talking about the fact that someone's eldest daughter is old enough and she has a fiancé. So the translation will be "Her eldest daughter already has a fiancé. / Her oldest daughter is already engaged. "

姑娘长大了, 不愁找不到人家. And in this sentence "人家" means "to be engaged", and the phrase is translated "how not to worry that she will not find a groom." The full sentence reads like this, "The girl has grown up, how not to

worry about the groom."

When the second syllable in the word "人家" is unstressed, it means that as a result of the conversion, the noun has turned into a pronoun. How the pronoun "人家" means: "other people"; matches他, 他们; matches我; and there are times when the pronoun is not translated into Russian.

"Other people" :

In the following three examples in phrases: "人家的东西", "人家都能去", "不能总听人家的", "人家" is not a noun, but a pronoun meaning "别人" - "other people."

人家的东西, 不要乱动。Completely the translation looks like this: "You cannot touch things of other people / You cannot touch other people's things"

人家都能去, 我为什么不能? Others can go, why can't I?

不能总听人家的, 得有自己的看法。 - There is no need to listen to others all the time, you need to have your own opinion.

Indicates a third person(s), matches pronouns他, 他们.

快把这些书给人家送回去吧! - Hurry to give them these books back. In this sentence "给人家" a specific, familiar persons, are mentioned, this is indicated by the official word "把".

现在人家有名了, 看不起我们了。 - Now he is a celebrity, and will not even look in our direction). There is clearly an ironic implication in this sentence, and "人家" here means a specific person.

1. It is used before proper and common names to enhance expressiveness. As a rule, it is not translated into Russian.

看人家小王多会说话。 - You know, Xiao Wang is such a talker.

人家姑娘说话办事总站在理上。 - Girls, both in speech and in deeds, are always reasonable.

Indicates the first person, corresponds to the pronoun 我. Usually gives the statement a disgruntled tone.

你跑慢点几行不行, 人家跟不上啊? - Could you run slower, I can't keep up with you!

你让我给你借小说, 人家借来了, 你又不看。 - You asked me to give you a novel to read, I gave it to you, but you don't read it.

Thus, knowledge of lexicology for a translator is extremely useful, since "it gives him information not only about the meaning of a word, but also about the possibilities of its use." [I. D. Klenin, V.F. Shchichko, 2013, p.8]

In order for students to become competent specialists in the field of the studied (Chinese) language, the teacher must teach them not only the basic concepts (grammar, hieroglyphics, phonetics), but also immerse students in the intricacies of lexicology. To do this, you can conduct a separate course on the "lexicology of the Chinese language" or devote time to vocabulary directly in class. To achieve

this goal, the teacher can draw up exercises to consolidate the passed material, for example, in the form of a test. Analysis of student errors helps teachers in the preparation of teaching materials, textbooks, dictionaries, as well as in drawing up lesson plans.

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俄国古典修辞学对话语质量的要求
**REQUIREMENTS FOR THE QUALITIES OF SPEECH IN CLASSICAL
RUSSIAN RHETORIC**

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本文介绍了言语交际质量理论的历史演变，该理论在十七至十九世纪的俄罗斯修辞学和文学教科书中得到了详细描述。这些概念的作者既是鲜为人知的手写修辞学创造者，又是俄罗斯语言学的经典著作 *M.M. Speransky, N.F. Koshansky, Ya. V. Tolmachev*，在其作品中对语音质量的要求得到了最初的解释。

关键字：交际言语质量修辞口才交际

Abstract. *The article presents the historical evolution of the theory of the communicative qualities of speech, which has received a detailed description in Russian textbooks of rhetoric and literature of the XVII-XIX centuries. The authors of these concepts are both the little-known creators of handwritten rhetoric and the classics of Russian philology M.M. Speransky, N.F. Koshansky, Ya. V. Tolmachev, in whose works the requirements for the quality of speech received an original interpretation.*

Keywords: *communicative speech quality, rhetoric, eloquence, communication.*

The first information about the qualities of speech is found in the rhetorical works of ancient scholars. In ancient philology, as the "cradle" of modern science, the basic terms and concepts were laid, and the general direction of the development of philological thought was given.

1. The first descriptions of the qualities of speech in the XVII century

Rhetoric came to Russia with translations of Western European works made in the XVII century. The description of speech qualities in the Russian philological tradition begins, apparently, with those theoretical manuals, where the description of the rules of language and speech is first presented. Such books were the first textbooks on grammar and rhetoric, which were summarized in the "Legend of the seven free wisdoms", written after the Time of Troubles during the beginning of

state building of the new Romanov dynasty.

The first Russian "Rhetoric" of 1620 says that "the dialectic shows simple deeds, that is to say, naked", that is, it presents speech evidence simple and unadorned, "rhetoric adds to those deeds and adds strength to verbal if that the robe is honest or some kind of clothing "[Annushkin 2006, p. 22].

In the earliest Russian rhetorical works, there are indications of the dignity of speech: "good words" and "piety" (good speech in the most general sense), adornment (beauty), sweetness, purity, clarity, appropriateness (the latter is translated as "convenience" in several more paragraphs of "Rhetoric").

In the Dolomonosov rhetoric of Peter the Great, as in the first Russian "Rhetoric", there are no special interpretations of the quality of speech, but there are constant references to certain qualities of speech, the orientation to which allows one to distinguish between the sciences proper and different types of speech. For example, Mikhail Usachev's Rhetoric of 1699 clearly presents the difference between rhetoric and grammar, with a commentary on the qualities of speech indicating this difference. "Rhetoric is the science of good, red, and it is decent to talk about all sorts of things." It further says that "good verb is grammatically verb", ie grammar teaches only correct speech, while rhetoric adds to the correctness the quality of adornment and relevance ("decently verb") [Annushkin 2002, p. 81].

2. M.V. Lomonosov - on the qualities of speech

The first scientific rhetoric was written by M.V. Lomonosov in 1748 and bears the title "A Brief Guide to Eloquence". The quality of "beauty" is included in the very title of the textbook, which was to become the basis of the Russian science of speech. "Eloquence is the art of talking about any given matter and thus incline others to your opinion about it." The entire 2nd chapter is devoted to "decoration" - it sets out the teachings about tropes and figures of speech with a detailed classification of all available techniques of decorating speech.

Despite the absence of special chapters or sections devoted to the qualities of speech, mention of the requirements for speech is constantly encountered in Lomonosov texts. In addition to the well-known phrase characterizing the Russian language, in which there is "the splendor of the Spanish, the liveliness of the French, the strength of the German, the tenderness of the Italian ..." (these are all the qualities of speech!), M.V. Lomonosov specially wrote about the requirements for **purity** of calm, exemplary **flow of words** (future "harmony and euphony"), **splendor** and **strength**.

The purity of the calm "depends on a thorough knowledge of the language, on frequent reading of good books and on dealing with people who speak purely" [Lomonosov. 1952, p. 236]. The first requires "the study of grammatical rules", the second requires a choice from books of "good adages, proverbs and sayings", for the third - an effort about a clean pronunciation in front of people who know and

observe the beauty of the language"[Ibid, p. 236-237].

Under the **flow of words** of M.V. Lomonosov will understand what will later be called "harmony, or euphony" (see NF Koshanskiy or AI Galich), that is, "the decent position and containment of letters, warehouses with their accents, sayings, periods" - in the comments of M.V. Lomonosov talks about what the rhetorician should avoid: "obscene and hearing opposite to the confluence of consonants, to move away from the confluence of written vowels (sorry about the departure ...), frequent repetition of one letter (then it is difficult to trample that path)" [Ibid. p. 240].

Thus, in the emerging science of the Russian language in the XVIII century, the theory of speech qualities is presented more implicitly than explicitly, but many of the qualities have already been named in the section of rhetoric concerning speech decoration.

3. The qualities of speech in rhetoric of the late XVIII - early XIX centuries

The situation changed dramatically in the late XVIII and early XIX centuries with the emergence of the science of rhetoric and the flourishing of rhetorical research in Russia. Textbooks of the classics of Russian rhetoric and literature of the late XVIII - first half of the XIX century I.S. Rizhsky, M.M. Speransky, A.F. Merzlyakova, Ya. V. Tolmacheva, N.F. Koshanskiy, A.I. Galich, I.I. Davydov contains detailed descriptions of the qualities of the word, or style, which should be inherent in exemplary works.

First of all, we note that the qualities of speech are called in these Russian textbooks, as a rule, **"the perfections of the word"**, and later **"the qualities of the word, or style."** So, in the "Experience of rhetoric" I.S. Riga 1796 among the main "perfections of the word" named the purity of the language, the correctness of words and expressions, accuracy, clarity, fluency = word flow, prudent use of ornaments. These perfections originate "from expressions", and the perfection itself and the essence of the "decoration" of speech.

One of the most popular authors of the beginning of the century was **M.M. Speransky**, the famous Russian reformer, "the main Russian bureaucrat." In 1793, the handwritten textbook "The Rules of Higher Eloquence", which was distributed in copies and rewritten throughout Russia (published in 1844). M.M. Among the "general properties of a word" Speransky named the following: clarity ("The first property of a word is clarity. Nothing can excuse a writer when he writes in darkness."); variety ("... the second property of a common word is variety. There is nothing more unbearable than this kind of monotony in a word"); the unity of the word ("It is necessary that the parts be varied, but the whole is one, it is necessary that one tone of some sort reigns in the composition ..."); equality of the word with matter ("The word should be equal to its subject, ie all secondary concepts should

be proportionate to their main ones.” [Quoted from: Graudin 1996, p. 84-85].

4. Description of the "properties" of speech in the first half of the XIX century

The first half of the XIX century is called the heyday of Russian rhetoric. The most influential figure at the beginning of the century was Moscow University professor A.F. Merzlyakov, who described the qualities of a word or style in the "Short Rhetoric" of 1809 as follows: "the general or essential properties of a good word in all kinds of prose works are the following: correctness, accuracy, decency, nobility, liveliness, beauty and euphony" [Ibid, p. 134-135].

The first of these properties is "correctness, or serviceability, which is more related to grammar than to rhetoric," and "contains the purity of expressions" [ibid., p. 135-136]. By the way, the concept of correctness is absent in early works - perhaps it appeared precisely in Russian rhetoric of the early XIX century.

After the Patriotic War of 1812, one of the most popular authors was **Ya.V. Tolmachev**, who first wrote "The Rules of Eloquence" (1815), and then the book "Military Eloquence" in three volumes (1825), which contained a general description of rhetorical rules, a description of the rules of military eloquence and samples of essays (speeches, business military documents) [Tolmachev 1815; Tolmachev 1825].

A systematic description of the qualities of a word is found in the famous "General Rhetoric" by **N.F. Koshansky** 1829, which went through ten editions in the next twenty years. N.F. Koshansky identified the following six "virtues of the word" - it is obvious that they are what we call today the qualities of speech:

1. **Clarity** — "without it, all other virtues, like the beauties of nature without light for the viewer, disappear." Clarity requires three rules: a) "knowledge of the subject" (let's call it epistemological); b) (logical) "sound, solid communication in thoughts"; c) (grammatical) "1. natural word order, 2. accuracy and general use of words and expressions, 3. "appropriate punctuation marks" [Ibid, p. 95-96].

2. **Decency**, which requires "modesty and taste";

3. **Purity** — "some call this quality correctness, others call it finishing". However, N.F. Koshansky clearly delineates their roles: correctness is "the basis of purity", and finishing serves as "a means of achieving purity, consisting in words and expressions" [Koshansky 1834, p. 99].

4. **Fluency** — "the art of writing in a way that makes reading easy and enjoyable." [ibid, p. 101-103].

5. **Harmony** — "music of a word, or pleasure of hearing", which is of two kinds: 1) euphony (euphony); 2) imitative harmony (onomatopoeia) [Ibid, p. 103].

6. **Decoration** — "art a word, the art of using the beauty of an object, or the beauty of expressions" [Ibid, p. 106].

Almost simultaneously with N.F. Koshansky publishes his rhetoric under the title "Theory of eloquence" another teacher of the Tsarskoye Selo Lyceum, philosopher and writer **A.I. Galich**. A.I. Galich analyzes the following qualities of speech: purity, correctness, clarity, precision, euphony [Graudina 1996, p. 167-170]. Describing in the "special or applied part" the requirements for the creation of various types of works, A.I. Galich writes about the special properties of letters, or business papers, or judicial eloquence, etc. So, "special properties of letters" are as follows: 1) lightness and naturalness, 2) decency ("the writer avoids all strange, sought-after expressions ..."), 3) liveliness ("beware of dry and monotonous tone"), 4) proportionality of parts.

This style will be criticized by revolutionary democrats, especially V.G. Belinsky, although, as we shall see, V.G. Belinsky himself will create in line with this tradition. he himself will use those rhetorical means and techniques. With the criticism of rhetoric that existed in the 50s of the XIX century, the section of speech qualities, if it was reduced, was not completely excluded from the composition of rhetoric and the theory of literature. Thus, the most influential and popular author **K.P. Zelenetsky**, whose textbooks were used in Russia in the middle of the XIX century, wrote about "the necessary conditions for any speech" [Graudina 1996, p. 208]. With the word "conditions" he replaced the previously existing *perfection, quality, properties*.

So K.P. Zelenetsky believed that there are three of these conditions:

— **Clarity** of speech, so that "the meaning of the speech is understandable. The conditions for clarity are: a) obvious connection in thoughts, b) clear knowledge of the subject, c) precision in expressions";

— **Naturalness** of speech requires, "on the one hand, that it be distinguished by the correct, logical sequence of thoughts, and on the other, ease of presentation";

— **Nobility and dignity** of speech requires that "not only should it not be opposed to decency and good morals, but that, both in expressions and in thoughts, the author's respect for the reader and for himself should not be violated" [Ibid, p. 198-199].

Such a detailed presentation of the views of the classics of Russian philology is necessary in order to show the fundamental nature of these descriptions, which undoubtedly underlie the modern theory of the communicative qualities of speech. They are characterized by a sequential listing of the qualities of speech with an accurate composition of the description, suggesting: 1) the definition of the term-quality, 2) a comment in which you can indicate both the advantages and disadvantages that prevent the implementation of this quality, 3) numerous examples or notes with reference to previous authors.

5. Conclusions:

Let's summarize the preliminary results of the evolution of the theory of speech qualities in the Russian rhetorical tradition of the XVIII- first half of the XIX centuries:

1) In Dolomonosov manuscript philology, there are indications of the quality of speech in the definitions of each of the sciences: grammar (correctness), rhetoric (adornment, persuasiveness). In early Russian rhetorical works, there are also descriptions of the merits of speech, which include "goodwill" and "piety", adornment (beauty), sweetness, purity, clarity, propriety, decency.

2) In the works of M.V. Lomonosov, the Russian language has many qualities, which then appear in the theory of speech decoration as the basis of the theory of style or word. These qualities are not only "splendor, liveliness, strength, tenderness, wealth, brevity", but also described in the "Brief Guide to Eloquence" purity of style, flow of words, splendor and strength.

3) The subsequent tradition develops in line with the Lomonosov peculiarities of the Russian language. The creators of the Dictionary of the Russian Academy of Sciences write about the "abundance, beauty, importance and power" of the Russian language. The description of the qualities of speech is rather implicit, not in specific descriptions of the qualities themselves, but in their mentions and in attempts to describe these qualities in the section of rhetoric concerning speech decoration.

4) The doctrine of the qualities of speech begins to form a special section in the textbooks of Russian rhetoric and literature of the late XVIII - first half of the XIX century. Their authors I.S. Rizhsky, M.M. Speransky, A.F. Merzlyakov, Ya. V. Tolmachev, N.F. Koshansky, A.I. Galich et al. Offer detailed descriptions of the "properties" and "virtues" of style that should be inherent in exemplary texts.

5) The terms for the designation of qualities evolve from one theory to another: "perfection of the word" in I.S. Rizhsky, "general properties of a word" by MM. Speransky, "the universal properties of a word" by A.F. Merzlyakov, "general perfection" and "special qualities of the military style" by A.F. Merzlyakov, "speech conditions" by K.P. Zelenetsky.

6) The main qualities of good speech (style, word), which all authors relate to, are still highlighted: clarity, purity (its synonym is introduced - correctness), beauty (ornamentation). The rest of the terms correspond to the ideas that existed in ancient rhetoric, but each author introduces his own new concepts. Among them: diversity, unity, equality (M.M.Speransky), lightness, brevity, accuracy, elevation of spirit (Ya.V. Tolmachev), decency, smoothness, harmony (N.F.Koshansky), euphony, naturalness, proportion, definiteness, completeness (A.I. Galich), consistency (V.G.Belinsky), etc.

7) The listed speech qualities became the basis for building a future theory of the communicative qualities of speech, which will be developed in the stylistic theory of the XX century [Annushkin 2019, p. 32-33].

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二十世纪的俄罗斯商人：从人格特质到言语品质
**RUSSIAN BUSINESSMAN IN THE XIX CENTURY: FROM
PERSONALITY TRAITS TO SPEECH QUALITIES**

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本文试图从他的个性品质的角度研究十九世纪俄国商人的形象，然后使他有可能会继续讲他的言语形象，即言语行为的特定特征。对俄罗斯企业家形象的研究是基于两个著名人物（Savva Mamontov和Petr Gubonin）的生平事例，他们为俄罗斯经济和俄罗斯文化做出了很多贡献。言语行为模型参数包括班级的文化和社会特征，说话者的地位角色和言语行为以及交际能力。

关键词：商人，企业家，个性，言语质量，言语礼节

Abstract. *The article attempts to study the image of a Russian business man of the XIX century from the point of view of the qualities of his personality, which then make it possible to move on to the image of his speech, specific features of speech behavior. The study of the image of a Russian entrepreneur is based on the life examples of two prominent figures (Savva Mamontov and Petr Gubonin), who have done a lot both for the Russian economy and for Russian culture. The parameters of the model of speech behavior are the cultural and social characteristics of the class, the status-role and speech behavior of the speaker, and communicative competence.*

Keywords: *businessman, entrepreneur, personality, speech quality, speech etiquette.*

Outstanding Russian lexicographer V.I. Dahl called a "business person" a person who is capable of "undertaking, enterprise, deciding to perform any new business" [4, v. 3, p. 388]. An enterprising person - "inclined, capable of enterprises, large turnover; brave, decisive, courageous in this kind of affairs" [4, v. 3, p. 388].

The image of a business person-entrepreneur is distinguished by certain characteristics, including personality traits, and personality is manifested primarily in the speech of a business person. It is speech that influences other people and organizes business life, and the image of a business person is formed in the course of

personal contacts and is then reflected in the opinions and descriptions of others.

The optimal professional image of an entrepreneur is half the success in his work. Moreover, if the perception of a business person begins with his appearance (important requirements for clothes are neatness and cleanliness - see [2, p. 115]), but the final assessment of the personality arises after contact with it, and contacts, as is known, are only "Speech".

The character traits of an entrepreneur can be represented as a system of general moral qualities. The main quality of an entrepreneur's character should be morality as an internal, spiritual quality of a person, the need to act in accordance with ethical and moral principles, the ability to do good.

These moral qualities are those spiritual supports that contribute to the formation of a spiritual and moral portrait of a business person. Its stability and constancy are determined by moral health, the nature of actions under conditions of moral choice. In accordance with the above, Russian merchants possessed special honesty, mutual trust (deals worth tens of thousands of rubles were strengthened by a handshake), responsibility, initiative, unshakable spirit and knowledge of economic laws [2, p. 121]. The research proposed below analyzes the speech qualities of a business person, which are based on personality traits. Two prominent representatives of Russian business life were selected for analysis - Savva Ivanovich Mamontov and Pyotr Ionovich Gubonin.

Savva Ivanovich Mamontov (1841-1918) was the founder and builder of the largest railway lines in Russia. Since Savva Mamontov was actively interested in theatrical art and singing, including opera, his voice sounded quite loud and clear. This business man, unlike most of our contemporaries, spoke slowly, emphasizing the most important words. At the same time, he gestured, preferring to conduct a conversation while sitting.

Every evening, prominent figures of culture and art of that time gathered at the Mamontovs' house to discuss plans for the development of the Russian theater. The main role in these dialogues was played by Savva Mamontov himself, who financed the development of theater, art and opera in Russia. Those present noticed not only his quick wit, but also his eloquence. Mamontov could describe a picture or a situation so vividly that those present could easily imagine it. V.D. Vasnetsov wrote: "Polyakov is negotiating in the house of Mamontov, in which, he says, Savva Ivanovich "presented living images", emphasizing the completeness of the description of the details of events." Here is how Mamontov described the difficulties of the trip to Arkhangelsk: "The road is covered with furrows and liquid black mud, and sometimes there are tree trunks that make people sitting in a tarantula make impossible comic movements. When I climbed twice from the crown to the ceiling, I was internally convinced of the need for a railway from Yaroslavl to Vologda" [5, p. 135].

It is worth mentioning the oratory skills of Savva Mamontov. Since he often spent time with aspiring artists, writers and actors, he tried to support and inspire them. He often addressed his interlocutors with words of support: "They are very talented", "I have your talents", "You are becoming famous in Russia", etc. Artist A.Ya. Golovin wrote that Mamontov has a special gift, "the ability to inspire people with one word" [5, p. 135].

Savva Mamontov was an educated person and strictly observed the rules of behavior, especially speech behavior, in society. He was so polite that Pavel Tretyakov's granddaughter spoke of him like this: "If you didn't know who it is, you would assume that you are running into the British Prime Minister." Savva Mamontov used standard greetings like "my pleasure", "good afternoon", "nice to meet you." Savva Ivanovich grew up in a religious family, and this, of course, was reflected in his speech behavior [5, p. 136].

In the company of close friends in his home, Savva Mamontov could use gentle expressions to show his approval and love. The addresses sounded: "brother", "dear", "genius" and much more. However, V. Bahrevsky in his book "Savva Mamontov" described his decisive tone in dealing with merchants: "Well, sir, if you act, then act!" In aggressive moments, Savva Mamontov could sharply express his anger towards an opponent: "Why the hell are you smoking there!" [9, p. 87]. However, with his wife he was extremely affectionate, calling her "dove" or in a respectful manner "Elizaveta Grigorievna."

Savva Mamontov traveled a lot: he was in Baku and a number of cities in Persia, where he actively studied the culture of eastern peoples, read oriental literature and talked with prominent figures of culture and art of these countries. This could not but affect his speech. Sometimes he quoted large passages from the works of oriental sages and poets. In addition, Savva Mamontov quoted passages from the Koran, referring to the name of Allah, in order to speak the same language with local merchants and industrialists [9, p. 90].

Thus, we can say that Savva Mamontov was a representative of the cultural elite of Russia. He spoke fluently and expressively, using quotes from prominent European and Eastern classics. In the company of friends, he was very polite, tried to encourage and motivate the interlocutor to continue the dialogue, although sincerity and ardor often made him a rather harsh person, inserting various offensive words into speech ("damn it", etc.).

Peter Ionovich Gubonin (1825-1894) is known to the modern Russian much less than Savva Mamontov, nevertheless, in the XIX century he was called "the greatest benefactor." Gubonin was a versatile and bright person, and his personality caused a lot of talk. For example, contemporaries liked to note that in everyday life this millionaire was a modest person and lived without excesses, orders and other high honors that he had in abundance. He did not boast of wealth, he was

wearing a modest cap and a long coat. At the same time, Gubonin was a generous person and loved a feast. For example, in "Moscow and Muscovites", Gilyarovskiy ironically recalls Gubonin's visit to the cloth baths, which he often visited. The appearance of the merchant caused a sensation among the workers, who, leaving other customers, rushed with all their might to the dear guest. The merchant was a hospitable host and as a deeply religious person he treated his millions very carefully and never refused to help those in need.

P.I. Gubonin is a vivid example of Russian entrepreneurship in the XIX century: he was a man of rare spiritual qualities, an enterprising, hardworking, purposeful, charitable, "zealous son of the church and servant of the prince."

Peter Gubonin descended from a simple bricklayer who became rich by selling his services and goods. But in order to stay in the business world, Peter, as he was called in his youth, joins a group of Old Believers who, in addition to believing in God, occupied the position of "Rothschilds", whose main goal was their own enrichment. Let's take a closer look at the speech portrait of Peter Gubonin [10, p. 157].

Although Pyotr Gubonin became a rather wealthy man, he cannot be called a highly educated person. He sometimes spoke with errors and colloquialisms. He called buckwheat porridge a "greshnik". His habits of a simple farmer remained with him for the rest of his life. Nevertheless, Pyotr Gubonin constantly worked on his speech, read many books and studied the rules of etiquette from the best teachers in Russia. Here is what Konstantin Skalkovsky says about him: "When I looked at Gubonin with his purely Russian appearance, his beautiful facial expression and gentle manners, I realized that the boyars and employees in Moscow were Russia without the slightest education, but borrowed literacy or reading handwritten translations of several books by Byzantine church writers successfully solved the most important affairs of the state, skillfully conducted diplomatic negotiations in the refined court of Louis XV".

Gubonin knew how to show respect for others and always welcomed them. Gubonin really tried to do as much as possible for Russia. During the opening days of the Gurzuf resort, where Gubonin built luxurious Art Nouveau houses that have survived to this day, he said about his life credo: "Not you, but the Motherland!" Later, this expression became winged and is still used in slogans at the resorts of Gurzuf [10, p. 158].

Despite the fact that Pyotr Gubonin became one of the richest people in Russia, he respected not only officials, but also the peasants, from whom he himself emerged. Gubonin always greeted everyone loudly with the words "Good afternoon," "God's grace," etc. At the same time, Gubonin addressed ordinary people in the old-fashioned way: "man," "woman," "daughter," etc. At the same time, in the company of merchants and entrepreneurs, Gubonin strove to remain a gaze at

the level of the eyes of the interlocutor and use sentences that corresponded to the norms of communication in high society, but did not forget about his origin. As a gift to the tsar, Gubonin presented an inkwell, on which he wrote: "From a former peasant, now at your mercy, from the actual state adviser Peter Gubonin." He spoke of himself simply and called himself a "former farmer", "a bricklayer." The letters to Gubonin contained records of peasants who spoke so about Peter Ionovich: "Educated lords-strangers, they express themselves in incomprehensible words, and this is his own, understandable master from all sides" [10, p. 160].

With his wife Marina Sevastyanovna, Gubonin remained invisible and modest. He often called her by her first name and patronymic and did not allow himself to be kind. Once he ordered her portrait from the artist I.K.Makarov. My wife had just arrived for the winter theater season in St. Petersburg. But when Peter paid for the work, he did not look up at the portrait and said: "This is too much, I don't want it to be in my eyes."

It can be noted that in the speech of Peter Gubonin there were many simple village words and jargon. He tried to speak simply and clearly, did not use idiomatic expressions, did not introduce addresses, did not possess the gift of colorful description. His sentences were short. He always answered clearly and simply, without exaggeration. In his letters, there are no poetic idioms, the use or borrowing of then "fashionable" foreign words. This betrayed his image the simplicity of the Russian peasant who achieved significant success thanks to his work [10, p. 161].

Since Peter Gubonin was a deeply religious, Old Believer, he devoted much time to reading the Holy Scriptures and studying the lives of saints. This activity was reflected in his speech culture. In his conversations, Pyotr Gubonin often used quotes from sacred books and phrases typical of God-fearing people. Thus, in his speech one can notice such expressions as "by the grace of God", "in favor of God", "at the command of God" and others.

From this we can conclude that Peter Gubonin retained the culture and language of an ordinary inconspicuous person. Nevertheless, Petr Gubonin wanted to develop further, continued to study and tried to negotiate with his partners as equals. He had good manners and was always friendly with both common people and high officials.

The images of the business people described above in pre-revolutionary Russia show what the culture of communication was, based on the principles of morality, genuine business wisdom and personal originality. Every business person (and in the future we will describe up to two dozen influential linguistic personalities of old Russia) had a unique character, which was certainly manifested in his speech behavior, ways and manner of speaking, communicating with business partners and family. These images remain examples for modern entrepreneurs as well, although we are now living in a new "digital" era, where cultural memory retains all the best that exists in Russian business communication.

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全球文化资本与教育系统中的知识经济学
GLOBAL CULTURAL CAPITAL AND THE ECONOMICS OF
KNOWLEDGE IN THE SYSTEM OF EDUCATION

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文章提出了一个事实，即世界上的政治，社会，文化领域，人口结构以及经济和技术结构发生了根本变化。结果，这里出现的问题是，在“二十世纪漫长的世纪”里，大学是西方文明发展的机车，如今，它们越来越远离正在发生的变化，需要加以改革，而有时这种变化需要改革自发发生，有时更自觉。

关键词：大学，教育价值观，知识即商品，知识与资本，公司

Abstract. *The article raises the question of the fact that fundamental changes have occurred in the world in the political, social, cultural spheres, demographic structure, and economic and technological structure. As a consequence, the question arises here that universities, during the «long XX century», were the locomotives of the development of Western civilization, and now they are increasingly aloof from the changes that are taking place and need to be reformed, which sometimes happens spontaneously, and sometimes more consciously.*

Keywords: *universities, values of education, knowledge as a goods, knowledge and capital, corporation.*

To say today that we live in an era of transformation is to declare a rather trivial idea. However, a number of authors, both domestic and foreign, start with this idea the analysis of modern higher education. In general terms, the main points of most authors can be reduced to several points and all of them are related to our object of study. First of all, position number one, the modern world has changed quite seriously. We can say that fundamental changes have occurred in the political, social,

cultural spheres, demographic structure and economic and technological structure. The second, which follows the first, is that universities, during the «long XX century» were the locomotives of the development of Western civilization, increasingly remain aloof from the changes that are taking place and need to be reformed, which sometimes happens spontaneously, and sometimes more consciously (1;6).

Johan Wissema names nine reasons why the «Humboldt» model of the university has undergone changes (4). First of all, he calls this reason the explosive growth in the number of students that occurred in the post-war period, starting from the 60s of the XX century. The reason for this was the demographic growth of the post-war period, as well as state policy in the field of health, social welfare, and education. Wissema finds the cultural reason for this, the value attitudes that emerged during the Enlightenment: the rapid growth in the number of students corresponded to the Enlightenment prevailing at that time, which was characteristic of liberalism and socialism, which required equal opportunities for everyone. In many countries, entrance examinations to universities were canceled, since it was believed that acceptable grades in the secondary school diploma were sufficient (5). The state generously allocated funds for student scholarships; and since academic freedoms were still much respected, almost nothing was required of students in return. As a result, along with those who wanted to devote themselves to science, people poured into the universities who simply needed a diploma of higher education as a guarantee of good employment». An indication of the equal attitude to the value of education is quite interesting and indicative in highlighting the problem of the origins of liberalism and communism (socialism) as alternative versions of the overall modern project. Only the approach of the Soviet education system was, in our opinion, more rational, since the regulation of education was subordinate to the needs of production. Self-regulation of the Western system as a reaction to the growth in the number of students led, as J. Wissema writes, to a certain drop in the quality of education of Western universities and the transformation of education into a commodity. This point is very important because it explains the change in the perception of education from a rather high understanding of it in the enlightenment paradigm and purely utilitarian in its modern interpretation of education as a service and knowledge as a commodity (many of us cannot accept it now).

The second consequence was an increase in government spending on financing education and, as a result, an increase in state control, which also manifests itself in the fact that universities are beginning to bureaucratize. The management of the university is gradually moving from scientists who traditionally combined teaching and research activities with managerial activities, to managers and officials. The negative effect of such changes was the decline in the authority of the professors on the one hand, as well as the low managerial level of those managers

who came to education (3;6).

If we briefly try to summarize the changes introduced by J. Wissema in the knowledge-capital model, it turns out that the first reason was the result of a thinning of various connections and mutual transitions between human capital (intellectual capital, first of all) and economic capital, mediated by symbolic capital. The understanding of education as a mission, the lofty interpretation of knowledge as the transformation of man and society (the «teaching of the light» and other meanings that have become traditional) combined the teacher's intellectual capital with symbolic (cultural and ideological) capital and only then was it possible to transfer to the economic conversion of capital received in the university (7). Without symbolic mediation, the connection between knowledge and capital is much more primitive and direct. Knowledge should immediately, bypassing the symbolic formations of capital, be transformed into economic capital. Hence the growth in the number of applied research and a certain secondary nature (albeit in the early stages of this process) of fundamental science. Moreover, this change has affected the humanities, the knowledge of which cannot be capitalized here and now.

Other consequences also stem from the simplified connection of human and cultural capital with economic capital. The influx of managers into higher educational institutions, if explained by the complexity of the university's management structure, is, in our opinion, only partly, since priority of economic capital attracts the manager's figure. A professor who previously ran the university also loses because of the changing alignment between symbolic and economic capital. The devaluation of the authority of professors and universities as a whole is the result of a change in the perception of education and knowledge. If it is devoid of lofty meanings, then the leadership of the university does not differ from the leadership of any other production of goods or services. In terms of capital consolidation, the figure of a university professor is also thinning out as a holder of human capital (own knowledge), symbolic (status of scientist and teacher), as well as cultural (creator and translator of national culture), and only then economic capital (researcher commercializing his knowledge).

The third reason J. Wissema called globalization. Culturally, this aspect of change is most interesting. The locality of the universities of the previous formation is torn due to the cheaper cost of traveling around the world, which facilitates academic mobility, as well as the fact that English is becoming the language of international communication, simplifying communication and searching for information on a global scale. In other words, national universities, competing among themselves for students (also teachers) within the country, now compete not only among themselves, but also with universities from other countries: as before, the bulk of applicants for the first higher education programs are residents of the re-

gion where University is located, but senior students and professors tend to look for more interesting offers «on the side». As a result, universities are forced to teach in English, which again leads to increased competition between them. In a sense, the general national education system, previously competing with other national systems (albeit sometimes implicitly, mediated by competition in other fields), breaks up into separate scientific and educational institutions (universities) that already compete with each other without the participation of the state. In our opinion, there is also some simplification of the system, since the loss of state from the field of interaction excludes at least the political aspect, and hence political capital.

Along with culture, national culture, the policy of the national state sets barriers to capital, including capital in education and science. It is possible that it is not worth talking about the abolition of the national specifics of education as such, but this issue can already be problematized. The refusal to teach in native language and the transition to English is an essential point in understanding this problem. And if human capital only grows from academic mobility (teachers and students), then the same cannot be said with certainty about cultural capital. The focus on the equivalence of educational standards and, thus, on the standardization and equivalence of knowledge, in the framework of the Bologna process calls into question the specific, and therefore nonequivalent, special national-cultural in each of the educational systems. For now, let us leave aside the fact of the total predominance of the English language in teaching and go further noting that the trends in the development of higher education are associated with an orientation toward foreign cultural interaction, but with a very specific position of denying the specifics of the interacting. There is also some simplification already at the level of the university model itself, striving for a unified educational program throughout the world and knowledge cleared of any cultural specificity. Who is such a learner is also a rather interesting figure of a person who knows the modern «common language» (English) and some universal (universal, essentially Western European) communication skills and values. Moreover, here we are no longer confronted with the private-universal, as in the case of the Roman Empire or the empire of Alexander the Great, but with the abstract-universal capital, unifying both knowledge itself and the participants in the process of its transmission.

The fourth reason J. Wissema calls the growth of interdisciplinary research that is related to the dynamics of scientific knowledge, to change the paradigm of development with monodisciplinary on inter and multidisciplinary: in carrying out interdisciplinary research scientists, engineers, designers and planners specializing in various fields working together, but without rigidly binding a specific area of specialization to a specific project participant. Interdisciplinary research and development projects signal the return of a «Renaissance man» who disappeared

in an era of narrow specialization and predominantly monodisciplinary research of the Humboldt type. In our opinion, talking about the return of the «Renaissance man» in the context of combining different disciplinary knowledge is quite debatable. The growth of knowledge during the modern era rigidly enough determined the specialization of modern science. In certain ways, the return to Renaissance consists in the increased importance of human capital in education, when the scale of the individual overcomes the boundaries of institutions. Modern communication capabilities allow you to transmit knowledge and thereby create capital without explicit affiliation with the university, the state and anything else. The most energetic element of neoliberalism is a separate worker and consumer, each morning creating themselves anew as «human capital» and competing fiercely with each other, could not have appeared without network technologies. However, the question remains of the content of this knowledge, in the case of science, conceptual. Is this knowledge, as declared, free of state and national affiliation and commitment? Is the cultural element excluded from the transmission of knowledge, cultural capital from the spectrum of capitals? Let us leave the questions open for now.

The fifth reason according to J. Wissema is the increase in the cost of conducting advanced scientific research. Indeed, not only knowledge is converted into economic capital, but the production of knowledge needs funds. The increase in financial costs for scientific research is associated with the complexity of the nature of research and the growth of knowledge itself. The emerging dependency puts universities in front of the need to seek money and cooperate with business, in addition to state financing. This can be seen as a kind of intensification of the relationship between knowledge and economic capital, as well as the sixth reason for creating a new type of university, expressed, according to J. Wissema, in the creation of specialized research institutes: industrial corporations were taken for large-scale scientific developments, fundamental and applied studies whose authors even became Nobel Prize winners. Similar trends began to appear around 1900 and gained full strength after the Second World War. Universities that were fully committed to «pure science» were not interested in playing a prominent role in applied and technological research. There were insurmountable boundaries between academic research and applied research conducted by campaigns and state-funded institutions. In other words, financial capital from the beginning of the 20th century is already trying to find new organizational forms for knowledge that can be capitalized (4).

However, the given rather simple dependence of universities on capital due to the complexity of science itself can be called into question. Jean-Francois Liotard, in his *The Postmodern State*, writes that the connection between technology and capital was discovered quite early in the 18th century: at the end of the 18th

century, during the first industrial revolution, the opposite was discovered: there is no technology without wealth, but there is no wealth without technology. A technical device requires investment, but since it optimizes the effectiveness of what is applied to, it can also optimize the surplus value obtained from such increased efficiency. It is enough to realize this surplus value, i.e. sell the product obtained by improvement. And we can close the system as follows: part of the product at this sale will go to the research fund, intended to improve the further achievement. And precisely at this moment, science becomes a productive force, that is, a moment in the circulation of capital.

One way or another, the Humboldt University is gradually reorienting itself towards new types of economic activity (reason 7), cooperation with companies (reason 8), and also focus on the general rise of entrepreneurship in the world in which universities want to participate.

If J. Wissema assesses positively occurring changes or, at least, as an objective process of education development, then Bill Readings approaches him critically. In the work entitled «University in Ruins» we find many of the changes already mentioned. For example, a number of reasons identified in the work of the «University of the Third Generation», which can be combined with the common sense of rapprochement between the university and business, are more culturally revealed in the chapter «The Idea of Excellence». Bill Readings draws attention to the rhetoric that accompanies a number of processes for this convergence. These include a change in the perception of education, understanding it as a service, and a change in the status of a university professor, as well as a transformation of the managerial structures of the university.

All these changes are substantiated through an appeal to the idea of excellence, which explicitly reflects the difference between the two types of university. It is important to distinguish between the University of Art Nouveau, which serves as the ideological tool of the nation-state, and the modern University, which is a bureaucratic corporation, because it allows us to fix one significant phenomenon (1). Excellence is rapidly becoming the slogan of the University - excellence is not just the equivalent of total quality management (TQM), not something transferred to the University from the business sphere in order to ensure the management of the University, as if it would be a commercial enterprise. Hence, any attempt to justify changes in the university under the slogan of commercialization will bear a difference within the very understanding of a higher educational institution (university), and we will also add knowledge and participants in educational and scientific processes, an understanding that affects the essence. B. Readings accurately described her, even if she is hiding (and she is trying to do it under the guise of efficiency, quality and others): ... quality is not a key issue, but perfection will soon become one, because it implies that the University is not just similar to

a corporation, but is a corporation. The students of the University of Excellence are not like consumers, they are consumers. It is also important that the idea of excellence is developed within the university, by itself. As Bill Readings notes, this is like a quantum leap. The university is becoming clear to the outside world. Moreover, Bill Readings does not explain this thesis, although it is quite interesting and ambiguous. As we already wrote, in essence, there is a simplification of the connection between knowledge and capital.

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COVID-19大流行对聚类过程的影响
**IMPACT OF THE COVID-19 PANDEMIC ON THE CLUSTERING
PROCESS**

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聚类是一个现代过程，可以提高人们的生活质量。今天，这是世界发展的明显趋势。不同国家/地区的群集级别不同。因此，有必要进行科学研究，并总结创建新集群的经验，并在我们星球生活空间的不同区域发现有集群。从历史上看，集群的创建与城市的形成过程，某些地区的城市化和工业化有关。本文的作者将当今世界发展中的现代因素（即与COVID-19病毒相关的大流行）纳入当今的一般发展过程中，并探讨可能的大流行影响进一步聚类的主要趋势。

关键词：城市，城市化，生活质量，集群，COVID-19大流行

Abstract. *Clustering is a modern process that improves the quality of people' life. Today it is a pronounced trend in the development of the world. The clustering level is not the same in different countries. Therefore, there is a need to do scientific research and generalize the experience of creating new clusters and develop the existing ones in different territories of our planet living space. The creation of clusters is historically connected with the city's formation process, urbanization and industrialization in certain territories. The authors of the article include the modern factor in world history in this general development process - the pandemic associated with the COVID - 19 virus - that takes place today and explore the main trends of the possible pandemic impact on further clustering.*

Keywords: *city, urbanization, quality of life, clusters, COVID-19 pandemic*

The origin of the city is the most important social breakthrough in history of world. From the Sumerian city-states, the urban cultures of Mohenjo-Daro and Harappa, ancient Chang'an, mankind today has come to the existence of huge me-

tropolises that require a much higher level of organization. From IV millennium BC up to III millennium AD the city became more complex in its functionality, satisfying the changing needs of people in the direction of their exaltation. The city protected people from external dangers in classical antiquity. In the Middle Ages, the city acquired those specific features that showed its belonging to a greater or lesser extent to the West or the East. The city as a center of crafts and trade was a manifestation of the Western Europe value orientations, the city as an administrative center manifested itself in the East, the city as the residence of a knyaz and a trade and craft center characterized the Russian civilization as “middle” in the general world scenario. The cities contributed to the transition to a settled way of life, the intensification of the development of crafts and trade communications.

The city attracted people with its forms of life and leisure, different from the village. Therefore, migration flows increased, pouring into the urban space and contributing to the acceleration of urbanization processes. In modern times, urbanization and industrialization went hand in hand.

As a process of transition from an agrarian and craft economy to a dominant industry and mechanical engineering, industrialization changed the face of cities. The development of railways, improvement of the water transport quality by means of steam, and later on by electric traction, expanded the functions of cities. The role of cities in servicing agricultural production (providing peasants with opportunities to trade and provide legal services) began to diminish. The ability to quickly and effectively deliver goods and raw materials from different territories allowed cities to economically assert themselves. Migration to urban space has been stimulated by high and stable incomes available to more people.

In contemporary history, territorial limitations and the desire to increase the area of urbanized zones have led to the creation of agglomerations, which are complex multicomponent dynamic systems with intensive production, transport and cultural links. The city has become the basis of powerful modern social formations, the qualitative development of which has been and continues to be especially effective due to the creation of urban clusters.

Experts dealing with cluster problems point to the special significance of the works of M. Porter and his followers in the development of this scientific direction [1].

Clusters must have active channels for business transactions, dialogue and relationships. Without such active channels, even a critical mass of interconnected companies does not become a local production or social system and therefore does not function as a cluster. So, the main feature of the cluster is the interdependence of campaigns.

A cluster, broadly speaking, is an interconnected collection of urban spaces that work together to develop common city systems. The urban cluster is a fairly

autonomous part of the metropolis, providing its residents with a set of necessary urban functions (residential, administrative and business, shopping and entertainment, recreational). The main distinguishing feature of the cluster is innovation orientation based on scientific and technological achievements.

A cluster, if tied to the specifics of social development, is a group of diverse companies operating in the same territory (or nearby territories), united by one technological cycle for the sake of a specific production or technological development.

Clusters are based on different sectors of the economy. Regional clusters look different in various regions. They can contain traditional industries (textiles, furniture) and the latest industries (for example, mobile and satellite communications) at the same time, and can cover various spheres of public life.

Realizing the need to create clusters, Russian managers propose different methods to activate the processes. As one Russian expert notes, “our industrial companies still operate in the old-fashioned way, in the format of the subsistence economy of a large Soviet plant, but everyone understands that if they do not develop subcontracting and merge into clusters, they will never become truly competitive. Therefore, we have chosen stimulating companies to form clusters as one of the priorities of industrial policy” [2].

In China, the clustering process is directly related to the program settings to improve the quality of life. According to many experts, the policy for the development of regional clusters can be an effective tool for creating new jobs and increasing welfare at the regional level and thus is an essential element of industrial and innovation policy.

The West ties its clusters more firmly with transnational corporations, which indicates active globalization of cluster processes. As a rule, the leading Western cluster firms are transnational [3].

Of course, these processes involve the migration of people when creating new clusters. And since people are not always motivated to change their place of residence, the processes can be stretched over time.

As mentioned earlier, external factors were the main driving forces in the change and development of the functionality of cities. There was a need to protect the population from wild animals and enemies in human form in the ancient period, there was a desire for people to survive in the endless civil strife during the Middle Ages. The production base required serious displacements in space during the period of industrialization.

The impetus to do active clustering may be the modern pandemic caused by COVID-19. Due to the danger of the disease spreading, the governments of almost all countries of the world have closed borders and limited population movement in urban space. This forced "isolation" forced all aspects of our life to be transferred

to the online. In the PRC, there were temporary movements of the population from Wuhan to other territories during the initial period of the pandemic, then the movements stopped, and a tougher regime was imposed on population movements.

Interaction between people without direct contact (only through online communication) revealed positive and negative aspects.

Positive points:

- Reducing the congestion of urban traffic, which directly affects the ecological state of the atmosphere of urban space;
- No need for companies to have more work space in business centers, freeing them up for housing or objects of cultural value;
- Access to highly qualified personnel who are not able to work in this company off-line.
- In a pandemic, it is possible to develop virtual clusters, that is, to develop models of future clusters and calculate their effectiveness.
- In megacities, it became necessary to use internal reserves to maintain the standard of living.

Negative points:

- Technical unpreparedness for drastic changes in the style of management
- Moral unwillingness of the population to work "from home".

Thus, it can be stated that the impact of the pandemic on the clustering process is dual.

The complex historical path of development of cities in different civilizations, countries and states has led modern man to the point at which there should be a more precise organization of the territory. In socio-cultural spaces, which are a multitude of diverse elements, it is necessary to single out clusters (subsets) that make the human environment more comfortable and the quality of life higher. However, unexpected twists and turns such as the emergence of Covid-19 have forced managers to pay closer attention to possible lifestyle changes and the need of learning from the experience of adapting to external stimuli.

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中国：从上海合作组织领导到世界领导
PRC: FROM THE SCO LEADERSHIP TO THE WORLD LEADERSHIP

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中国是上海合作组织的成员，今天巧妙地结合了地区和世界政治的原则。从战略角度来看，不仅是上海合作组织成员国的发展，而且全球在全球范围内的发展将在很大程度上取决于中国的政策。结果，它可能导致世界现有配置的改变。

关键词：上合组织，中亚，中国，经济，国家，安全

Abstract. *China, a member of the Shanghai Cooperation Organization, today skillfully combines the principles of regional and world politics. In a strategic perspective, the development of not only the SCO member states, but the development of the world globally will largely be determined by the policy of the PRC. As a result, it can lead to changes in the existing configuration of the world.*

Keywords: *SCO, Central Asia, China, economy, state, security.*

Today, the key initiative for the SCO countries has become the Chinese initiative to create a global transport and investment infrastructure "Belt and Road Initiative", which basically unites two completely independent projects - "The Silk Road Economic Belt (SREB)" and "The Maritime Silk Road XXI century".¹

China's large-scale Belt and Road Initiative is a structured, comprehensive plan aimed at implementing the ambitious plans of the Chinese economy, starting in the border regions and further around the world. Official China does not tire of repeating that their plans coincide with the interests of partners², in all likelihood, this is possible when it comes to the huge investment potential of the PRC.

Of course, China is striving to provide its growing economy with raw materials, products manufactured by the sales market, as well as to solve the problems of employment of numerous Chinese. It is worth noting that due to this, in the current geopolitical situation, the PRC regards stability in the vast expanse of Eurasia as an important buffer, which can also act as a certain obstacle to an active American

¹ <https://ria.ru/spravka/20170514/1494097368.html>

² <https://centero.ru/2016/11/kitavskiy-globalnyy-proekt-dlva-evra/>

course of containing China.

Thus, the "Belt and Road Initiative" concept is an international initiative of China aimed at improving existing and creating new trade routes, transport and economic corridors, the longest in the world and connecting the countries of Central Asia (CA), Europe and Africa, with one side. On the other hand, it is precisely the "Belt and Road Initiative" that is assessed as a link between the "Chinese dream" and the "world dream".

It is worth noting that, proposing a new international model of cooperation to many states, President of the People's Republic of China Xi Jinping noted that it is necessary to "convert the advantages of political dialogue, geographical proximity and economic complementarity into the advantages of cooperation, sustainable growth, creating a community of interests based on mutual benefit and common gain"³. Note that the very idea of forming the "Silk Road Economic Belt" was voiced at Nazarbayev University in Astana (now Nur-Sultan), as part of Xi Jinping's state visit to the Republic of Kazakhstan in September 2013. And, this is not an accidental fact, given that that Kazakhstan is not only a member of the SCO, but also the largest state among the countries of Central Asia. In his speech, the Chinese leader announced Beijing's readiness to actively consider improving cross-border transport infrastructure with the aim of gradually creating a transport network connecting East, West and South Asia, which would create favorable conditions for the economic development of these regions⁴.

Note that in China itself, some experts and representatives of business structures express doubts about whether their country will have time to get real results from the initiative in order to compensate for the outlined decline in the Chinese economy...⁵.

The Xinjiang Territory is the core, the base area for the entire Belt and Road Initiative. Both in ancient times, as in the present, the Kazakhstani territory is the junction of the Chinese part of the Silk Road, that is, it is from here that the path to the West begins. Sinologist Tavrovsky writes: "After the 2013 proclamation of the New Silk Road initiative, Urumqi and the entire Xinjiang acquire strategic importance as a base region for the interface between the internal Chinese and external transport routes of the Eurasian continent"⁶. So, Xi Jinping announced the strategy

3 Speech by the President of the People's Republic of China Xi Jinping at Nazarbayev University // "Zhenmin' zhibao" online newspaper. September 7, 2013. URL: <http://russian.people.com.cn/95197/8392674.html> (appeal date: 28.04.2016).

4 "Strengthen the friendship of peoples, together open a bright future." Speech by the Chairman. China Xi Jinping at Nazarbayev University. Website of the Embassy of the People's Republic of China in the Republic of Kazakhstan. <http://kz.chineseembassy.org/rus/zhgx/t1077192.htm>

5 See: Cheng Hongze. "Economic Belt of the Silk Road" and "Maritime Silk Road of the XXI century" from the point of view of the PRC experts. URL: <http://oaji.net/articles/2015/245-1439538260.pdf>. 2015. (appeal date: 30.04.2016)

6 New Silk Road / Yu.V. Tavrovsky. -Moscow: Eksmo, 2017. P.328

of the project in one of the countries of the Central Asian region (CAR), not only because of the close geographical location of Kazakhstan, but taking into account the fact that this CA region is strategically important for China. The total length of the Kazakh-Chinese border (with XUAR) is 1782 km, the longest among the borders of CA countries. In addition, "the states of the Central Asian region have significant natural and economic potential, are of great geostrategic importance for the PRC and are viewed by Beijing as "close neighbors and important partners"⁷. The Chinese initiative is part of the general policy of the PRC to develop regional economic cooperation in relation to its **neighboring countries** and is designed to create close relations between the states of the region in the economic, political and humanitarian spheres.⁸

According to the Kazakh scientist K. Syroezhkin, this concept is based on "not concern about the development of the industrial potential of the countries through which the SREB will pass, but above all - the intensive development of the western regions of China and their transformation into transport and logistics, foreign economic, and in the future - the financial hub of "Greater Central Asia"⁹.

Thus, it becomes obvious that it is no coincidence that this concept was voiced by Xi Jinping in Kazakhstan. After all, the design of new routes, according to the Belt and Road Initiative, in the long term can lead to large, large-scale changes that will affect Russia as well. In his work "Should Kazakhstan be afraid of China: myths and phobias of bilateral relations" K. Syroezhkin notes: "And although Xi Jinping focused on the fact that China is going to do this together with Russia".

One cannot but agree with the opinion of the American political scientist Farid Zakaria, who writes in his book *The Post-American World*: "How peaceful the rise of China will turn out to be will be determined by the combination of its actions and the reactions of other countries, as well as the systemic result of this interaction. Because of its size, China should not expect to slip into the world stage unnoticed"¹⁰.

According to the famous David Daokui Li, head of the China and the World Economy Center at the Tsinghua Institute of Economic Management in Beijing, "...the changes taking place in China over the past three decades are only half the way. Change will also be social and political. I invite you to consider a completely different perspective. Forget about the last 500 years of Western philosophy and

7 See: Wang Shuchun, Wan Qingsong. Silk Road Economic Belt and EAEU Projects: Competitors or Partners? // Reviewer. 10/2014. P. 58–59.

8 See: A. Tsvetov. New Silk Road: Strategic Interests of Russia and China // Website of the Russian International Affairs Council. December 20, 2013. URL: http://russiancouncil.ru/inner/?id_4=2883 (appeal date: 29.04.2016).

9 Syroezhkin K. Geopolitical projects in Central Asia and the role of Kazakhstan // CABAR - Central Asian Bureau for Analytical Reporting. March 30, 2016. URL: <http://cabar.asia/ru/konstantin-syroezhkin-geopoliticheskie-proekty-v-tsentralnoj-azii-irol-kazahstana/> (appeal date: 10.05.2016).

10 Farid Zakaria *Post-American World*. - M.: Europe Publishing House, 2009. P.134.

Western perception of the world. Forget about evaluating international relations in terms of winners and losers. Instead, look at the world through the prism of traditional Chinese philosophers, the Confucians.¹¹ What will be a different vision of the world from the Chinese point of view? This is a difficult question.

"Since security issues are closely related to defense policy, and, consequently, to the sovereignty of the participating States, China may have deliberately removed this topic from the general framework of cooperation, transferring it to the bilateral and non-public level."¹²

One of the most important tasks of the Belt and Road Initiative project is the construction of a transcontinental transport corridor, including from Urumqi, the capital of the XUAR. There are at least three factors that define Xinjiang as the most important link in the PRC: first, the XUAR occupies a middle position on the Eurasian continent; secondly, in ancient times it was the main corridor on the Great Silk Road, and it remains the same in the new Belt and Road Initiative project; thirdly, according to statistics, it has the largest national entities within the PRC.

The active and forward movement of the Chinese economy brings to the fore the issues of water resources. We are talking mainly about the transboundary rivers of China, Kazakhstan, Russia, as China increases its water intake from year to year, which reduces the amount of water flowing into the adjacent countries. Russian expert E.A. Borisova believes: "China is exploiting water resources in all directions. In terms of the number of large dams, China ranks first, significantly ahead of the United States in this indicator. Its share in the total number of these structures is 45% of about 25,000 dams (and if we count together with small ones, then all 45,000) However, not all dams are related to hydropower"¹³. Further growth of the Chinese economy could exacerbate the already complex problem associated with the use of water resources of transboundary rivers.

According to Chinese scholar Xu Hwei Fan: "From the point of view of the new geopolitics, success in foreign policy stems from the correct choice of national interests"¹⁴. It is becoming increasingly clear that the United States was not prepared for such a sudden breakthrough by China. As the American scientist Niall Ferguson notes, "... China's economic challenges are also challenges to the

11 Ibid

12 China Global Project for Eurasia: Problem Statement (analytical report Moscow Scientific expert 2016. P.43.

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hegemony of the United States"¹⁵. Note that Chinese diplomacy traditionally emphasizes that China does not seek hegemony¹⁶.

It is obvious that the United States does not abandon its goal of separating the Central Asian countries from China and Russia. "In addition, America has already tried to advance its interests in the Central Asian region through the "New Silk Road" program¹⁷. Zbigniew Brzezinski writes in his book "The Great Chessboard" that the principle "my neighbor's neighbor is my ally" is quite suitable for geopolitical and historical relations between China and America"¹⁸.

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青少年内感和怨恨的性别差异
**GENDER DIFFERENCES OF GUILTY CONSCIENCE AND
RESENTMENT IN ADOLESCENTS**

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本文研究了青少年内of和怨恨经历的性别特征。这篇文章揭示了内ex-perience感经历中的阶段性性别差异，这是由于男女生理发育的特殊性所致。要强调的是，在青春期，女孩比男孩更容易感到内。许多研究人员认为，这与养育子女有关。许多研究表明，与男孩相比，大多数女孩对家庭成员感到内。青少年的道德意识的发展与自我概念的发展密切相关。这篇文章涉及青春期的另一个经验特征-怨恨。怨恨包括在无法解决的情况下对罪犯的愤怒和自怜。 Yu. M. 的研究奥尔洛娃 (Orlova) 表明，一个人无法消除或削弱诸如羞耻，怨恨，罪恶感之类的经历，因为他们的发生和过程没有被意识到。在各种影响青少年情感和个人领域发展及其矫正的心理学流派和方向中，都在不同程度上考虑了不满和内的问题。

关键字。性别维度，青春期，内，怨恨，道德意识，青少年的情感和个人领域

Abstract. *The article examines the gender characteristics of the experience of guilt and resentment in adolescents. The article reveals the stage-by-stage gender differences in the experience of guilt, which are due to the peculiarities of the physiological development of men and women. It is emphasized that in adolescence, girls are more likely to experience feelings of guilt than boys. Many researchers believe this is related to parenting. Many studies show that the majority of girls feel guilty about their family members, compared to boys. The development of the moral consciousness of adolescents is closely related to the development of the self-concept. The article touches upon another experience characteristic of the adolescent period - resentment. Resentment includes experiencing anger towards the offender and self-pity in a situation where nothing can be fixed. Research by Yu.M. Orlova show that such experiences as shame, resentment, guilt cannot be*

eliminated or weakened by a person, because their occurrence and course are not realized. The problem of resentment and guilt, to one degree or another, is considered in various psychological schools and directions that affect the development of the emotional and personal sphere of adolescents and its correction.

Keywords: *gender dimensions, adolescence, guilt, resentment, moral consciousness, emotional and personal sphere of adolescents.*

Gender differences in the experience of feelings of guilt are due to two factors: biological and social, where biological means the physiological development of men and women, and social means “male” and “female” upbringing, which consists in the assimilation of stereotypes of “male” and “female” behavior. Children (both girls and boys) begin to feel guilty when they are able to understand that they can be the source of another person's experience, and this makes them sensitive to the experiences of others. However, at the age of 2 years, boys show a greater tendency to experience feelings of guilt, compared to girls of the same age, and so it continues until primary school age. It is only in adolescence that the dynamics of the experience of guilt change: girls are more likely to feel guilt than boys. Perhaps this happens because, raising a girl and instilling in her a stereotype of the behavior of a “woman” in society, parents more often resort to methods aimed at provoking her feelings of guilt. Boys - adolescents are less inclined to experience feelings of guilt, since: in society, the manifestation of perseverance, stubbornness, confidence and any aggressive behavior as part of a gender role stereotype is encouraged in society [1].

It is also worth noting that in adolescence, the intensity of the experience of guilt decreases, but in the period of early maturity, the intensity of the experience of guilt in girls becomes higher than in boys. The highest percentage of adolescent girls, compared with boys, mentioned the occurrence of feelings of guilt in situations when they lie or do rash acts. Boys are more likely than girls to feel guilty when they commit any aggressive behavior or when they vent their anger at others. A larger percentage of young men, compared with girls, mentioned the feeling of guilt that arises after a fight, abuse or material damage and refusing to help another. A larger percentage of girls, in comparison with boys, felt guilty towards their family members. Moreover, they mentioned parents and other close relatives as the object of feeling guilt three times more often than boys. In turn, young men are 2 times more likely than girls to mention casual acquaintances or other people [2].

Z. Freud was the first to study gender differences in the experience of feelings of guilt. He believed that women are less prone to experiencing feelings of guilt than men, since, unlike men, they are not able to develop a "strong" and "demanding" Super - Ego, and this happens because girls do not experience fear of castra-

tion during the Oedipus complex. Later, another representative of psychoanalysis, H.B. Lewis, noted that men, initially focused on career and success in society, are forced to resort to aggression in order to survive in a world of fierce competition. As a consequence, men are more likely to find themselves in circumstances that dominate them, forcing them to commit moral misconduct, and this increases the likelihood of their feeling of guilt [3]. As noted by D. B. Elkonin (1969): "The entire adolescent period passes under the sign of solving problems to establish relationships with peers and adults that would correspond to the learned moral and ethical standards. The solution to these problems occurs when focusing not only on the qualities of another person, but also on their own qualities. The development of orientation in oneself, primarily in moral and ethical qualities, is the content of the development of self-awareness during this period." The most important tasks of the development of young men are solved in the course of personal communication, since the leading activity in adolescence is intimate - personal communication. An important role in the development of moral consciousness in adolescence is played by the development of the self-concept. For the formation of the self-concept in adolescence, the ideal self is of great importance. It is the ratio of the ideal self with the real self that is the main mechanism of self-regulation in adolescence [4]. In adolescence, value orientations, social norms and rules are formed, a teenager begins to more competently navigate the system of social rules and values. Self-moral and adolescent guilt influence the formation of moral identity. And the formed moral identity allows teenagers to observe social and moral values.

Guilt — is one of the psychic feelings, which can be understood as a disagreement between the I and the Super-I. According to Z. Freud, most of the feeling of guilt is normally unconscious and is a topological type of fear, which in a later stage completely coincides with the fear of the Super-I [5]. Feelings of guilt are an unproductive human reaction to self-condemnation and self-blame. In fact, this is aggression directed at oneself. People who often experience feelings of guilt are prone to self-flagellation, self-criticism, and sometimes to self-punishment. For this category of people, guilt can cause discomfort, a feeling of pain and heaviness, melancholy, disappointment, pessimism. Affected by the negative experience of childhood, which can be created by incorrect parenting: the lack of praise from the parents, constant criticism and comparison with other children, which creates in the child the image of a "loser", a feeling of inferiority and guilt that you are not what you your loved ones would like you to be [6]. The feeling of guilt acts not only as emotional experiences associated with various moral sanctions (it is not for nothing that they are referred to the number of moral feelings or properties of a moral personality. These concepts are used to distinguish certain stages of historical development, during which social behavior becomes more conscious

and individual. guilt is genetically programmed and may not be reflected at all. The feeling of guilt, according to the research of some authors (N. Eisenberg, M. Hoffman), along with empathy is a moral emotion of the "higher order." For quite a long time, the feeling of guilt has been studied only within the framework of psychoanalysis and only a few decades ago it became the subject of research in other psychological schools. In foreign psychology, this direction began to develop actively half a century ago (M. Hoffman, M. Lewis, N. Eisenberg, M. Berkowitz, T.J. Ferguson, C. Zahn-Waxier, G. Kochanska, J. Bybee, K. Barret, R. Baumeister, J. Tangney, R. Donnenberg, M. Mosher). In Russian psychology, fundamental research on the role of guilt in moral development is virtually absent. We also note that in the Russian psychological school the genesis, role and functions of the feeling of guilt, as well as the connection between the experience of feeling of guilt and the formation of the Self-Moral were practically not considered [7].

Philosophers-existentialists (S. Kierkegaard, M. Heidegger, P. Tillich) and their followers, representatives of existential-humanistic psychology (J. Byogenthal, 1998; R. Kochunas, 2002; R. May, 2001; I. Yalom, 2000; PF Colaizzi, 2002; E. van Deurzen, 1999; M. Lucas, 2004; DV Morano, et al.), Believe that the feeling of guilt is closely related to the concept of the Ideal, i.e. with a person's aspiration for improvement. The results of many studies show that the feeling of guilt, is an indicator of the formation of moral norms and rules, affects their observance. G.G. Bochkareva (1972) believes that when comparing the level of internalization of values by adolescents and young offenders with their "non-delinquent" peers, young offenders are characterized by different emotional experiences in violation of moral norms than for "non-delinquent" ones. And adolescent delinquents have practically no guilt feelings [8]. The experiences of adolescents with a "minus" sign include another negative emotional state - resentment. This emotion has a positive property - resentment signals a violation of social contact, thereby the resentment stimulates a person to restore lost contact. But if a person is often offended, then this can lead to the fact that a person can withdraw into himself, into his experiences, and this can grow into a personality trait - a character trait - resentment, up to its pathological manifestations [9]. Resentment includes experiencing anger towards the offender and self-pity in a situation where nothing can be remedied. Unlike a reproach and a claim, when there is an opportunity to correct the situation [8]. From the standpoint of general psychology, resentment is a negative emotional experience, the most common cause of which is wounded pride; this is an experience that can turn into a kind of infantile-neurotic reaction that occurs in any situations associated with the assessment of the self and self-affirmation. From the standpoint of social psychology, resentment is a reaction to a discrepancy between the expected and real behavior of a communication partner, which is a signal of a violation of social contact and a specific regulator of social

interaction, since it stimulates partners to change relationships: to restore broken relationships or to completely break them and distance them.

Research by Yu.M. Orlova show that such experiences as shame, resentment, guilt cannot be eliminated or weakened by a person, since he is not aware of their development and functioning. Yu.M. Orlov presents resentment as an emotional reaction caused by a mismatch between expectations and the actual behavior of a communication partner. A.N. Shapkina believes that resentment is vulnerability, an orientation toward self-justification (i.e., the search for the causes of the resentment experienced in another person), expectations that are addressed to the outside world (requirements for the world, expectations that the world will take into account the needs of the subject). Many authors consider offense as a negative emotional state (O.S. Arkhipkina, Yu.V. Granskaya, A.V. Zaporozhets, etc.). Authors such as V.K. Volyunas, B.I. Dodonov, V.V. Stolin and others, talk about the presence of a connection between resentment and wounded pride. This problem becomes acutely important in adolescence, since it is transitional, critical, and complex. The adolescent is extremely sensitive to external influences, in particular the impact on the formation of his ideas about himself. In adolescence, negative reactions of the personality are exacerbated, conflict, vulnerability, and resentment increase. As studies by K. Leonhard show, A.E. Lichko in this period clearly begins to manifest accentuations of character. Touchiness, as a character trait, is firmly established precisely in adolescence and can negatively affect the development of the personality as a whole. Adolescence is sensitive in terms of the manifestation of resentment. But at present, this issue is not so deeply worked out. Research boils down to the study of resentment in the context of the study of adolescent aggression, anxiety, negativism, stubbornness. In this context, Russian scientists A.P. Larin, A.K. Osnitsky, I.A. Furmanov, R.I. Tsvetkova consider this phenomenon [10].

The relative restraint in the manifestation of resentment among young men is dictated by traditional cultural norms and stereotypes of male behavior. If the emotion has not found a way out in behavior, then this contributes to the consolidation and a longer experience of feelings of resentment, which in general corresponds to a well-known general psychological pattern, in which there is a feedback between the external expressiveness of any emotion and the duration of its experience. Frequent feeling of resentment, regardless of the specific content of its structural components, contributes to the formation of a specific personal property - resentment. Representatives of the school of psychoanalysis present resentment in the form of a manifestation of the child's EGO - state. Any adult, regardless of age, can feel like a five-year-old or a rebellious teenager. The inner child is in every person [11].

Thus, resentment is a person's reaction to the grief inflicted, which includes the experience of anger towards the offender and self-pity in a particular situation.

This concept became the subject of research in the psychoanalytic school, within the framework of gestalt therapy, as well as in Russian psychology.

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伏安法测定间苯二酚钠
VOLTAMMETRIC DETERMINATION OF METAMIZOLE SODIUM

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为了建立模型溶液和药物中间苯二酚钠的伏安测定方法，分析了间苯二酚钠的伏安行为的工作条件。评估了诸如累积电势，累积时间，扫描速率，支持电解质的类型等因素对间咪唑钠还原的电势和电流的影响。研究的目的是[(1,5-二甲基-3-氧代-2-苯基-2,3-二氢-1H-吡唑-4-基)(甲基)氨基]-甲磺酸钠一水合物，来自网站目录 Sigmaaldrich.com (产品目录编号 M0600900)。研究工作的结果确定了定量测定模型溶液和药物中间苯二甲酸钠的工作特征。

关键字：伏安法，间咪唑钠

Abstract. *Working conditions of voltammetric behavior of metamizole sodium have been analyzed in order to develop voltammetric determination method for metamizole sodium in model solution and in pharmaceuticals. The impact of such factors as accumulation potential, accumulation time, sweep rate, type of supporting electrolyte on potential and current of metamizole sodium reducing was evaluated. The object of research is [(1,5-Dimethyl-3-oxo-2-phenyl-2,3-dihydro-1H-pyrazol-4-yl)(methyl)amino]-methanesulphonate sodium, monohydrate, from catalog on website Sigmaaldrich.com (catalogue number M0600900). The results of the research work identify working features for quantitative determination of metamizole sodium in model solution and in pharmaceuticals.*

Keywords: *Voltammetry, metamizole sodium.*

Introduction

Metamizole sodium is a derivative of pirazolone, commonly used as a pow-

erful analgesic and antipyretic. It has a role as a non-steroidal anti-inflammatory drug, a non-narcotic analgesic, an antirheumatic drug, a peripheral nervous system drug, an antipyretic, a prodrug and a cyclooxygenase 3 inhibitor. It can be used to reduce different kinds of pain (headache, radiculitis, neuralgia, hepatic and renal colics, injuries, burns etc.) or fever [1].

This drug has some adverse effect but have been commonly used in lots of countries still 1920. Adverse effects of metamizole sodium depend on dose, so it can be reduce while minimizing dose in directed action drugs. Every new dosage form need to be examined on pharmacokinetics parameters before clinical use. Therefore it is necessary to have analytical method whith high selectivity and sensitivity.

Nowadays there are some chemical and physical-chemical methods for determination metamizole sodium in drug substance. Some of them are UV-spectroscopy, IR-spectroscopy, HPLC [2]. We find it interesting to use voltammetry for analysis of metamizole sodium, because this method has selectivity and sensitivity comparable with HPLC method. Thus the aim of this research work is to develop voltametric quantitative method for analyzing metamizole sodium in model solutions.

Materials and methods

The object of research is [(1,5-Dimethyl-3-oxo-2-phenyl-2,3-dihydro-1H-pyrazol-4-yl)(methyl)amino]-methanesulphonate sodium, monohydrate (Mm=351,36 g/mol 99,0% active ingredient), from catalog on website Sigmaaldrich.com (catalogue number M0600900, EurPh St.). Standard solution was made by dissolving the sample of standard substance in purified water. Model solutions were made by consistent dilution of Standard solution.

A self-automatic voltammetric analyzer “TA-2” (Russia) was used for all experimental work pertaining to the results reported in this article. Analyzer has analytical cells with integrated electrodes. An analytical electronic balance was used for weighting.

We used mercury film electrode, carbon glass electrode and graphite electrode as working electrode. Reference electrode was Ag/AgCl.

Results were estimated and statistically proven as it’s said in the page “Statistical processing of chemical experiment results”, State Pharmacopeia of Russian Federation.

Results and discussion

First of all optimal conditions of analytical signal of metamizole sodium were chosen.

0,1 mol/L solutions of potassium chloride, lithium chloride, magnesium sulfate, zinc sulfate were used as supporting electrolytes. However analytical signals of metamizole sodium while using this supporting electrolytes were unclear and

irreproducible. Contemporaneously 0,1 mol/L solution of sodium chloride has wide area, quite good conductivity and required square of analytical signal.

Working Graphite electrode (reference electrode Ag/AgCl) has best characteristics of analytical signal (Fig.1).

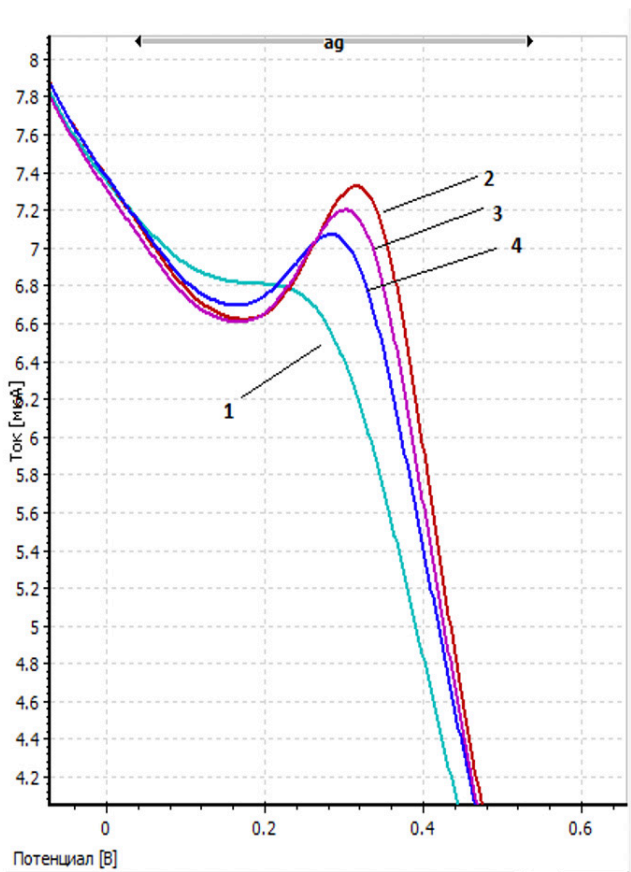


Fig.1 Voltammogram of metamizole sodium solution 0,1 mg/L (0,001%) with use of graphite working electrode and Ag/AgCl reference electrode. 1 – Base line, 2- sample of metamizole sodium solution 0,01 ml, 3- sample of metamizole sodium solution 0,02 ml, 4- sample of metamizole sodium solution 0,03 ml

Also optimal value pH of electrolysis was found. Voltammogram of alkaline solution (pH≈10, additive of 10% KOH) were the most convenient. In this condi-

tions analytical signal of metamizole sodium became more clear.

It was figured out experimentally, that the optimal value of electrolysis potential was -2,0V. The more positive potential was, the less value of analytical signal had become.

The time of electrolysis were changed from 30 to 300 seconds, but this parameter didn't affected the result of the analysis.

Definition of electrolysis borders is one of the important parts of research work. The value of this parameter was estimated with constant potential -2.0V. It was find out that optimal area of electrolysis was from 2.0V to - 2.0 V.

Also during experiment the optimal sweep rate was estimated to be equal 50mV/s. The change of this parameter worsened analytical signal and complicated the processing of voltammogram.

Limit of detection of metamizole sodium was estimated to be 0,001 mg/L.

Thus optimal conditions for the concentration of metamizole sodium on graphite electrode with following registration of the analytical signal on voltammogram were chosen during this research work.

The linearity was estimated experimentally by analyzing 10 samples with different amount of metamizole sodium (Table 1).

Table 1. Statistic estimation of linearity parameters between amount of metamizole sodium in model solutions and signals on voltammograms.

№ of analysis	Amount of metamizole sodium in model solution, mg (X)	Results of quantitation by voltammetric method, mg (Y)	Calculation of base statistical parameters
1.	0,5	0,6	$\bar{x} = 90,15; \quad \bar{y} = 91,10; \quad f = 8;$ $b = 0,993; \quad a = 1,600;$ $t [(P; f) \text{ при } P = 95\%] = 2,23;$ $\Delta b = 0,020; \quad \Delta a = 2,216;$ $s_0^2 = 3,580; \quad r = 0,999$ $s_x \text{ (при } n_j = 1, y_j = \bar{y}) = 1,050;$ $\Delta x = 2,341; \quad \frac{\Delta x \cdot 100}{\bar{x}} = 2,60.$
2.	1,0	1,3	
3.	25,0	25,1	
4.	50,0	55,1	
5.	75,0	76,1	
6.	100,0	102,5	
7.	125,0	125,7	
8.	150,0	151,4	
9.	175,0	175,2	
10.	200,0	198,0	
Σ	901,5	911,0	

The results in Table 1 prove the presence of linear dependence between analytical signal and concentration of metamizole sodium in model solutions.

Repeatability of the method was estimated by analyzing 80 samples with concentration of metamizole sodium 10 mg/L, 1mg/L, 0,1mg/L, 0,01 mg/L (each concentration – 20 samples). The results were exposed statistical processing (Table 2). The relative error is not more than 4,93%. Student coefficient is not more than its table value. Consequently the method is repeatable.

Table 2. Metrological characteristics of developed voltammetric method for quantitation of metamizole sodium.

№	True analyzed value, mg/L, μ	Average of samples, \bar{X}	Dispersion, S^2	Standard deviation, S	Half-width of confidence interval for separate sample, $\pm\Delta X$	Relative error of variant, ϵ , %	Relative error of average result, ϵ , %	Student coefficient (calculated), t_{calc}
1	10	9,99	$2,013 \cdot 10^{-3}$	$4,487 \cdot 10^{-2}$	$9,377 \cdot 10^{-2}$	0,94	0,21	1,11
2	1	0,995	$1,642 \cdot 10^{-4}$	$1,282 \cdot 10^{-2}$	$2,678 \cdot 10^{-2}$	3,74	0,60	1,87
3	0,1	$9,945 \cdot 10^{-2}$	$3,133 \cdot 10^{-6}$	$1,770 \cdot 10^{-3}$	$3,699 \cdot 10^{-3}$	3,72	0,83	1,40
4	0,01	$9,893 \cdot 10^{-3}$	$5,443 \cdot 10^{-8}$	$2,333 \cdot 10^{-4}$	$4,876 \cdot 10^{-4}$	4,93	1,10	2,05

Conclusions

1) Electrochemical behavior of metamizole sodium was studied. Suitable for pharmaceutical analysis voltammograms were obtained first time. Limits of detection was also estimated.

2) Optimal electrolysis conditions were find out (*accumulation potential, accumulation time, sweep rate, type of supporting electrolyte, pH of lectrolysis*).

3) Validation of the method on such parameters as linearity and repeatability was done.

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采矿和建筑业的研究与创新
**RESEARCH AND INNOVATION FOR THE MINING AND
CONSTRUCTION INDUSTRIES**

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传统的通过强力切割来破碎坚硬岩石的方法在强度指标不超过prof规模的 $f < (12-14)$ 的范围内有效。M. M. Protodyakonov。为了破坏较硬的矿物环境和建筑材料，作用力的作用方法很方便。本文介绍了勘探研究的结果，已开发的设计（机械手上的剪切力执行机构，组合的剪切力，剪切力犁等）以及它们在代表性采矿和技术条件下的测试。该信息旨在寻找工业实施和所示项目实施的合作伙件。

关键字：坚硬岩石，破坏，效率，冲击方法，发达的结构，液压冲击装置，高承载力机械手，犁式冲击剪切工作体，“Kolyma”机

Abstract. *The traditional method of breaking hard rocks by power cutting is effective within the limits of strength indicators up to $f < (12 - 14)$ on the scale of prof. M.M. Protodyakonov. For the destruction of harder mineral environments and building materials, the impact method of force action is expedient. The article presents the results of prospecting studies, the developed designs (a shock-shearing executive body on a manipulator, a combined shock-cutting, shock-shearing plow and others) and their testing in representative mining and technical conditions. The information is aimed at finding partners for industrial implementation and implementation of the indicated projects.*

Keywords: *Hard rocks, destruction, efficiency, percussion method, developed structures, hydraulic percussion device, manipulator of high bearing capacity, plow percussion-shearing working body, "Kolyma" machine.*

Application of non-explosive (mechanical) method of destruction of rocks in modern mining and construction technologies is preferable, however, the principle of power cutting, implemented by modern mining combines and construction machines, limits their field of application to rocks of medium hardness ($f = 8-12$ on the scale of prof. M. M. Protodyakonov). Strong rock masses ($f > 12$) are a serious obstacle to the widespread introduction of power cutting (increased dynamism

and energy consumption of the cutting process, increased cutter consumption and limited service life of machines and equipment) [1].

Promising, today, seems to be the impact method of destruction of hard rocks, both in the massif [2], and in the secondary processing of stone and building materials. The current level of development of impulse technology (percussion machines) makes it possible to widely use hydraulic hammers as fenders for shock-shearing executive bodies of mining machines. Depending on the technological scheme of the development of deposits, the extracted power and other factors, machines of the selective or plow operating principle can be used [3].

In this direction, creative teams in different years in the USSR and the Russian Federation carried out a large amount of research and development work on the creation of hydraulic hammers and machines for direct mechanical destruction of rocks: shock-shearing executive bodies of selective and continuous (plow) principles have been developed actions. This article provides an overview of some of the developments, the implementation of which was the author, who hopes for their relevance for the modern scientific community.

1. Manipulator MGG-1. The impact method of destruction of productive rocks, implemented according to the variant of a **mining tunneling machine** of selective action, is shown in Figure 2 [4].



Figure 1. Manipulator of large bearing capacity on a tool (more than 3 tons) MGG-1 with five degrees of mobility of a hydraulic hammer for carrying out and repairing mine workings

The hydraulic manipulator (Fig. 2) provides different positioning of the hydraulic hammer in the working area of its functioning, taking into account the changing configuration of the bottomhole, the presence of cracks in the rock, solid

inclusions and other technological features. These properties of the working body are important for the development of heterogeneous productive layers of a complex structure, for the repair of mine workings. Passed mine tests at the Kostenko mine of the "Karagandaugol" PA during the restoration of mine workings.

2. Manipulator "Quartz". A hydraulic manipulator of high bearing capacity (up to 5 tons) (Figure 2), having seven degrees of movement of the carriage and percussion device 1, which is equipped with an additional folding bucket (scraper) 2 and a drive 3 that sets the position of the bucket. When turned backward, the bucket does not prevent the executive body from breaking the bottom over the entire service area. In those cases when machine 5 works on weak rocks (sands), it can destroy the massif by excavation in any accessible working zone. When the chipped rock mass is accumulated in front of the machine, the bucket is also used for loading it onto the loader tray 6. The working body has advanced technological capabilities necessary for working in difficult mining and geological conditions [5]. An experimental prototype of the machine was tested during excavations in sandy-clayey rocks with the inclusion of hard rock layers.



Figure 2. Mining machine "Quartz" with a manipulator and a hydraulic hammer

3. OMK-1 "Kolyma" machine. Work on the creation of a machine for direct mechanical destruction of permafrost was carried out in accordance with the plan for the new equipment of the VPO "Soyuzoloto" MCM USSR.

The OMK-1 machine (Figure 3) has a plow actuator of seven percussion tools that destroy the massif, assembled by a cassette method in a vertical guide

frame, the shanks of which are struck with a heavy "mass" (striker), driven into reciprocating motion by two powerful hydraulic impulse drives. During the working stroke, kinetic energy is accumulated by the striker, which, when hitting the tools, is realized to destroy the array. The design of the machine provides for its operation according to the shuttle scheme. The supply to the bottom and the creation of the force of pressing the tools to the bottom is carried out by a walking feed mechanism when the stabilizing hydraulic cylinders are thrust into the roof and soil of the mine. During the operation of the machine, an important requirement was fulfilled - the formation of a flat surface of the working soil necessary for its cleaning and actuation of the worked-out space. The tests were carried out for 3 months at the "Severo-Vostokzoloto" PA and allowed to determine the main technical and economic indicators of its operation and the prospects for application in permafrost conditions. [6].

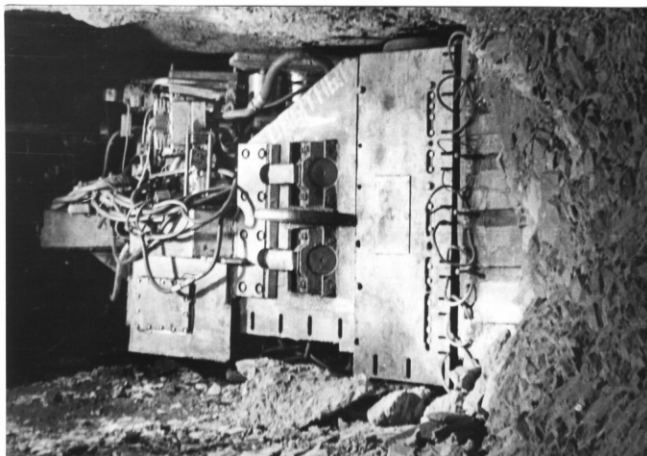


Figure 3. OMK-1 "Kolyma" machine for direct mechanical destruction of permafrost in the bottomhole of the "Experimental" mine

4. Wheel loader with impact working body

For excavation and construction works, a variant of the wheel loader with a shock-shearing executive body can be widely used.

The provided brief information about the completed innovative developments for the mining and construction industries is aimed at finding partners for the industrial implementation and implementation of the indicated projects. The author is the owner of design and scientific and technical documentation.



Figure 4. Hydraulic hammer on a wheel loader

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缺乏深海北极油气田水下开发的替代方案

**THE LACK OF ALTERNATIVES FOR UNDERWATER DEVELOPMENT
OF DEEP-SEA ARCTIC OIL AND GAS FIELDS**

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文章提出了许多新的技术解决方案，这些技术的使用将允许通过创建水下油气生产设施以及其所需的新型水下船舶，来可靠地开发深海长冻北极海域的油气沉积操作。

关键字：北极海，油气田，潜水式和水下浮动钻井/油气设施

Annotation. *The article proposes a number of new technical solutions, the use of which will allow to reliably develop oil and gas deposits in deep-sea long-freezing Arctic seas by creating underwater oil and gas production facilities in conjunction with the new underwater vessels necessary for their operation.*

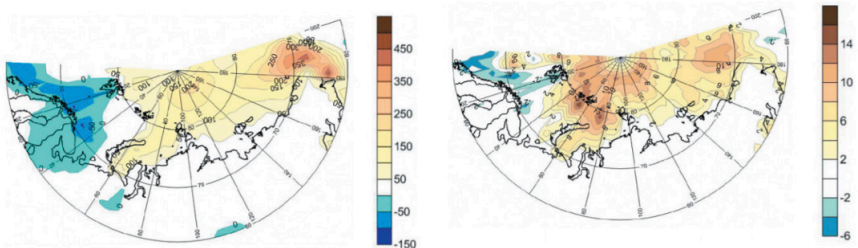
Keywords: *Arctic seas, oil and gas fields, submerged submersible and underwater floating drilling / oil and gas facilities.*

As traditional onshore oil and gas fields are developed, mining on the shelf of the Arctic is becoming increasingly relevant. Modern ideas about the huge hydrocarbon reserves of the Arctic are absolutely true. Nevertheless, their production presents serious difficulties, especially starting from sea depths over 70-80 m, since the creation of traditional stationary ice-resistant structures (gravity type / with pile fastening) can be unreasonably expensive [1]. This almost insurmountable circumstance forces us to "go under water", i.e. to descend to a depth at which the mechanical effects of submerged ice formations are excluded (up to icebergs); at the same time, at depths of up to about 200 m, it is recommended to use submersible structures that are reliably installed on the seabed; and at depths exceeding the above depth, we consider it appropriate to use submarine-type structures, setting them in the range of 200-300 m, regardless of the specific depth. Such a decision is motivated by not immersing in deeper depths, with the increase of which the tightness of the shell will require an increase in thickness and, consequently, an increase in the metal consumption of the structure itself, i.e.

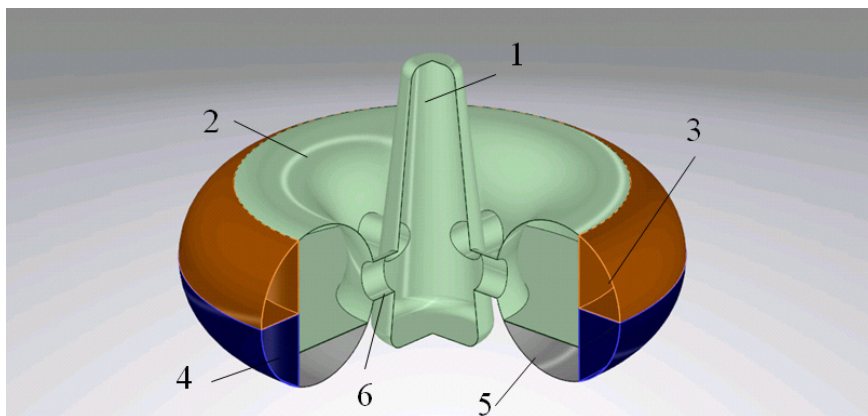
underwater platform. This decision is quite convincingly confirmed by the practice of using floating / semi-submersible drilling platforms on ice-free seas, from which wells are drilled at depths of 2-3 thousand meters (Petrobraz), followed by their operation by ship's means and delivery of oil to consumers by tankers. And with the development of traditional oil and gas deposits on land, mining on the shelf of the Arctic is becoming increasingly relevant.

Climate forecasts for this century [2-4] cause less motivation for the underwater stay of technical structures: some warming of the Arctic (and our planet as a whole), more related to the aperiodic change in the eccentricity of the Earth's orbit to the Sun, than with the intensification of industrial emissions (CO₂ and CO), will contribute to the intensification and acceleration of heavy winds and other harmful climatic phenomena, accompanied by so-called ice rains, which will significantly increase the wind load accompanied by ice formations on the surface of many plants (vivid confirmation of this is climate change the Earth, which is very well explained by the so-called Milankovitch cycles with illustrations of prehistoric eras Paleozoic and Mesozoic). These factors will greatly complicate all production processes performed on traditional surface-mounted platforms, thereby reducing both the safety of personnel staying on them and the production operations themselves.

In recent years, many studies of the climatic features of the Arctic region have been carried out, and most importantly, the establishment of long-term trends in environmental conditions. So, in particular, in [3], data from meteorological observations of several regions of the Arctic Ocean are presented, according to the results of which it was concluded that there is a steady trend in the growth of wind speed and wave height associated with an increase in ice-free ocean surface due to global warming. Another source [4] provides a forecast of an increase in wind energy by 2081-2100, which is predicted to grow by 100-200 W / m², which, in terms of the area of industrial facilities, will make significant energy costs to keep industrial facilities in a given position. An increase in the repeatability of the number of days in a year with wind speeds of more than 10 m / s is also projected. (Fig. 1 a and b, respectively).



Simultaneously with a decrease in the thickness and area of ice fields, the problem of a more active drift of large ice formations will arise, which poses a serious danger to the operation of offshore oil and gas facilities (hereinafter - MNGS) in the conditions of the shelf of the Arctic seas. The surface position of traditional MNGS structures will be subjected to a complex effect of wind and wave loads; it is also necessary to take into account the possible bulk of ice formations on the structures. Taking into account the stable tendency to increase the wind and wave load on the Arctic shelf, as well as the lack of economically viable approaches to the maintenance of MNGS in bulk of massive ice formations, it seems reasonable to consider the possibility of operating an underwater drilling platform (hereinafter referred to as PNG), shown in Fig. 2.



At first, we intuitively chose the proposed design of PNGS, but, as shown by V. Kh. careful calculations, this form of the underwater structure is the most streamlined and with the least energy consumption can withstand underwater currents, characterized by significant stability. Such a design of associated gas storage facilities can allow in the coming years (when the country will finally begin the systematic development of all Arctic oil and gas fields) to combine underwater drilling of wells with their subsequent operation by one underwater submersible or floating structure; in addition, this design will allow a long stay (of the order of 30-35 years) at one selected point at the lowest cost. And it is appropriate to note here that this structure, in contrast to the traditional elongated form of vessels, should have only one degree of freedom - to dive to a predetermined depth using ballasting, as it is intended to develop a field; and his movement to a given point should provide powerful underwater tugs. A long underwater stay in a static state will undoubtedly require the use of new composite materials instead of traditional

strong shipbuilding steel, which, in our opinion, is more appropriate to use when creating icebreakers and military vessels. Without going into the details of the choice of such a material, it is enough that such a composite material withstands hydrostatic pressure not exceeding 2 MPa, since there is no need to install MNGs at greater depths; Incidentally, this applies to both the submersible type of MNGs and submarine-floating (characterized by a system of retention at the point: using anchors or propulsors).

A long underwater stay in a static state will undoubtedly require the use of new composite materials instead of traditional strong shipbuilding steel, which, in our opinion, is more appropriate to use when creating icebreakers and military vessels. Without going into the details of the choice of such a material, it is enough that such a composite material withstands hydrostatic pressure not exceeding 2 MPa, since there is no need to install MNGs at greater depths; Incidentally, this applies to both the submersible type of MNGs and submarine-floating (characterized by a system of retention at the point: using anchors or propulsors).

In conditions of a sufficiently deep Arctic, this kind of underwater structure should be used with the only difference being that in this case, the reservoir product should be supplied to its preparation for transport by the above-mentioned submersible or underwater floating structures (which, in accordance with generally accepted terminology, we will also call platforms with a hermetic shell with the only difference being that they will be at appropriate depths). It is also pertinent to note that it would hardly be advisable to build submarine pipelines in arctic long-freezing waters, let alone bring them to deserted coastal structures (terminals) due to the absence of any industrial infrastructure. In the Arctic seas, the use of submarine tankers and gas carriers for delivering oil and liquefied natural gas (LNG) to the consumer will become much more expedient, of which, of course, will also have to be seriously prepared.

In the coming decades of the 21st century, a wide range of issues should also be worked out to create a sufficient assortment of submarine auxiliary vessels (similar to the already functioning traditional oil and gas production fleet), since the very long-term operation of submarine platforms will also be inconceivable without the existence of auxiliary vessels, with the help of which regular delivery of shift personnel will be carried out, change of worn-out equipment and supply of the necessary various materials and products A vital functions of the staff. In turn, to implement all such operations, you will have to create reliable docking devices (similar to those already existing for spacecraft). As noted above, we have already mentioned LNG, the production of which is absolutely not feasible in underwater conditions using the existing modern technology for liquefying natural gas. In this regard, we proposed a new technology for its liquefaction, which can be implemented directly underwater conditions [4]. The basis of such

technology was laid down the principle: to reduce the number of gas liquefaction operations as well as the dimensions of the equipment used in the limited space of the underwater structure. To implement this principle, liquid air (LH) was chosen, the liquefaction temperature (minus 196 ° C) of which is noticeably lower than the temperature of liquefaction of hydrocarbon gas (minus 163 ° C); and for the heat exchange operation, a compact counter-flow plate heat exchanger was proposed. It is possible to implement the proposed technology by delivering LF produced at the LNG receiving terminal by an underwater gas carrier into an underwater gas production complex. At the same time, we still proposed a way to reduce energy costs for receiving LI by pre-cooling the air at the receiving terminal; air cooling can be carried out using the cold of stored LNG, which must be regasified before supplying it to the consumer: the cold of the regasified gas allows cooling the air intended as LH to approximately minus 140-150 ° C, then the already cooled air is brought to liquefaction in the traditional way. Thus, we will be able to reduce energy costs by about 4 (!) Times for the production of liquid substances, which will then be delivered to the gas field.

In conclusion, we propose to consider another important proposal: each submarine and surface platforms, extended far into the sea from our shores, in the desert Arctic and Far Eastern seas can fulfill one more duty - to be the vigilant guard of our borders; To do this, they should be equipped with perfect modern tracking systems with the transfer of the results of their observations to our border guard posts, which will continuously monitor the situation at our borders, recognizing passing ships on the basis of the “friend / foe” principle.

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国防企业基地信息资源研究
ON INFORMATION SOURCES FOR BASE OF DEFENSE
ENTERPRISES

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本文提供了对国防工业企业名单上可用的公开数据的分析，包括联邦州立统一企业和股份公司。考虑到引入的修订和变更，对它们的相关性进行了评估。提出了建立企业最终名单的方法，为国防企业奠定基础。

关键词：国防企业数据库军工联合体科学工业政策信息技术军工联合体组织登记

Annotation. *The paper presents an analysis of the available open data on the lists of defense industry enterprises, both Federal State Unitary Enterprises and Joint Stock Companies. An assessment of their relevance was carried out, taking into account the amendments and changes introduced. A method is proposed for constructing the final list of enterprises to create a base of defense enterprises*

Keywords: *defense enterprises database, military-industrial complex, scientific-industrial policy, information technologies, register of organizations of the military-industrial complex*

The Laboratory for Local Area Networks of the Central Economics and Mathematics Institute of Russian Academy of Sciences is working on the project 'Information-analytical and software tools for systematizing the available open data on military products, determining and analyzing the military-industrial potential for the innovative growth of the national economy'. As indicated in [1], the main functional tasks of information and analytical tools include a meaningful analysis of the problem situation; determination of the parameters of the management strategy through the procedures of the revised development programs; as well as gaining experience in automation and application of technology in practice. The need for constant adaptation of planning technology to the processes of economic trans-

formation and dynamic information flows puts forward stringent requirements for the properties of tools and the corresponding intellectually rich knowledge base.

When developing a database on products of the military-industrial complex, the identification of the main entities, their attributes and relationships was carried out. From the statement of the problem it follows that some of the main entities are a certain product with its own attributes, as well as an enterprise where this product is produced.

The modern defense industry complex as a set of specific economic entities is a complex system with a high degree of diversity and uncertainty, with complex management that determines many options when choosing decisions about functioning. Decision-making aimed at optimizing scientific and industrial policy in general and the defense industry complex in particular should be based on an adequate information technology base.

The need to create a reliable information source on defense industry enterprises is clear from following situation. Many ministries, departments and organizations are engaged in the defense-industrial complex of the state, numerous holdings and concerns are being created. However, according to I.Ashurbeyli, the general director of the Almaz NPO, 'these buildings do not have a small room, where 1,700 folders with data on 1,700 defense enterprises of the country would lie... The state does not really know what is being done in the defense industry. It does not have copies of notarized official documents of its enterprises, does not have a constantly updated list of co-owners of these enterprises, does not know who are their shareholders. Often, the state does not know such simple things as the number and degree of wear and tear of the machine park, equipment and fixed assets, the composition and average age of employees of enterprises, how many developers of weapons and military equipment are left today, how many engineers and technical workers at enterprises and what their qualifications are, how many patents, copyright certificates, know-how are in the defense industry today. The state today does not have information on how many square meters of real estate the defense enterprises have and how many hectares of land; whether this land belongs to enterprises or what part of it is leased and at what prices' [2].

An attempt to find out how many enterprises are included in our defense complex leads to conflicting results. Comprehensive information about this in the open press is usually difficult to find. In various sources, there are values 1700, 1850, 1265, 960, 1500, 1064, and so on [3-5].

On July 3, 2015, by order No.1828 of the Russian Ministry of Industry and Trade, the register of organizations of the military-industrial complex was approved [6]. The consolidated register of defense industry organizations includes a total of 1,352 enterprises (it does not include private enterprises). 73% are subordinate to the Ministry of Industry and Trade, another 12% are subordinate to

the Ministry of Defense, 6 and 3%, respectively, are subordinate to Roscosmos and Rosatom [7]. The rest of the organizations belong to the Russian Academy of Sciences, the Ministry of Education and Science, FSTEC, FSB, Rosstandart, FMBA, the Ministry of Telecom and Mass Communications, the Ministry of Energy, Rossvyaz, Spetsstroy. It is this register that is taken as the basis for one of the databases developed at the CEMI RAS.

In addition to information from the register, the database contains, in particular, the following fields:

- the name of the company;
- TIN;
- address;
- e-mail;
- website;
- sector of the economy / industry;
- departmental affiliation;
- type of ownership;
- list of products / services;
- number of staff;
- revenue for 2019;
- sources of information.

For more details about the database, see [8].

In addition to the register, other sources of information are used to supplement and refine the database. Within the framework of the military-technical forum "Army-2020" (August 23-29, 2020, the Patriot Convention and Exhibition Center, the Alabino training ground, the Kubinka airfield), a large-scale review of the achievements of the domestic military industry was held. The forum was attended by representatives of 92 foreign countries. National exhibitions were presented by Belarus, Brazil, India, Kazakhstan, Pakistan. The forum was attended by one and a half million people. 1457 enterprises and organizations (including 17 foreign) took part in them, which presented more than 28 thousand samples of military and dual-use products. Many of them submitted information to the official exhibition catalog, it is posted on the forum website https://www.rusarmyexpo.ru/army2020/catalog_exhibitors/members.

742 exhibitors were categorized as follows:

Ammunition of all types of troops	20
Armament and equipment of the aerospace forces	44
Armament and equipment of the airborne troops	2
Armament and equipment of the ground forces	33
Armament and equipment of the navy	86
Armament and equipment of strategic missile forces	3

Armament and means of NBC protection	4
Armed Forces Medical Support	41
Biotechnology	2
Communication systems and automated command and control systems	35
Construction, overhaul, technical maintenance and operation of the material and technical base	27
Electronic warfare technology. Radio intelligence equipment	13
Electronics. Radioelectronic technologies	68
Energy. Intelligent energy, hydrogen energy, micro-power supplies, accumulator batteries, electric generator technologies	12
Engine building in the military-industrial complex	7
Ensuring the security of military facilities and military service	14
Equipment and technologies for the disposal of weapons, military equipment and ammunition	1
Equipment and uniforms of military personnel	33
Information, telecommunication and navigation technologies. Geographic information systems	36
Instrumentation	36
Integrated laboratories, simulators, simulators, technical training and combat training facilities in the Armed Forces. Polygon equipment	8
Laser technology	5
Logistic support and supply of troops. Ensuring the life of the personnel, the life of military personnel and their families. Food supply	23
Materials and components in the defense industry	37
Means and equipment of engineering weapons. Road, construction and lifting equipment and machinery	6
Means of ensuring the activities of the military police	1
Mechanical engineering in the interests of the military-industrial complex	38
Media	44
Modernization and repair of military equipment and weapons	9
Non-lethal weapon	1
Nuclear weapons complex	5
Optics. Optoelectronic equipment and systems	12
Personal and collective protective equipment	7
Personnel training in the interests of the RF Armed Forces and the defense industry complex	8
Rescue equipment for work in emergencies and disasters, equipment and fire extinguishing equipment	8
Rocket and space complexes. Aerospace technology. Space exploration for the military	15
Small arms and melee weapons	9
Sports facilities, outfit, inventory	3
Technique and equipment of railway troops	1
Unmanned aerial vehicles and complexes. Robotic complexes	15

Some positions are assigned several categories. The thematic affiliation was not specified for 15 exhibitors.

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个性化营养的针对性饮食

CORRECTIVE TARGETED DIETS FOR PERSONALIZED NUTRITION

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本文介绍了基于多功能食品添加剂Moby-Lux Universal的基于肉，鱼，蔬菜和谷物产品的人群个性化营养的新科学研究。这些饮食专为7-11岁的残疾小学生而设计。该认可是在莫斯科第32学校进行的。

关键词：有针对性的矫正饮食，个性化营养，生理标准，圆形菜单。

Abstract. *The article presents a new scientific research on personalized nutrition of the population using multifunctional food additives Moby-Lux Universal based on meat, fish, vegetable and cereal products. The diets are designed for 7-11 year-old schoolchildren with disabilities. The approbation was carried out at school No. 32 in Moscow.*

Keywords: *corrective targeted diets, personalized nutrition, physiological standard, circular menu.*

Nowadays, according to the Order of the Ministry of Health of the Russian Federation dated August 5, 2003 No. 330 "On measures to improve medical nutrition in medical institutions of the Russian Federation", the Instruction on initiating the nutrition therapy in health care centers, along with other documents, has been introduced in order to implement the Concept of state policy concerning healthy nutrition of the population of the Russian Federation for the period up to 2005 approved by Decree of the Government of the Russian Federation dated 10.08.1998

No. 917 *, to improve the nutrition therapy and increase its effectiveness in the complex treatment of patients. According to this instruction, a new range of diets (a system of standard diets) is introduced in health care centers, it differs in content of basic nutrients and energy value, cooking technology and an average daily set of products.

The previously used numbered diets (diets 1-15) are included in the system of standard diets, which are prescribed for various diseases depending on the stage, severity of the disease or complications from various organs and systems. Diets differ in the quantitative and qualitative composition of the main nutrients, micronutrients, energy value, technology of preparation of dietary meals, an average daily set of products and comprise six options for diet standards: a standard diet; a diet with mechanical and chemical sparing (sparing); a diet with an increased amount of protein (high-protein); a diet with a reduced amount of protein (low-protein); a low-calorie diet (low-calorie); a diet with increased calorie content (high-calorie). Along with the basic standard diet and its variants, health care centers, depending on their specialization, use surgical diets (0-I; 0-II; 0-III; 0-IV; a diet for ulcerative bleeding, a diet for stomach stenosis) and others; specialized diets: a high-protein diet with active tuberculosis; reducing diets (tea, sugar, apple, rice-stewed fruit, potato, curd, juice, meat, etc.); special diets (potassium, magnesium, probe diet, diets for myocardial infarction, diets for fasting and dietary therapy, vegetarian diet, etc.).

The new range of the diets is based on the principles of adaptation of the chemical composition and energy value of the diet to the individual kinetic characteristics of the disease and combines the previously used numbered diets (diets No. 1-15). General characteristics and recommended culinary treatment of the standard diets are based on a card index of balanced dietary nutrition.

Despite the fact that the standard diets in their chemical composition and energy value are adapted to clinical and metabolic disorders in various diseases, the decrease in energy consumption and, accordingly, the need for energy is determined by the relevancy of optimization of dietary (therapeutic and prophylactic) nutrition.

The personalization of the chemical composition and calorie content of the standard diets is carried out by selecting the medical nutrition dishes available in the card index, as well as by using biologically active food additives and ready-made specialized mixtures. To correct the diet, 20-50% of protein of ready-made specialized mixtures and vitamin-mineral complexes (%), providing 50-100% of the physiological norm, can be included.

When organizing personalized nutrition, it is necessary to use corrective nutrition, as it is important to provide the body with an adequate amount of micronutrients and biologically active substances, which are absolutely necessary to ensure

the body's protective and adaptive capabilities.

The major ways of corrective nutrition are:

- to use the functional food products with a special chemical composition enriched with nutrients and micronutrients;
- to include special food products into the diet;
- to include the mixtures of composite food additives into the dish structure, that will increase nutritive density of the diet.

It is obvious that the optimization of nutrition by means of the corrective diets is currently urgent.

The studies of the domestic and foreign scientists show that many diseases can be compensated for by medical nutrition. The above listed diets, as directed by the documents, are related to feeding the patients with the proven diagnoses. However, the semi-quantitative and quantitative expression of morphological changes in human erythrocytes, obtained by computer visualization of the microscopic cytological studies, can result in pre-disease state, or borderline diseases. It is shown that such people need corrective diets enriched with macro- and microelements: heme iron for people with anemia, organic iodine for people with abnormal thyroid function, calcium for people with diseases of the musculoskeletal system.

The research was carried out at Moscow State University of Technology and Management named after K.G. Razumovsky (FCU) and there were developed food products from meat, fish, cottage cheese, fruits, vegetables and cereals enriched with a complex food additive Moby-Lux Universal, containing heme iron, calcium, iodine in quantities providing about 30% of the physiological norm. Meat and fish mince products, cottage cheese and fruit, fruit mousses, cereal casserole are classified as sources of heme iron in terms of iron content (Table 1).

Table 1. Content of targeted nutrients in specialized food products

№	Product	Nutrients		
		Heme iron, mg	Ca, mg	Iodine, mcg
1	Fish cutlets	3.19	128.5	91.8
2	Meat cutlets	5.39	70.5	39.9
3	Fruit- cottage cheese dessert	3.34	98.4	17.2
4	Fruit mousse	3.03	455.98	80.0
5	Rice pudding	3.71	471.79	83.2

To guarantee the nutritional results, the corrective diets have been developed with the help of 1C "Dietary Nutrition" program, these diets include the above listed dishes.

The corrective diets are compiled in the form of an approximate cyclic 20-day diet, the technological charts of the developed dishes are enclosed.

The information about the categories of people keeping to the corrective diets and the consumption rates for each of the categories, meals, technological charts of dishes used and the information about the nutritional value of products were taken as the initial data. Moreover, the information about the preferences of potential consumers by product categories, specific collections of recipes was used. Since the official regulations do not necessarily contain specific instructions, the preparation of the baseline data presupposes clarifying the requirements. For example, it is accepted that breakfast should provide 20-25% of the calorie content of the daily diet, lunch – 30-35%, dinner – 20-25% and afternoon tea – 15-20%.

Upon completion of the development, the cyclical menu of the corrective diet for schoolchildren of 7-11 years old was recorded on the officially recommended form by Rospotrebnadzor. The technological charts of the dishes included in the menu, the range of the products used in the dishes, the calculation tables and other documents were enclosed with the cyclic menu. The corrective diets are given compared to the basic version of the standard diet, LCD (low-calorie diet) and LPD (low-protein diet) developed at the University for schoolchildren of 7-11 years old with disabilities from school No. 32 in Moscow.

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钻铣夹头的形态综合
MORPHOLOGICAL SYNTHESIS OF DRILL-MILLING CHUCKS

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摘要：使用了系统形态学的方法，提出了使用圆柱形刀柄的切削工具的工具卡盘（IZP）的新型解决方案，并提出了与已知工具相比较其设计的优于。并以形态矩阵的形式构建了IZP的形态模型。

关键字（中文）：工具夹盘、形态模型、钻头、刀具。

Drilling and milling chucks are a device for mounting and fixing on metal cutting and woodworking machines, as well as in drills of cutting tools with a cylindrical shank - drills, cutters, countersinks, etc[1,4-6].

The problem of reliability of certain types of metal-cutting equipment cannot be fully solved if the question of the correct design and manufacture of chuck chucks is not raised, since it has been proven that characteristics such as accuracy, rigidity, vibration resistance, and others are largely determined by their properties.

Certain difficulties are caused by technological processes of manufacturing parts of tool chucks and, first of all, clamping elements. In many cases, this is clearly underestimated, which leads to a sharp decrease in the quality of machining.

One of the characteristic features of tool chucks is the wide range of sizes of tools to be clamped. The tool centering accuracy depends primarily on the design and manufacturing process of the clamping elements and is one of the main characteristics of tool chucks. Certain technological methods in the manufacture of clamping elements can achieve practically zero runout of the tool.

The clamping forces and torques transmitted by tool chucks vary over a very wide range. The automatic chuck is fast acting by simply turning the taper sleeve in a matter of seconds[3]. The stability of automatic chuck chucks fluctuates within extremely wide limits and depends on the design and correctness of technological processes in the manufacture of their parts.

Despite the well-established design forms of automatic drill chucks, the latter continue to be improved. You can outline several main directions in which work should go to improve these cartridges. [1-3].

First, structures must allow for tool clamping with wider tolerances. Secondly, new, high-strength materials must be used that can withstand large fluctuations in clamping forces. At the same time, this will reduce the size. Thirdly, it is necessary to look for new design solutions to increase the range of load changes and improve performance. Fourth, we must look for ways to self-regulate the strength of anchoring. At first, it is important to create a mechanism, adjusting which, the adjuster would be able to precisely set the desired value of the clamping force. Fifth, it is imperative to improve the manufacturing processes of automatic drill chuck parts. For the same clamping elements, different manufacturing and heat treatment processes are not justified at different plants. In practice, this leads to unnecessary waste of metal and excessive workload of tool shops.

On the basis of patent research, it is proposed to search for new solutions using the system-morphological approach[1]. On the basis of patent research, it is proposed to search for new solutions using the system-morphological approach. The morphological model of the schemes of wide-range wedge drilling-milling chucks and new variants of their designs are given. It is known that for clamping cutting tools with a cylindrical shank, tool chucks with a wedge transmission-reinforcing link in the form of wedge cams and collets are widely used. Clamping chucks with a transfer-reinforcing link in the form of an eccentric have so far found greater application for clamping artificial and bar blanks.

Automatic clamping drill chucks (Fig. 1, a) allow clamping the tool in a wide range (wide-range), converting the M_3 torque into the S_Σ axial force due to the screw pair, and then into the T_Σ radial force due to the wedge transmission-reinforcing link, that is the power flow from the drive to the clamping object looks like $M_3 \rightarrow S_\Sigma \rightarrow T_\Sigma$ (Fig. 1, b).

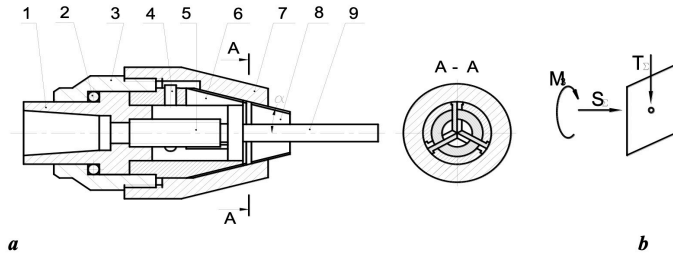


Figure: 1. Wedge self-clamping drill chuck without a key (a) and the diagram of the power flow in it (b): 1 - case; 2 - balls; 3 - cylinder bushing; 4 - pin; 5 - screw with left-hand thread; 6 - separator; 7 - conical bushing; 8 - wedge cams; 9 - tool (drill)

Tool chucks (Fig. 2, a) allow you to clamp a tool of the same size (high-range) and, similarly to wedge chucks (Fig. 1, a), convert a steep M_3 moment into an axial force S_z due to the thread on the body and a thrust nut, and then into a radial force T_r due to conical surfaces on the collet, that is, a similar force flow (Fig. 2, b) $M_3 \rightarrow S_z \rightarrow T_r$ is formed, but in the opposite direction.

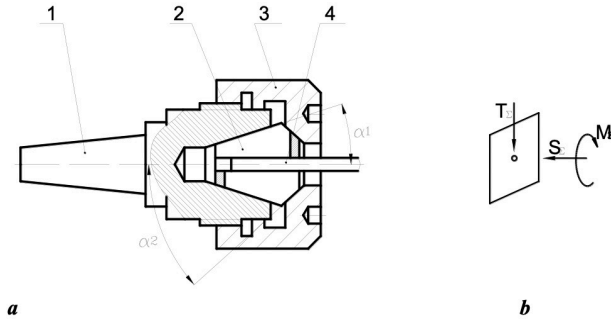


Fig. 2. Collet drill-milling chuck (a) and power flow diagram in it (b): 1 - case; 2 - double cone collet; 3 - persistent nut; 4 - tool

Band chucks for piece workpieces (Fig. 3, a) are used in lathes and grinding machines, in which the previous clamp is protected by a spring, and the final self-jamming from the cutting forces (moments) due to jamming. The radial dimensions of the conventional eccentric chucks for workpieces do not allow them to be used as tool chucks.

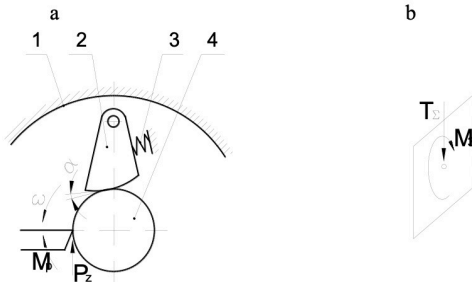


Fig. 3. Schemes of a self-clamping eccentric lathe chuck (a) and the power flow in it (b)

Therefore, it is necessary to look for new technical solutions that combine the advantages of wedge and eccentric chucks, this is what this work is devoted to, as a result of research and development work, carried out at the Department of Machine Design using the system-morphological approach.

To do this, in the chuck-tool drive system, we select the main features:

- input (drive): 1- type of energy source; 2 - number of inputs; 3 - transmission-amplifying link I input; 4 - transmission-reinforcing link II input;
- cartridge 5 - Connecting part of the body; 6 - the location of the axis of the eccentric clamping element; 7 - the outer surface of the eccentric clamping element; 8 - the number of clamping elements;
- exit (fixing object): 9 - tool type; 10 -Loading.

We build a morphological model (the table is not given for confidential reasons) with various alternatives of its main features, according to which the total number of possible and not possible schemes of tool chucks:

$$N_{\text{BП}}=3 \cdot 3 \cdot 5 \cdot 5 \cdot 6 \cdot 3 \cdot 4 \cdot 2 \cdot 6 \cdot 4=777600$$

Let us represent the morphological model in the form of a morphological matrix in a collapsed and expanded form:

$$M_{\text{BП}}=M_{\text{BX}} \wedge M_{\text{CT}} \wedge M_{\text{BHX}}$$

$$i \text{ BП} = \begin{array}{c|cccc} \mathbf{1.1} & \mathbf{2.1} & \mathbf{3.1} & \mathbf{4.1} \\ \mathbf{1.2} & \mathbf{2.2} & \mathbf{3.2} & \mathbf{4.2} \\ \mathbf{1.3} & \mathbf{2.3} & \mathbf{3.3} & \mathbf{4.3} \\ & & \mathbf{3.4} & \\ & & \mathbf{3.5} & \end{array} \wedge \begin{array}{c|cccc} \mathbf{5.1} & \mathbf{6.1} & \mathbf{7.1} & \mathbf{8.1} \\ \mathbf{5.2} & \mathbf{6.2} & \mathbf{7.2} & \mathbf{8.2} \\ \mathbf{5.3} & \mathbf{6.3} & \mathbf{7.3} & \\ \mathbf{5.4} & & \mathbf{7.4} & \\ \mathbf{5.5} & & & \\ \mathbf{5.6} & & & \end{array} \wedge \begin{array}{c|cc} \mathbf{9.1} & \mathbf{10.1} \\ \mathbf{9.2} & \mathbf{10.2} \\ \mathbf{9.3} & \mathbf{10.3} \\ \mathbf{9.4} & \\ \mathbf{9.5} & \end{array}$$

To reduce the number of options for solving the problem of synthesizing tool chucks with an odd number of clamping elements, weed the matrix for a milling machine using a manual clamping at the initial setting for a given machining program with a limited number of connecting part and options for the location of the clamping element axis. Then we get the truncated matrix.

$$i \text{ BП} = \begin{array}{c|cccc} \mathbf{1.1} & \mathbf{2.1} & \mathbf{3.1} & \mathbf{4.1} \\ & \mathbf{2.2} & \mathbf{3.2} & \mathbf{4.2} \\ & \mathbf{2.3} & \mathbf{3.3} & \mathbf{4.3} \\ & & \mathbf{3.4} & \\ & & \mathbf{3.5} & \end{array} \wedge \begin{array}{c|cccc} \mathbf{5.1} & \mathbf{6.1} & \mathbf{7.1} & \mathbf{8.1} \\ \mathbf{5.2} & & \mathbf{7.2} & \\ \mathbf{5.5} & & \mathbf{7.3} & \\ & & \mathbf{7.4} & \end{array} \wedge \begin{array}{c|cc} \mathbf{9.6} & \mathbf{10.3} \end{array}$$

In this case, the total number of IPU circuits will significantly decrease and amount to:

$$N'_{\text{BП}}=1 \cdot 3 \cdot 5 \cdot 4 \cdot 3 \cdot 1 \cdot 4 \cdot 1 \cdot 1 \cdot 1=720.$$

Let us illustrate the formation of tool chucks with two manual clamping inputs (Fig. 5), where in all subsequent combinations (variants $X_2 - X_4$), starting with variant X_1 , new solutions are emphasized.

Tape drilling and milling chucks, developed by ZMOK LLC, are designed for fast and reliable clamping of tools with a cylindrical shank (drills, countersinks,

reamers, cutters, etc.) of right and left rotation in a given range.

With the help of these chucks, it is possible to mill many grooves, drill and cut an unlimited number of holes, unscrew and tighten an unlimited number of screws and nuts, provide various sets of locksmith, machine and assembly tools (manual, electrical, mechanical).

Chucks are efficient and convenient to use in surgical operations - for opening holes in bones, where light weight and dimensions are required, as well as reliable fixation of a drill or other instrument with the possibility of quick changeover to a different clamping diameter. Personality convenience is created by these designs of cartridges when working with a pneumatic or power tool with a fast set of revolutions - there is no self-loosening from inertial forces at the time of starting the cartridge. Additional advantages are low weight and diametrical dimensions, convenience of processing hard-to-reach places.

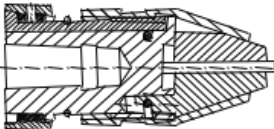
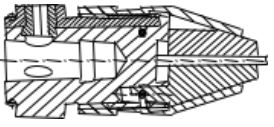
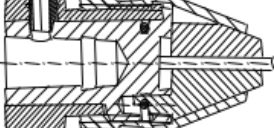
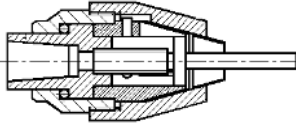
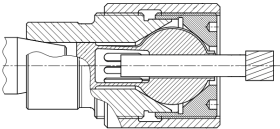
No	Type of ISP	Constructive scheme	Morphological formula
X ₁	Without key and two entrances		$ 1.2-2.2-3.1-4.1 \wedge$ $\wedge 5.1-6.1-7.1-8.1 \wedge$ $\wedge 9.6-10.3 $
X ₂	With a key and several cylindrical eccentrics on the entrance 2		$ 1.3-2.3-3.1-4.2 \wedge$ $\wedge 5.1-6.1-7.1-8.1 \wedge$ $\wedge 9.6-10.3 $
X ₃	With key, shirt and one cylindrical eccentric at the entrance 2		$ 1.3-2.2-3.1-4.2 \wedge$ $\wedge 5.1-6.1-7.1-8.1 \wedge$ $\wedge 9.6-10.3 $
X ₄	Wedge self-clamping		$ 1.2-2.1-3.3-4.5 \wedge$ $\wedge 5.1-6.2-7.2-8.1 \wedge$ $\wedge 9.6-10.3 $
X ₅	Collet wide-range spherical		$ 1.2-2.1-3.3-4.5 \wedge 5.1-6.2-7.2-8.1 \wedge 9.6-10.4 $

Fig.4. Variants of synthesized tool clamping chucks according to the morphological model

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当需要通过增加压力管道中的势能来防止反向水流和减轻水力冲击时，启动和停止抽水设备的工艺流程

**TECHNOLOGICAL PROCESS OF STARTING AND STOPPING
PUMPING EQUIPMENT WHEN IT IS NECESSARY TO PREVENT
REVERSE WATER FLOW AND DAMPEN HYDRAULIC SHOCK
BY INCREASING THE POTENTIAL ENERGY IN THE PRESSURE
PIPELINE**

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如果需要防止压力管道中的水和水锤回流，则说明使用现有抽水设备的回收泵站的操作技术过程。建议使用已安装的增压泵来维持网络中所需的恒定压力，在停止主泵组之前关闭压力管道中的止回阀。

关键字：水锤，水的逆流，增压泵，势能，主抽油机

Abstract. *The paper describes the technological process of operation of reclamation pumping stations using existing pumping equipment, if it is necessary to prevent backflow of water and water hammer in pressure pipelines. It is proposed, using booster pumps installed to maintain the required constant pressure in the*

network, to close the check valves in the pressure pipelines before stopping the main pumping units.

Keywords: *water hammer, reverse flow of water, booster pump, potential energy, main pumping unit.*

The existing design standards for pressure pipeline networks provide for various methods of extinguishing water hammer, the main of which are water-air caps [1], most of which are out of order at operating pumping stations.

This paper proposes a technological process of the possibility of increasing the potential energy in the pressure pipelines of the main units before starting and stopping the drive motor, preliminary closing the check valve, to prevent the reverse flow of the flow due to stopping the main pumping units using a booster pump installed at pumping stations to maintain the required constant pressure in the network [2].

The technological process of starting, operating and stopping the main pumping units provides for four modes:

The first one is the start-up to the free pipeline at the beginning of the season of the main equipment, carried out in the following sequence (Figure 1):

- The booster pump 5 is started with closed valves 3, 6, 14, in the case of a standard start-up, the pressure gauge 8 will show the full value of the potential energy in the pipeline 16 and the pump casing 5;

- The valve 14 opens when the valves 3 are closed and the valve 6 opens smoothly, the energy in the pipeline 16 increases as the suction, pressure distribution and main pipelines are filled, which will be evidenced by the pressure gauge 8 and the pressure gauge 12. When the pressure main pipeline is completely filled, the pressure gauge 8 will show, at least, the difference in the marks of the water source 151.9 and the water level in the outlet channel 209.9. The following describes the start-up of one main unit (for example, the pumping station "Mezh-durechye" FSBI "Management" Stavropol'meliiovodkhoz "is taken).

- Gate valve 6 closes and the main unit 1 is started up with closed valve 3, 4, 6 in the case of a regime start-up, which will be evidenced by pressure gauge 10, valve 3 smoothly opens and pressure gauge 10 will show the total potential energy - the difference in marks and total head losses in the pressure distribution 2 and main pipelines. The flow meter 11 will show the flow rate of the main unit.

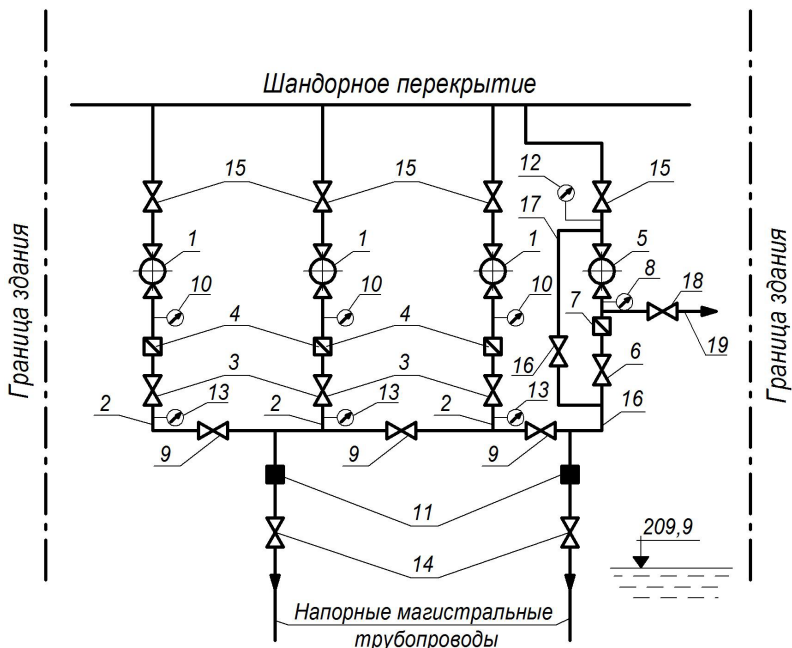


Figure 1 - Technological scheme of equipment installation at the investigated pumping station "Mezhdurechye" FSBI "Management" Stavropol'meliiovodhoz"

1 - main pumping units; 2 - pressure distribution pipeline of the main units; 3, 6, 9, 14, 15, 16 - gate valves; 4, 7 - check valves; 5 - booster pump; 8, 10, 12, 13, 18 - manometers; 11 - flow meters; 17 - bypass; 19 - waste pipeline

- The booster pump 5 stops and, if necessary, the gate valve 15 is closed (with a negative suction lift of pump 5).

Second - Stopping the main units during the vegetative period. The main task of the operation service, in this case, is to prevent the release of the pipeline with various types of leaks. The control of the remaining presence of water in the main pipeline is carried out by pressure gauges 13, the readings of which, when the units are stopped, must correspond to the geometric lifting height. In the presence of leaks and a decrease in readings with a pressure gauge 13, the filled state of the pipelines is maintained by a booster pump in the above order.

When stopping the main units, to prevent the backflow of water in the main pipeline, the developed technology provides for the preliminary closing of the check valves using the increased energy in the flow created by an additional pump:

- The valve 15 opens (with a negative suction lift, with a positive suction valve

is not installed);

- The booster pump 5 is started, with the valve 6 closed;
- The gate valve 6 opens smoothly and, subject to an increase in potential energy, due to the start of an additional pump, in the pipeline 16 the check valve 14 of the operating main pump is closed;
- The main unit stops while the booster pump is running;
- The valve 6 of the booster pump is closed, the check valve 7 is closed and the pump stops with a guaranteed absence of backflow of water in the pressure main pipeline.

Third - Operation of the pumping station during the vegetative period. It is carried out in compliance with all standards, standard operating conditions. If it is necessary to connect additional consumers (it is necessary to connect an idle unit), the idle unit starts up with the booster pump stopped, as a result of the increased pressure in the network, the pressure loss and potential energy will change, after which an additional consumer is connected. This procedure prevents a break in the continuity of the flow in the pipelines and the possibility of water hammer in the network. Connection of additional units to the network is carried out in strict accordance with the norms of the availability of potential energy corresponding to the characteristics of the pump [3] (Figure 2). The main necessary principle is to observe the possibility of increasing the energy in the network by the booster pump, before stopping the main pump for preliminary closing of the check valves.

In addition, the supplement unit is turned on with a closed valve 3 on the pressure distribution pipeline, which opens when the total pressure is indicated by the pressure gauge 10.

Fourth - Shutdown and conservation of the pumping station at the end of the season is performed in the same order as stopping according to the second option, using a booster pump. After stopping, the water is discharged through the waste pipeline 19, after which all the valves of the pumping station are opened, if necessary, all pipeline fittings and units are inspected and preserved [4].

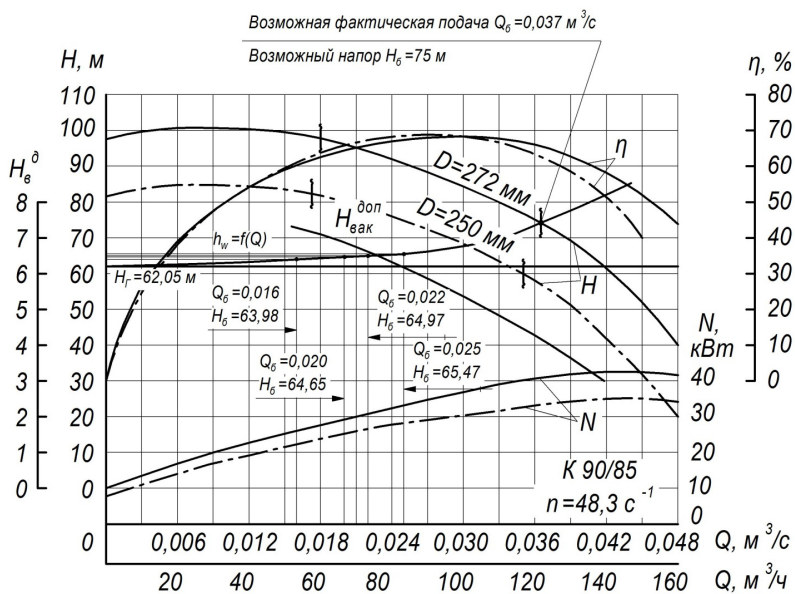


Figure 2 - Actual operating parameters of the booster pump K90/85

The technological process of starting, operating and stopping the booster pump unit 5 (see Figure 1) provides, similarly to the main units, four modes:

The first - startup of a booster pump at the beginning of the season on an empty pipeline. When the booster pump is started at the beginning of the season on an unfilled pipeline, regardless of the calculated value of the total energies during the operating conditions of the main units, the energy of the booster pump does not affect the energy of the main pumps, due to its absence.

In this case, the booster pump works to fill the pipeline with a low flow, in order to create potential energy in the pipeline for the possibility of starting the main units with a pressure corresponding to the maximum efficiency of the unit. When filling the pipeline and creating potential energy in it, corresponding to the geometric lift of the pressure pipeline, the booster pump helps to close the check valves of the main pumps, after which the valves 6, 15 of the booster pump are closed and the main unit is put into operation, while the check valve 7 is automatically closed.

The second - start of the booster pump if it is necessary to stop the main pumps during the vegetative period is carried out to pre-close the check valves of the main pumps. In this case, it is necessary to determine the total energy in the pressure pipelines, depending on the number of units switched on and the estimated

total energy generated by the booster pump.

In the case when the value of $E_{p,b}$ exceeds the value of E_p by at least 5-6 m, the booster pump starts up with the certainty described in the second mode - stopping the main units in the vegetative period. When the supply of the main units stops, in the event of leaks in the network and the need to maintain the pressure pipeline in a filled state, the booster pump is set to automatically maintain the pressure in the network, equal in magnitude to the required pressure to start the main unit in the optimal mode.

The third - operation of the booster pump if it is necessary to maintain the pressure pipeline in a filled state during shutdowns of the main units. In this case, in the presence of leaks in the network, the pressure on the check valves of the main units and the booster pump drops, the booster pump adjusts to automatically maintain energy, in the amount of the geometric delivery head, which, if it is necessary to start the main units, corresponds to the optimal head value, with maximum efficiency of the main unit.

The fourth - the operation of the booster pump, when the pumping station is stopped for the winter. Startup is carried out according to the sequence described in section four - shutdown and conservation of the pumping station. If it is necessary to empty the pressure main pipeline, the valve 16 of the bypass 17 and the valve 18 of the discharge pipeline 19 are opened with the valves 9, 14 open and the main pipeline is emptied by the booster pump.

True backflow prevention technology with a booster pump allows to:

- improve the process and economically substantiate the operation of modern operating pumping stations and irrigation networks;
- ensure the possibility of reliable trouble-free operation of irrigation networks during transient processes;
- without the use of additional equipment of the pumping station, to prevent backflow of water and water hammer in the network, by pre-closing the check valve on the pressure pipeline.

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能量饱和非均质复合材料结构形成的理论基础

**THEORETICAL FOUNDATIONS OF STRUCTURE FORMATION OF
ENERGY-SATURATED HETEROGENEOUS COMPOSITE MATERIAL**

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该文章显示了能量饱和的异质复合材料的操作特性对固相组分颗粒的堆积密度和液相粘合剂填充空隙的程度的依赖性。确定了固相组分颗粒的六方密堆积的晶胞，并建立了其几何模型。在混合过程中，粉末成分的各部分的线性尺寸之间已建立起相互依存关系，这可以使它们的颗粒得到最密集的堆积。进行计算并确定每个固相组分的平均值。进行组分混合的建模，在此过程中应获得能量饱和的异质复合材料的所需结构。

关键词：能量饱和非均质复合材料粉末成分结构形成颗粒堆积

Abstract. *The article shows the dependence of the operational properties of energy-saturated heterogeneous composite materials on the packing density of particles of solid-phase components and the degree of filling of voids with a liquid-phase binder. The unit cell of a hexagonal dense stack of particles of solid-phase components was determined and its geometric model was developed. Dependences have been established between the linear dimensions of the fractions of powder components, in the process of mixing which one can obtain the densest packing of their particles. Calculations were carried out and average values were determined for each of the solid-phase components. The modeling of mixing of components is carried out, during which it is supposed to obtain the required structure of an energy-saturated heterogeneous composite material.*

Keywords: *energy-saturated heterogeneous composite materials, powder components, structure formation, particle stacking.*

Introduction

Currently, energy-saturated materials play an important role in the mining (crushing of rocks) and processing (metal cutting, welding, coating, and etc.) industries, construction (demolition of buildings and structures), elimination of the consequences of man-made disasters (fire fighting, elimination of blockages and etc.) and many other spheres of human activity, where the energy of explosive transformation or high-speed combustion is used. By its structure, this class of materials can be divided into homogeneous (for example, trinitrotoluene, ballistic powder, and etc.) and heterogeneous (A-IX-2, mixed fuel compositions, and etc.).

The article considers energy-saturated heterogeneous composite materials (EHCM) obtained by mixing powder components in a polymer binder medium. In the process of mixing the components, along with their uniform distribution in the volume of the material, the problem of the densest packing of particles of polydisperse fractions of powders and filling all voids of the formed masonry with a liquid-phase binder is solved. Under this condition, the achievement of the maximum value of the energy properties and their stability during the operation of the product made of EHCM are ensured.

Accordingly, the structure of the material formed at the mixing stage determines its operational properties. This determined the choice of the research problem, which consists in systematizing the theoretical foundations of the structure formation of EHCM.

Theoretical provisions and their rationale

Under the structure formation of EHCM in this article we mean the spontaneous combination of particles of the dispersed phase (their aggregates) and the formation, in the process of mixing the components, of the spatial structure of the material, followed by setting and solidification during polymerization of the binder. As a rule, structure formation of EHCM is carried out under the following conditions:

in accordance with the stoichiometry calculated in [1], the fraction of powder components is 84 – 86 wt. % (in some cases and more);

the particle size of the powders is in the range of 10 – 240 μm , and some solid-phase components can be nanosized [2];

the binder is represented by a liquid-phase polymer with a relatively high viscosity index (about 4 – 5 Pa·s) [3].

It is known that particles of the same size form packing with a maximum density of up to 0.74 (or $\pi/3\sqrt{2}$) [4]. Taking into account the established amount of the liquid phase (up to 15 wt.%). During mixing, it is required to achieve a relative packing density of solid-phase particles of at least 0.85, which makes it necessary to select at least two fractions of powder components for the spherical shape of their particles.

At the same time, the components available on the market are usually represented by powders, with a fairly wide spread of linear particle sizes and a shape that significantly differs from spherical one. For example, for the manufacture of EHCM in accordance with the approaches described in Ref. [1], an oxidizer, an energy additive, combustion catalysts and an antioxidant are presented as powder materials. The morphological analysis of these components, carried out on a certified high-resolution scanning electron microscope Mira (Tescan, Czech Republic), showed the presence of agglomerates and particles with different linear dimensions in the sample. The results of morphological analysis of particles of solid-phase components of EHCM are shown in Fig. 1.

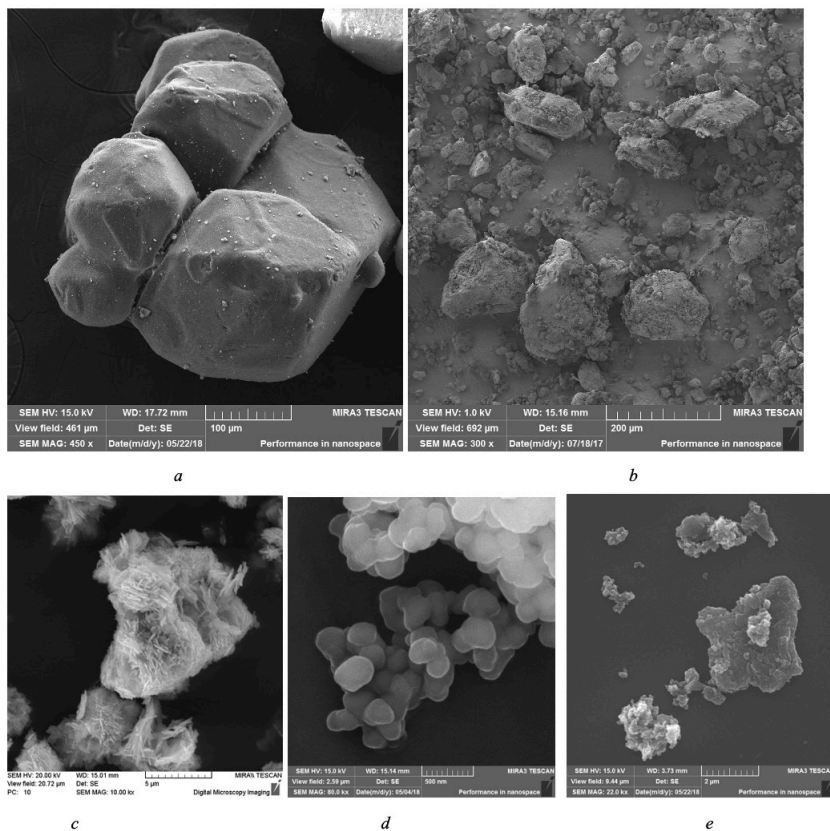


Fig. 1. Surface morphology of powder components of EHCM: a – an oxidizing agent; b – energy supplement; c, d – a combustion catalyst; e – an antioxidant

The presence of a significant scatter in the values of the linear sizes of particles necessitates the selection of the required fractional composition, which ensures the obtaining of the densest packing of particles. To streamline the selection of the fractional composition, one of the components, the amount of which prevails in EHCM, is selected as the base one, from which the linear dimensions of the particles of the remaining solid-phase components are calculated.

In order to determine the degree of deviation of the shape of particles of solid-phase components from spherical one, their shape factor was determined. The study was carried out on Mini Magiscan ("Joyce Loebler", UK) in the Auto Scan Object program. According to the measurement results, it was found that the obtained median values of the form factor for the solid-phase components of EHCM are in the range from 0.86 to 0.92. Such deviations of the particle shape from spherical one can be compensated for by the selection of the fractional composition.

To determine the appropriate fractional composition and the proportion of each of the fractions, to establish relationships between their sizes, a geometric model of an elementary particle was built. To construct a geometric model, it is assumed that the unit cell of the typical composition of EHCM consists of 13 particles of a coarse fraction of powder components. In this case, in the center of the cell under consideration there is a particle of the energy additive with adjoining particles of the ammonium salt of perchloric acid. The resulting voids are filled with smaller particles of the ammonium salt of perchloric acid. In turn, the voids between them should be filled with particles of catalysts and antioxidant.

The procedure for constructing a geometric model, the choice and justification of a representative element are described in Ref. [5]. The view of the geometric model of the unit cell with the mutual arrangement of the particles of the energy additive and the large fraction of the ammonium salt of perchloric acid, as well as its representative element with the mutual arrangement of the particles of the energy additive, the large and small fractions of the ammonium salt of perchloric acid, catalysts and antioxidant are shown in Fig. 2.

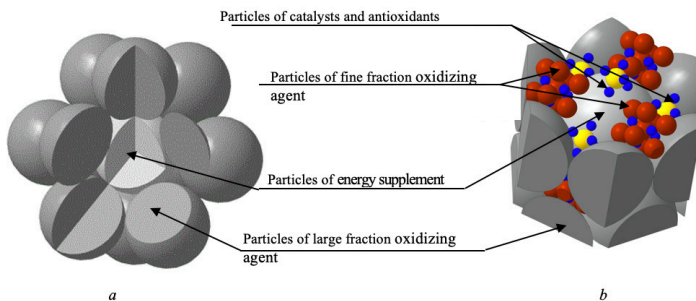


Fig. 2. Model of a unit cell in a hexagonal dense packing of particles with a coordination number of 12 (a) and its representative element (b)

Based on the simulation results, the characteristics of the powder components that form the unit cell are refined, the values of which are given in the table.

In the course of modeling, it was found that powder components introduced into EHCM and having a nanoscale size, due to their insignificant amount, may not be taken into account when calculating the degree of filling of voids.

Table. Characteristics of the solid-phase components of energy-saturated heterogeneous composite materials that form the unit cell

Component name	Particle radius, m	The amount of component		The volume of one particle of matter, m ³	Mass of one particle, kg	The number of particles in the unit cell, number of units	The mass of particles in a unit cell, kg	Particle surface area, m ²
		mass. %	kg					
Oxidizing agent	1,2·10 ⁻⁴	70	2,32	7,23·10 ⁻¹²	1,41·10 ⁻⁸	12	1,69·10 ⁻⁷	2,17·10 ⁻⁶
	2,5·10 ⁻⁵	7,5	0,250	6,54·10 ⁻¹⁴	1,27·10 ⁻¹⁰	143	1,82·10 ⁻⁸	1,12·10 ⁻⁶
Energy supplement	1,2·10 ⁻⁴	5,5	0,18	7,23·10 ⁻¹²	1,31·10 ⁻⁸	1	1,31·10 ⁻⁸	1,8·10 ⁻⁷
Combustion catalyst I	7,7·10 ⁻⁶	1	0,033	1,91·10 ⁻¹⁵	1,21·10 ⁻¹¹	193	2,33·10 ⁻⁹	1,4·10 ⁻⁷
Combustion catalyst II	0,8·10 ⁻⁷	0,5	0,016	2,14·10 ⁻²¹	9,08·10 ⁻¹⁸	128·10 ⁶	1,16·10 ⁻⁹	1,03·10 ⁻⁵
Antioxidant	0,2·10 ⁻⁷	0,5	0,016	3,35·10 ⁻²³	1,29·10 ⁻¹⁹	90,26·10 ⁸	1,16·10 ⁻⁹	4,5·10 ⁻⁵

The required ratios in the sizes of powder fractions were determined, which can be expressed through the following dependence:

$$D_f \approx (0,2 \div 0,225) \cdot D_b, \tag{1}$$

where D_f – particle diameter of the finer fraction;

D_b – base fraction particle diameter.

To determine the duration of mixing the components of EHCM, the degree of uniformity of distribution of the components was investigated, taking into account the obligatory wetting of the surface of solid-phase components with a polymer binder and filling all voids with it. Taking into account the results of the study, modeling of the structure formation of EHCM was carried out. The volume of the unit cell and the density of the resulting material were considered as representative characteristics in modeling the structure formation of EHCM. The order of formalization of the mixing process, the choice of the modeling algorithm and the essence of the optimization problem are described in Ref. [6]. The dynamics of changes in the volume of the unit cell and the density of EHCM during the simulation are shown in Fig. 3a. The verification of the simulation results was carried out in the process of obtaining an experimental composition with sampling after 2 minutes of mixing. The selected samples were polymerized, after which the density of the obtained material was measured and the morphology of the sample was investigated at the fracture. The verification results are described in Ref. [7].

The results of measuring the density of the obtained material in comparison with the dynamics of the change in the volume of the unit cell obtained during the simulation are shown in Fig. 3b.

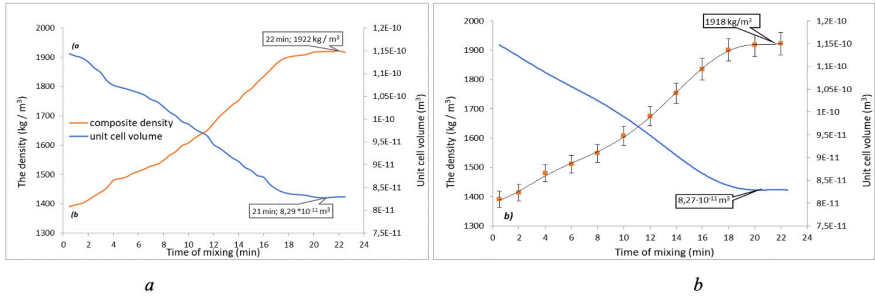


Fig. 3. Dynamics of changes in unit cell volume and material density during mixing of solid-phase components in a polymer binder medium: *a* – in the process of modeling; *b* – in the process of EHCM preparation and model verification

Based on the simulation results, the optimal mixing time (≈ 22 min) was established for the selected technological equipment, as well as other operating modes of the equipment, which were confirmed in the process of obtaining the experimental composition of EHCM.

Thus, the proposed theoretical approaches for determining the required fractional composition to obtain the densest packing of particles of solid-phase components and the main technological mixing modes that ensure the uniform distribution of components in the material can be taken as a basis for the development of various compositions of EHCM.

Conclusion

In the study of the processes of obtaining EHCM, theoretical foundations of the structure formation of EHCM obtained by mixing polydisperse fractions of powder components in a polymer binder medium are proposed. The proposed theoretical provisions were tested in the manufacture of an experimental composition of EHCM and confirmed their representativeness.

The use of this approach makes the structure formation process more predictable, providing the EHCM manufacturer with the required initial information. This makes it possible to determine the most expedient required operating modes of the equipment even at the stage of developing the technology for obtaining EHCM.

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不同品牌干粮喂养对服务犬生长发育的影响的比较特征
**COMPARATIVE CHARACTERISTICS OF THE EFFECTIVENESS OF
FEEDING DRY FOOD OF DIFFERENT BRANDS ON THE GROWTH
AND DEVELOPMENT OF SERVICE DOGS**

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本文包含与喂养服务犬有关的研究结果。在Primorsky Krai的Kamen-Rybolov村的苗圃条件下，对不同品牌的干饲料进行了比较分析。喂养是人类控制和调节农场动物营养的过程。直接地，喂养是影响狗的形态，生理和表型变异性的主要因素之一。只有遵守科学的饲养组织标准，才能获得正面或负面的结果，尤其是狗的外部 and 内部

关键字：狗，喂养，口粮（饮食），生长，活体重

Abstract. *The article contains the results of research related to feeding service dogs. A comparative analysis of dry feeds of different brands was carried out in the conditions of the nursery of Kamen-Rybolov village of Primorsky Krai. Feeding is a human-controlled and regulated process in the nutrition of farm animals. Directly, feeding is one of the main factors that affects morphological, physiological and phenotypic variability in dogs. Positive or negative results, in particular the exterior and interior of dogs, can be obtained only if you adhere to scientifically-based standards of feeding organization*

Keywords: *Dogs, feeding, ration (diet), growth, live weight.*

The aim of this work was to study the efficiency of dry food for feeding dogs in a kennel S. Kamen' -Rybolov, Primorsky Krai.

We selected two brands of feed: Hills and Pedigree for comparative analysis. [1,2].

The object of research was working dogs of the German shepherd breed. In the diet using dry food Pedigree there was a lack of protein, fat, easily digestible carbohydrates. In the normal metabolic energy, calcium, phosphorus. Thus, we can conclude that the diet of dry food brand Hills Science Plan Veterinarian Recommended is balanced in basic nutrients better than dry food brand Pedigree Vital Protection. This is very important for an adult working dog.

One-time daily intake of dry food for working dogs weighing 30 kg (increased activity: 1 hour or more physical exercise per day) is 225 g. Working dogs are fed 2 times a day. In the morning and in the evening. Fresh drinking water should be kept at all times, especially when feeding dry food.

The growth of puppies was controlled by weighing and calculating increments (average daily, absolute). The results of the control weighings are shown in table 1.

Table 1 - Dynamics of changes in live weight of puppies using feeds

Index	Feeds	
	Hills Science Plan Veterinarian Recommended	Pedigree Vital Protection
Live weight at birth, g	350	330
Weight at 2 month age, g	8215	5755
Weight at 3 month age, g	13110	9321
Absolute gain, g:		
From birth to 2 months	7865	5425
From 2 to 3 months	4895	3566
Average for the entire period	12760	8991
Daily gain, g		
From birth to 2 months	123,2	83,5
From 2 to 3 months	151,5	107,8
Average for the entire period	274,7	191,3

Table shows that when fed with Hills dry food, puppies have higher gains (absolute and average daily) than Pedigree. The absolute increase in dry food Hills is higher by 3769 g. The average daily gain for the entire period is higher by 83.4 g. The relative increase for the entire period is higher by 9.1%.

Assessment of dogs for constitution and conformation is called an examination. It is carried out at broods of young stock and exhibitions of adult dogs, as well as in the selection of dogs for breeding and service purposes. For examination, all dogs are divided into groups according to breed, sex and age.

Expertise includes inspection, assessment, description. The examination is carried out in several stages and is carried out by various methods and techniques (eye, comparative, descriptive, graphic, contour, etc.).

The exterior was determined by the most eye method, in the position and in the movement of the animal. Ocular score was determined by weighing. The dog was examined at a distance of 4 m (from the side, from behind, from the front). The dog stood on the platform and evenly leaned on all four limbs, and, if necessary, photographed.

The results in accordance with the breed standards are shown in the table 2.

Table 2 - Exterior of working dogs using dry food

Inex	Breed Standard (German Shepherd)	Kind of dry feeds	
		Hills Science Plan Veterinarian Recommended	Pedigree Vital Protection
Head	The head is wedge-shaped, of appropriate size, the ratio of skull to muzzle is 50% to 50%. The width of the skull is approximately the same as its length. The lips are dry, tight-fitting, dark in color. The nose should be black.	Compliant	Compliant
Front limbs	Straight when viewed from any side, absolutely parallel when viewed from the front. The elbows, neither in stance nor in movement, should be neither turned out nor drawn together. The forearms, viewed from all sides, are straight and perfectly parallel to each other, dry and well muscled The hind legs are set slightly apart, while viewed from behind they are parallel to each other. The thighs are powerful and well muscled. The hock joint is well defined and strong and the metatarsus is vertical under the hock joint.	Compliant	Compliant
Back limbs	The hind legs are set slightly apart, while viewed from behind they are parallel to each other. The thighs are powerful and well muscled. The hock joint is well defined and strong and the metatarsus is vertical under the hock joint.	Compliant	Compliant
Pelage	Wool with undercoat. The cover is dense and hard. On the head, inside the ears and on the front of the limbs, paws and fingers, the hair is shorter than on the rest of the body.	Compliant	Compliant

The exterior meets the breed standards. This means that Hills and Pedigree dry food does not affect the exterior of the dogs.

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滨海边疆区的喂食服务犬分析
**ANALYSIS OF FEEDING SERVICE DOGS IN THE PRIMORSKY
REGION**

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本文包含在滨海边疆区狗窝条件下对狗进行的研究结果。我们研究了使用干饲料和天然饲料时幼犬的生长发育指标。狗的繁殖是畜牧业的一个分支。它是用于国民经济，体育，军队等各个部门的文化犬种的繁殖。

关键词：狗，喂养，口粮（饮食），生长，活体重

Abstract. *The article contains the results of research conducted on dogs in the conditions of the Primorsky territory kennel. We studied the growth and development indicators of puppies when using dry and natural feeds. Dog breeding is a branch of animal husbandry; it is the breeding of dogs of cultural breeds for use in various sectors of the national economy, sports, the army, etc.*

Keywords: *dogs, feeding, ration (diet), growth, live weight.*

The purpose of our research is to determine the effectiveness of the use of service dogs in the breeding nursery of Primorsky region.

The most popular breed in our country is the Central Asian Shepherd. CAO is followed by Labrador, Dachshund, Rottweiler, Golden Retriever, American Staf, German Shepherd, Chihuahua, English Bulldog.

To perform operational and service tasks, the following categories of service dogs are used:

1. Search (patrol and search) - dogs for searching and detaining violators, checking the state of the KSP, as well as the area adjacent to the protected object, searching the area and territory, inspecting vehicles passing through the check-

point, sampling a person by the smell of their things or tracks.

2. Special - used to search for drugs, explosives, explosive devices, weapons and ammunition.

3. Sentry - used to enhance the protection of objects. Service dogs can be used as a special tool:

- to suppress mass riots, group violations of public order by suspects, accused and convicted, as well as;

- for the arrest of offenders who show willful disobedience or resistance to personnel;

- for the release of hostages, captured buildings, structures, premises and vehicles.

The number of service dogs is set depending on the volume of the service of dog handlers and is entered on the basis of:

- Wanted - one dog for each position of senior dog handler;

- patrol and search - one dog for each position of a dog handler;

- special - by order of the head of the territorial body;

- sentries - depending on the complexity and characteristics of the protected object in areas vulnerable to escape, one dog per 60-80 meters of the protected perimeter. For one counselor, 4-5 guard dogs are assigned. In order to conduct high-quality training of guard dogs, treatment and preventive measures and provide them with rest, it is allowed to have 2-3 reserve guard dogs in each institution.

- breeding, repair dogs and puppies - by order of the head of the territorial body.

So that, feeding of dogs is very important for health and work of service dogs.

The objectives of the study included:

1. Study the conditions for feeding and keeping service dogs;

2. Analyze the growth and development of puppies;

3. Analyze the working qualities of dogs.

To conduct experiments, we formed 2 groups of animals with 9 heads in each. Rations were balanced according to generally accepted methods. Monthly weighings were conducted to study the growth and development of experimental puppies.

After analyzing the diets for adult dogs and puppies, we came to the conclusion that they are not balanced on some indicators. To make up for the lack of micro - and macronutrients, dogs are fed vitamins and supplements. If the lack of macronutrients is partially compensated by giving vitamins and minerals, then the remaining indicators remain the same.

We suggest using dry food that is balanced in all nutrients to increase performance and more intensive growth and development of puppies.

Newborn puppies were selected for the study. The conditions of keeping were

the same, feeding was carried out with specialized full-ration feed of the "premium" class, with an energy value from 340 to 430 kilocalories per 100 grams of specialized full-ration feed. They were fed according to the norms [1-3]. The research was conducted for 4 months. The results of our research work are presented in table 1.

Table 1 - Dynamics of development of puppies from 1 month to 5 months when using dry feeds

Age, months	Height at the withers, cm	Oblique body length, cm	Pastern circumference, cm	Chest circumference, cm	Head length, cm	Weight, kg
1	19-21	21-25	6-8	29-32	12-15	2,5-4
2	33-37	37-41	8-10	46-49	16-18	6-9
3	40-46	44-51	11-12,5	55-59	19,5-20	10-16
4	47-54	52-60	12,5-13	60-64	21-23	15-20
5	51-58	54-60	12-13,5	66-70	24-26	18-26

Thus, from the conducted studies, it is clear that the studied animals grow normally, there were no deviations in development. Therefore, it is advisable to feed puppies with premium and super premium dry food.

We also studied the development of puppies on the available diet in the kennel. The results are shown in table 2.

Table 2 - Dynamics of development of puppies from 1 month to 5 months when using natural feeds

Age, months	Height at the withers, cm	Oblique body length, cm	Pastern circumference, cm	Chest circumference, cm	Head length, cm	Weight, kg
1	19-21	21-25	6-8	29-32	12-15	2,5-4
2	33-35	37-39	8-10	46-49	16-18	6-9
3	40	44	11-12,5	55-56	19,5-19,8	10-12
4	45	48-50	12,512,8	60	21-21,5	14,8
5	48-49	50-52	12-13,5	64-65	22-24	16-17

Puppies of the control group were inferior in size and live weight to puppies that were on dry food. The only measure that was the same in both groups of

puppies is the length of the head. Slightly different and the indicator of the girth of the pastern.

Based on the results of checking the working qualities of service dogs in the kennel, the following conclusions can be drawn. All test dogs (who received dry food), except for the Count, received an average rating of "satisfactory", the Count received a rating of "good". Tracking and searching the area and premises were the most difficult tasks for the dogs. All dogs that ate dry food during the experiment were superior in working qualities to dogs that received the main diet accepted in the kennel.

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去势对公牛肉生产率的影响

EFFECT OF CASTRATION ON MEAT PRODUCTIVITY OF BULLS

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本文包含在滨海边疆区LLC Zolotaya Dolina的Hereford和Kalmyk品种的公牛上进行的研究结果。该国畜牧业者面临的紧迫问题之一就是为人们提供生物学上完整的，环境友好的优质牛肉。提高公牛生产率的方法之一是去势。去势使您能够获得最易于管理和易于使用的动物，有助于减少伤害，提高肉和羊毛的生产率，并且是繁殖中的重要事件。[1-5]

关键词：公牛，去势，肉生产率，日粮（饮食），屠宰过程。

Abstract. *The article contains the results of research conducted on bulls of the Hereford and Kalmyk breeds in LLC Zolotaya Dolina of Primorsky Krai. One of the urgent problems facing the country's livestock breeders is providing the population with biologically complete, environmentally friendly, high-quality beef. One of the ways to increase the productivity of bulls is castration. Castration allows you to get the most manageable and easy-to-use animals, helps reduce injuries, increase meat and wool productivity, and is an important event in breeding.[1-5]*

Keywords: *bulls, castration, meat productivity, ration (diet), slaughter process.*

Steers intended for fattening are better castrated at 2-3 months of age, and for work at 1.5-2 years. It is not recommended to carry out castration in the hot and cold season. Castration of a bull begins with pulsation. The operation is performed by a veterinary specialist on a lying or standing animal. When performing an operation on a lying bull, it is carried out to the left side, using one of the methods of felling, in which the right pelvic limb is pulled up so that the place of operation

is well opened for the veterinary specialist. The other three limbs are left unfixed. The exception is old and strong bulls, in which the pectoral limbs are tied together above the fetter joints. In the second case (when castrating young bulls), the animals are tied short at the post, and the head is fixed with nasal forceps. For better fixation of the bull, an additional Shin twist is applied to the pelvic limb. Additionally, the bull can be distracted by giving a small portion of food. Anesthesia. When castrating bulls at the age of one year or more, it is better to perform castration with the use of anesthesia. Analgesia is done in the traditional way, or direct anesthesia of the spermatic cord is applied – from the back of the scrotum neck, or an intratesticular injection. Additionally, infiltration is carried out with 0.5% novocaine solution along the incision line.

The aim of the study is to study the effect of castration of Hereford and Kalmyk bulls on meat productivity in the conditions of Zolotaya Dolina LLC in Dubki village of Primorsky Krai.

To achieve the goal were set next tasks:

- to form groups of experimental animals; to analyse the dynamics of live weight of steers in different periods of cultivation; to study slaughter and meat quality of steers; to study the morphological composition of carcasses; on the basis of a comprehensive analysis of studies to determine economic efficiency of beef production and to make specific recommendations production.

The object of the study was the cattle of the Kalmyk and Hereford breeds. The studies were carried out on castrated gobies. Castration by a closed month at the age of 2 months.

According to the scheme of the experiment, two groups of bulls, 20 heads each, were formed: the first group — bulls — castrates of the Hereford breed; the second group - castrate bulls of the Kalmyk breed. When forming the groups, the age and live weight of the animals were taken into account.

The general level of feeding and the system of keeping young animals of all groups throughout the experiment were the same. On the farm, up to 7 months of age, calves were reared on the traditional cow-calf system. Experienced bulls were kept in the same feeding and age conditions 6 months to 18 months of age. The animals were kept on a feedlot with a standard technology for raising and fattening beef cattle.

Assessment of the growth and development of plant growth.

The overall level of feeding and the system of keeping young animals of all groups were the same throughout the experiment.

The results of dynamics of live weight of calves of two groups from birth to weaning are presented in table 1.

Table 1 - Dynamics of live weight of calves from birth to weaning

Group	Live weight at birth age, kg	Live weight at weaning age, kg	Absolute gain, kg	Daily gain, kg
1	19,7±0,16	127,5±7,4	107,8	517
2	19,9±0,19	130,4±5,9	110,5	568

During the experiment, the bulls of group 1 outperformed their counterparts of group 2 in absolute and average daily growth by 2.7 kg and 51 g, respectively.

The results of the dynamics of live weight from weaning to 1 year are presented in table 2.

Table 2 - Dynamics of live weight of calves from weaning to 1 year age

Group	Live weight at birth age, kg	Live weight at weaning age, kg	Absolute gain, kg	Daily gain, kg
1	127,5±7,4	222,0±9,8	94,5	511
2	130,4±5,9	175,5±10,4	47,9	386

From weaning to a year, group 1 bulls also outperformed group 2 bulls by an average daily gain of 125 g and live weight at the end of weaning by 46.5 kg.

The most complete picture of meat productivity can be obtained only after the slaughter of animals.

We have studied the meat and slaughter productivity of experimental animals. The results are shown in table 3.

Table 3 - The results of the control slaughter bulls of the experimental animals

Index	1 group	2 group
Live weight before slaughter process, kg	486,3	478,5
Carcass weight, kg	251,8	264,1
Carcass weight, %	51,8	55,1
Internal fat weight, kg	11,0	11,6
Internal fat weight, %	2,3	2,4
Slaughter weight, kg	262,8	275,2
Slaughter weight, %	54,0	57,5
Skins mass, kg	23,5	23,4
Skins mass, %	4,8	4,9
Parotid fat mass, kg	3,4	2,9
Parotid fat mass, %	0,7	0,6

In terms of slaughter weight, slaughter yield, and skin yield, the animals of group 2 were superior. However, in terms of the amount of pericranial fat and the

weight of the skin, the bulls of group 1 were superior.

Based on the studies carried out, the following conclusions can be drawn:

1. To solve the first problem, we formed two groups of castrated bulls, which were similar in age and live weight.

2. Studying the dynamics of the live weight of castrated bulls, it was found that the average value of the absolute increase in bulls of the 1st group at birth before weaning is 192.3 kg, the average value of the average daily gain is 1068 kg. The average value of the absolute growth of bulls of the 2nd group at birth before weaning is 145.6 kg, the average value of the average daily growth is 809 kg. The average value of the absolute increase in group 1 is 256.5 kg and the average value of the average daily increase is 1425 g. The average value of the absolute increase in group 2 is 310.8 kg and the average value of the average daily increase is 1727.

3. In terms of slaughter weight, slaughter yield, skin yield, animals of group 2 were superior. However, by the amount of perineal fat and the mass of the skin, the bulls of the 1st group exceeded.

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罗斯托夫州灌溉土地上甜菜栽培的资源节约技术特点
**PECULIARITIES OF RESOURCE-SAVING TECHNOLOGY OF TABLE
BEET CULTIVATION ON THE IRRIGATED LANDS OF ROSTOV
OBLAST**

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本文探讨了罗斯托夫州灌溉土地上主要的蔬菜作物之一—甜菜栽培的资源节约技术的特点，包括灌溉制度，土壤水分动力学的建立，时间和规范。营养灌溉，耗水量以及技术和经济指标。

关键词：甜菜，资源节约型栽培技术，灌溉制度，植物灌溉，水分动态，灌溉速率

Abstract. *The article discusses the features of the resource-saving technology of cultivation of table beets, one of the main vegetable crops on the irrigated lands of the Rostov Oblast, including the irrigation regime, the establishment of the dynamics of soil moisture, the timing and norms of vegetative irrigation, water consumption and technical and economic indicators.*

Keywords: *table beets, resource-saving cultivation technology, irrigation regime, vegetative irrigation, moisture dynamics, irrigation rate.*

Beetroot is one of the most important vegetable crops with high nutritional, taste and medicinal properties. A special advantage of this culture lies in the content in its root crops of a large amount of sugars, ascorbic, malic, citric and niacin, pectin, betanin, vitamins C, B₁, B₂, PP, E. [1].

The soil and climatic conditions of the Rostov Oblast make it possible to obtain yields of beet root crops up to 50 t/ha and more, and much more on irrigated lands. To improve the supply of the population of the Rostov Oblast with vegetable-growing products, as well as to sell them outside the Southern Federal District, it became necessary to study the irrigation regime and water consumption as the main elements of resource-saving technology for cultivating table beets on irrigated lands [2].

Using the whole set of agrotechnical and technological methods for the cultivation of table beets under irrigation conditions, it is possible to obtain yields of more than 100.0 t/ha on the lands of the Rostov Oblast. The consumer market presents manufacturers with new requirements for the quality of products: conditioned appearance, high content of dry matter, mineral elements and vitamins [3, 4].

To increase the production of vegetable growing, in particular table root crops, it is necessary to conduct scientific research in the field of resource conservation in the cultivation of table beets, associated with such an element of technology as irrigation. It is necessary to study resource-saving modes of irrigation and water consumption of table beet in modern conditions of agricultural production on irrigated lands of Rostov Oblast.

Based on the above, to study the technology of cultivation of table beets, studies were carried out in the central irrigated zone of Rostov Oblast. In "Istok-1" LLC, Semikarakorsk district, table beets in summer sowing were cultivated on an area of 53 hectares, with irrigation with a Valley sprinkler, with a rain coverage of 420 m.

At the beginning of the growing season, the content of nutrients in the 0-40 cm soil layer on table beet crops was: mobile phosphorus - 41.0 mg/kg, available potassium - 415 mg/kg. The soils are resistant to alkalinization, the soil absorbing complex is sufficiently saturated with calcium (0.68 mmol/per 100 g of soil), there is no excess of salts in the soil and it is suitable for the cultivation of the above crop.

The plot was plowed on October 20, 2018 by Lemken to a depth of 32 cm. In the spring, cultivation was carried out twice: on April 12, to a depth of 10-12 cm with a Welrich cultivator, and on May 20, at a depth of 10-12 cm with the introduction of mineral fertilizers in the form of NPKS at a dose of 400 kg/ha a.i. The milling of the site was carried out with the Basilier unit - May 21 to a depth of 10-15 cm, and the formation of ridges was carried out by the Grimme ridge former on May 22, 2019.

The sowing of table beets was carried out from June 2 to June 5 with a seeding rate of 350.0 thousand pieces/ha using an Agricola seeder to a depth of 3-5 cm. Beets were sown on the ridge in two lines with a planting density of 38-42 pieces. on n. m.

During the growing season, beet crops were fed with a carbamide-amine mixture with irrigation water at a dose of 100 kg/ha on August 6.

In the area selected for research, groundwater lay below 5-10 m and had no effect on irrigation processes.

Determination of soil moisture is used to establish the optimal timing, norms and number of irrigations, calculations of moisture reserves in the soil. There are

several ways to determine soil moisture, but thermostat-equilibrium is more accurate and widespread. For table beets, the depth of observation of soil moisture is carried out in the active layer at a depth of 0-60 cm.

It is known that good results in terms of moisture supply for table beet crops are given by regular vegetative irrigation at intervals of 7-10 days during the period of growth of the aboveground mass and the intensity of growth of root crops. After completing their growth, they maintain optimum soil moisture. It should also be noted that the timely cessation of watering, in addition to preventing cracking, favors normal ripening and good storage of root crops [4].

Analysis of the results obtained on the development of the irrigation regime for table beets in experiments at "Istok-1" LLC under a Valley circular sprinkler made it possible to establish that the number of irrigation of table beets in summer sowing was 24, at the same time it should be noted that the irrigation rate was 3040 m³/ha. The following irrigations were carried out on the experimental plot: from the 1st to the 15th - 60 m³/ha each, from the 16th to the 18th and from the 20th to the 22nd, as well as the 24th irrigation of 200 m³/ha each, and the 19th and 23rd irrigations at 350 m³/ha (Figure 1).



Figure 1 - Irrigation of beet crops DM Valley circular action in LLC "Istok-1", 2019

During the growing season of table beetroot, observations were made of the dynamics of linear growth in the experimental plot for the main phases of growth

and development. It should be noted that the highest plant height of table beet was observed in the experimental plot and amounted to 45 cm. The vegetation period of table beet was 116 days, and the timing of vegetative irrigation took into account the main phases of its vegetation.

The total water consumption was determined by the field water balance method, taking into account the precipitation, irrigation water, the used reserves of productive soil moisture and was calculated using the formula of A.N. Kostyakov. Moisture consumption for the creation of 1 ton of products at the experimental site under the table beet was 54 m³/t. The irrigation regime influenced the productivity of table beets and the technical and economic indicators of their cultivation when irrigated with a sprinkler machine. The profit per unit area and unit of irrigation water in the cultivation of table beets amounted to 630.7 thousand rubles/ha and 207.5 rubles/m³, and the yield of root crops was 75.5 t/ha.

On the basis of the obtained research results, it is necessary to note the expediency of cultivation of table beets when irrigated with a sprinkler machine in accordance with the irrigation regimes developed for the growing season. It is necessary to continue research on the development of resource-saving technologies for the cultivation of table beets on irrigated lands, to study the irrigation regime and water consumption in different phases of crop development, as well as the relationship between the use of mineral and organic fertilizers in combination with irrigation.

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