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CONTENTS

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CLUSTER THEORY AND PRACTICE IN AGRICULTURE

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Abstract . The article is devoted to the issue of the organization of clusters in agriculture and its efficiency in the conditions of market relations. The purpose of the article is to reveal the theoretical and practical aspects of the cluster model in agriculture and its potential opportunities.

At the same time, the main tasks of promising agricultural clusters were analyzed. Clusters have been found to be an important factor in stimulating innovation, especially in agriculture. Analyzes of the current state and prospects of clustering in the agricultural sector of Uzbekistan are presented.

Key words: cluster, competition, agriculture, innovation in agriculture, integration, cluster policy, competitiveness, potential opportunities, innovative activity, assessment of potential opportunities, agriculture, innovative infrastructure, specialization, innovative product, technological, marketing, organizational innovation, costs of innovation.

Introduction. The principles of market economy are being widely implemented in Uzbekistan. As a result of the development of science and technology, the agricultural sector, like all other sectors, has become an important place of institutional changes. The development of development shows that the reform of this sector is an important priority for the state and society. The main reason for this is that the agricultural sector ensures the country's food security, and is the main sector that supplies industrial sectors with a number of raw materials, such as cotton fiber, grain, fruits and vegetables.

By the time of the renewal of Uzbekistan, one of the important tasks is to implement the cluster system, which has been tested in international practice and is of great importance in the development and stability of the economy, and the implementation of market relations and experiences in our republic. The adoption of the Decree of the President of the Republic of Uzbekistan "On approval of the strategy for the development of agriculture of the Republic of Uzbekistan for 2020-2030" is considered as a road map of the future in this field.

This Strategy, aimed at making a radical change in the agricultural sector of our country, serves to provide the main solution to the following urgent issues.

- ensuring the food safety of the population;

- creation of a favorable agribusiness environment and added value chain;

-reducing state participation in industry management and increasing investment attractiveness;

- rational use of natural resources and environmental protection;

- development of modern management systems; gradual diversification of state expenditures aimed at supporting the network;

- development of the system of science, education, information and consulting services in agriculture;

- development of rural areas;

-issues such as creating a transparent system of network statistics are specified [1].

In our country, the principles of the market are being widely implemented in cotton growing and grain growing, which are important branches of agriculture. In particular, in the decision of the President of the Republic of Uzbekistan "On the measures of wide implementation of market principles in the field of cotton production": the state order for the production of cotton raw materials has been canceled and the practice of determining its purchase price will be abandoned; producers of cotton raw materials - farms, cotton-textile clusters, cooperatives are given the right to freely place zoned cotton varieties, etc. [2].

Literature review. Today, there is no generally accepted definition of a cluster. Professor Michael Porter of Harvard Business School, the founder of the cluster theory, expressed the concept of a cluster as follows:

"A cluster is a group of interrelated companies, specialized suppliers, service providers, firms in related industries and organizations related to their activities (eg universities, standardization agencies and trade associations)" [3].

M. Afanasev and L. Myasnikova cluster network of independent manufacturing and service firms, including suppliers, technology manufacturers, universities, research institutes, engineering centers, market institutions (brokers, consultants) and understands consumers as a network of mutual communication in a chain [4].

A.A. According to Yalov, a cluster is a network of interconnected producers, consumers, production infrastructure objects in the process of creating added value [5].

As a result of his research, G.V. Gutman, A.A. Scientists such as Miroedov conditionally determined the existing descriptions of the term "cluster" by the geographical component of the groups, the geographical feature is not considered insignificant when defining "Cluster" [6].

According to S. Lozinsky and A. Prazdnichnokh, a cluster is a combination of leading firms producing products and services, suppliers available in the region, and the business environment [7].

According to S. Sokolenko, a cluster is a "territorial association of interrelated enterprises and institutions in the relevant industrial area that direct their activities to the production of world-class products" [8]. Unlike the above-mentioned authors, V.M. Kutin gives the following definitions: a "cluster" is an association of regions with a similar socio-economic position, it is a map of regions with production indices, housing construction, agricultural products, retail trade based on the existing maps that compare with the division into seven clusters that are economically similar according to their indicators [9].

Speaking about "industrial complexes", V. Ruigrok and R. Van Tulder call them "a special type of network", which are "directly formed by groups of agencies" around the root firm. negotiation configuration" (bargaining configuration) or may be directly involved in the production and sale of a specific product [10]

Research methodology. The theoretical and methodological basis of the research is based on the works of leading local and foreign scientists, relevant developments of research institutes and higher education institutions, materials of international and regional research, scientific-practical conferences and seminars, regulatory and methodological materials. is enough.

Systematic, structural and comparative analysis, graphic representation of research results, abstract-logical, statistical, calculation-constructive, monographic methods and others were used in the research process.

Analysis and results. Realizing the agrarian potential of the region by uniting organizations of different forms of ownership, including peasant farms and private auxiliary farms of the population, in the formation of agroclusters, wide use of this cooperative institution, as well as rational distribution of agricultural production and it is recommended to increase attention as an effective form of organization of multi-sectoral cooperatives and clusters, which envisage deepening specialization.

At the same time, the main tasks of promising agricultural clusters are:

- stabilization of local agricultural development;

- to increase the share of products and services of the agro-industrial complex in the total regional gross product and export;

- increasing the investment attractiveness of the local agro-industrial complex by introducing innovations in agriculture;

- creation of favorable conditions for the development of entrepreneurship in rural areas;

- development of the innovative infrastructure of the agro-industrial complex;

- increase in tax revenues to budgets at all levels;

- increasing the competitiveness of the regional economy;

- to achieve a positive multiplier effect in related sectors and sub-sectors of the agro-industrial complex (cotton and grain cultivation, their processing, maintenance and repair of agricultural machinery);

Achieving social benefits in the form of increasing the employment, income and quality of life of the rural population.

The cluster approach to the development of the country's economy has shown very good results. The cluster is recognized as a means of increasing the competitiveness of regions and the entire country. Factors of economic growth in the creation of a cluster: internal specialization at the expense of business structures included in the cluster; development of entrepreneurship due to the demand for specialized material and technical resources and services; active innovative activity; introduction of innovations; minimization of innovation implementation costs; organizing and conducting educational seminars for cluster members; solving complex problems; advantages in access to new technologies due to constant contacts with other members of the cluster; Obtain NTP results; ensuring communication between companies, government and universities and research institutes; investment attraction; export expansion, etc.

At one time, during the former union, there were concepts of "scientific-production complex" and "regional production cooperation" [11]. Obviously, the

cluster is self-rooted. However, the planned system and sectoral principles of economic management put serious restrictions on their activities. For example, the choice of a supplier was often determined by an order "from above" rather than in the interests of the enterprise. As a result, parts manufactured in the region had to be imported from other regions. Figure 1 shows a comparative diagram of the objectives of creating a complex of regional commodity producers and clusters. In modern conditions, the situation has changed. Therefore, the main difference between a cluster and a regional production complex is that a cluster can be effective only if it is necessary for enterprises to increase their competitiveness, taking into account the market mechanism as much as possible [12].

Management environment planning (at specified prices)	Market competition environment (at market rates)
Dictatorship of producers over consumers	*Dictatorship of consumers over producers*
The purpose of establishing regional production complexes (on the basis of documents of state management bodies) For domestic production cooperation	The purpose of the cluster organization (based on the state support of producers) is to modernize production through cooperation, innovation and competitiveness in the market.

ROLE OF THE STATE

Management of regional production complexes based on the plan in order to cooperate with manufacturers for the realization of scientific and technical achievements	Supplementing market mechanisms such as government regulation, incentives, and infrastructure improvements in doing business
Socio-economic development of the country and regions based on directive indicators	Public private partnership development

Figure 1. Scheme of comparing the goals of creation and operation of regional production complexes.

Author development.

The participation of clusters in business has several significant advantages, as a result of which clusters have an impact on competition. First of all, it performs the tasks of increasing the efficiency of enterprises and industries included in the cluster, secondly, increasing the ability to innovate, and thirdly, stimulating new enterprises that expand the boundaries of the cluster [13].

The specific advantages of cluster enterprises can be:

- increase the efficiency of supply of raw materials, components and components;

- availability and quality of special services in the field of information technologies (for example, providers of complex solutions in the field of construction support systems for construction and real estate clusters) (for example, an insurance system for a textile cluster);

- opportunities to use various financial resources (for example, sources of risk financing for new technology companies in the information technology cluster);
- Emergence of wide opportunities for ITTKI;
- availability of specialized and efficient personnel;
- to create a network of formal and informal contacts for the transfer of market and technological information, knowledge and experience;
- creating a system for identifying collective interests and risks, forming a single idea and strategy for cluster development, etc.

As of 2022, 134 cotton-textile clusters, 245 fruit-vegetable clusters, and 157 grain-growing clusters are operating in our country.

1,034.2 million to cotton-textile clusters. hectare of land is attached. Cotton is grown on 873,000 hectares of land on the basis of market principles with 28,200 farms. In 2018-2022, investments in the amount of 15 trillion 942 billion soums were made for industrial development in the sector.

4.7 trillion soums or 26.4% of these funds are from own funds, the remaining 11.2 trillion soums or 74.6% are from foreign investments and bank loans. fainting.

Stages of cotton processing 22 of the existing clusters cover 5 stages of cotton processing, 21 have 4 stages, 30 have 3 stages, 38 have 2 stages and 23 have 1 stage.

In the future, the total cost of organizing deep processing of cotton in 2022-2026 is 25.5 trillion. 270 investment projects worth soums are being implemented.

Today, the urgency of the problem of cluster organization is related to the need to move to an innovative type of development. A cluster is defined as a system of interrelated forms of organization of various agricultural structures in order to introduce innovations into production to solve the problems faced by the industry and increase the competitiveness of products. The organization of clusters provides an opportunity for the industry to develop as one of the high-tech and innovative developing sectors.

	1
the organization's own funds	73155,0
foreign investment	5505,6
loans from commercial banks	16479,8
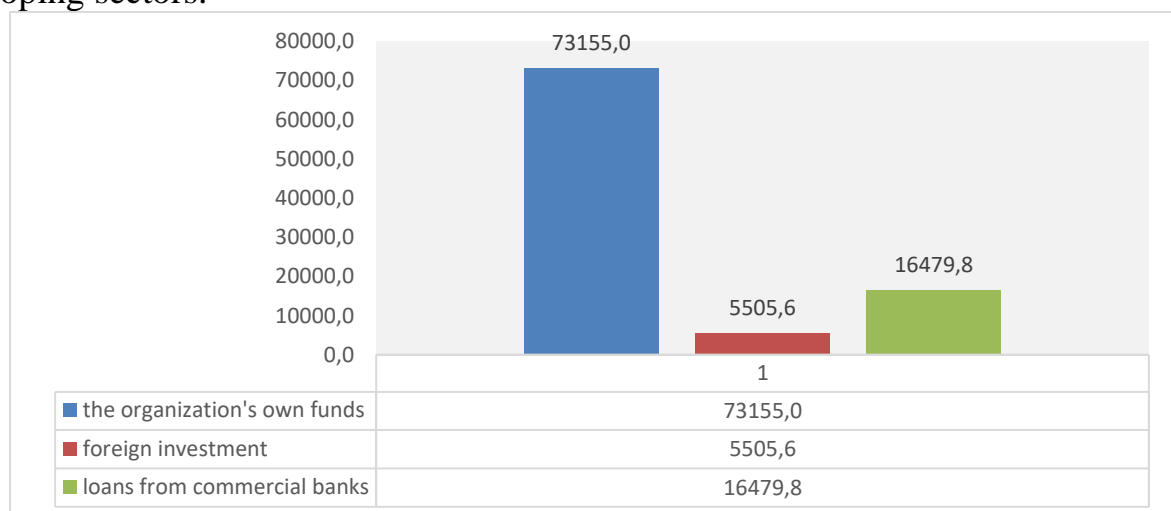
Figure 2. Sources of expenditure on innovation in agriculture in 2021, in million soums

Author's development based on the data of the Statistical Agency under the President of the Republic of Uzbekistan.

Therefore, it is related to the state support of innovations in agriculture and the expenses spent on this sector.

The analysis of expenditures on innovation in agriculture shows that 76.9% were financed by own funds, 5.8% by foreign investors, and 17.3% by commercial banks (Figure 2). .

The results of the analysis of the costs allocated to agricultural sciences in scientific research and experimental design development are that 971801.5 million soums were allocated to scientific research and experimental design works in our country, of which 75040.9 million soums or 7.7% corresponds to agricultural sciences. Of course, taking into account the importance of agriculture in our country, the supply of raw materials for the industry's food industry, and more than 90% of ensuring food safety, measures should be taken to increase this indicator to 20%. We believe that it is necessary (Fig. 3).

	2015	2016	2017	2018	2019	2020	2021
ilmiy-texnik ishlanmalarga	4362,8	5238,2	5064,7	4826,3	6585,4	6929,2	7684,8
amaliy tadqiqotlarga	16671,6	19061,8	28876,4	31902,8	46493,7	62427,8	31459,9
fundamental tadqiqotlarga	4952,8	6474,2	7337,3	7933,8	6314,7	8528,8	8430,8
jami qishloq xo'jaligi fanlariga	27345,8	36706,1	45539,7	49951,8	64937,6	86386,4	75040,9
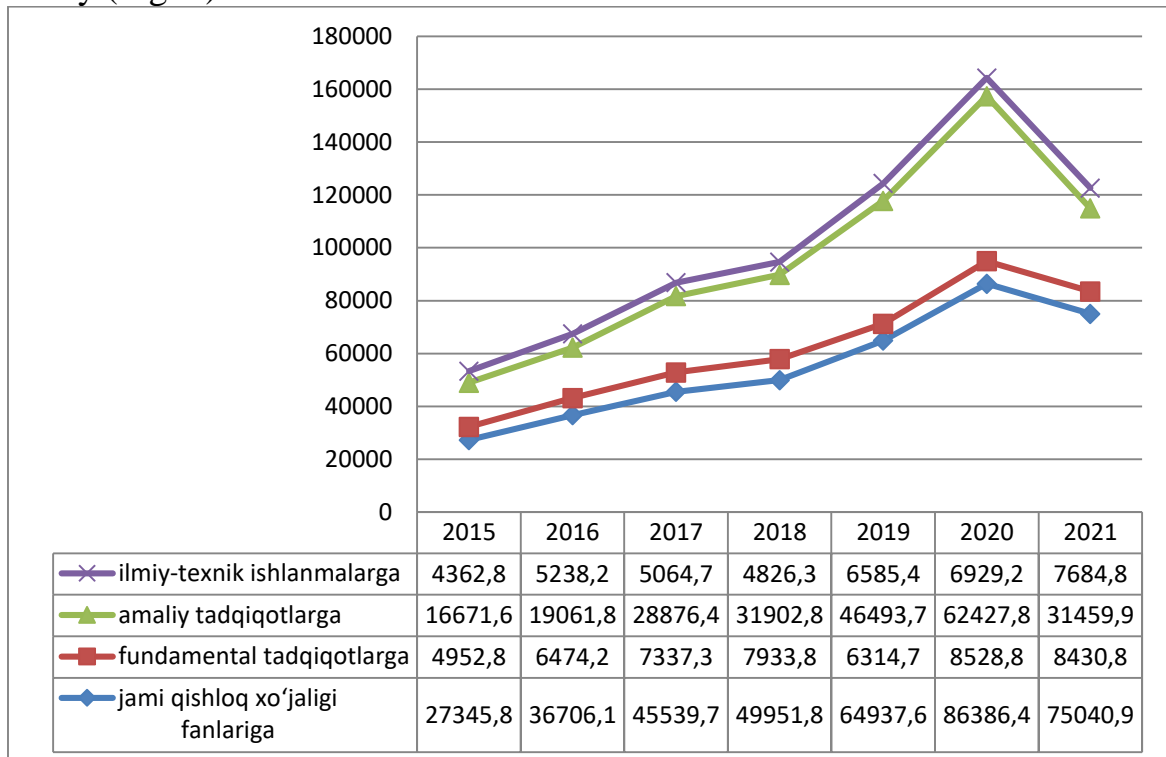
Figure 3. Expenditures allocated to agricultural sciences in scientific research and experimental development

Author's development based on the data of the Statistical Agency under the President of the Republic of Uzbekistan.

Over the years, the cost of scientific research and experimental design development in agricultural sciences has remained almost unchanged, in 2015-2021 it was 0.027%, 0.025%. At this point, we believe that the clustering system will create the basis for the transition to the innovation economy in the next 5-10 years (Fig. 4).
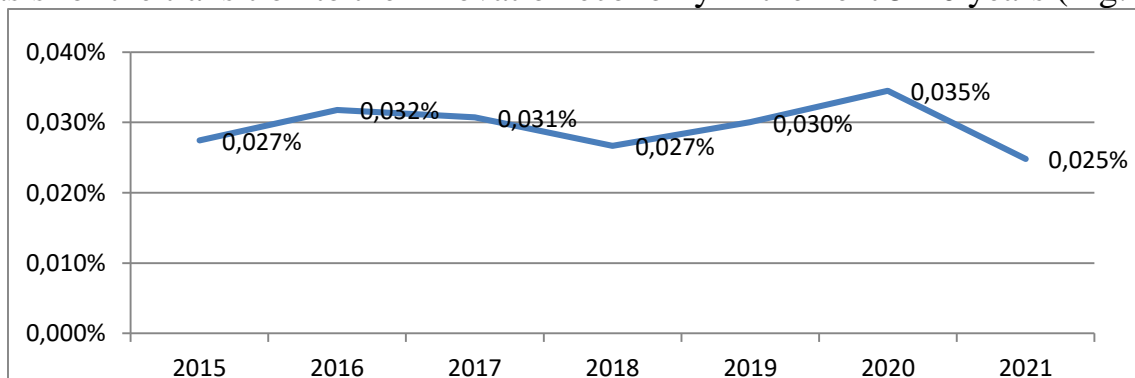
Figure 4. Expenditures of scientific-research and experimental-construction developments in agricultural sciences in relation to the gross agricultural product, in %

Author's development based on the data of the Statistical Agency under the President of the Republic of Uzbekistan.

The fact that the cotton-textile and grain-growing clusters were established in our country in 2019, they justify themselves in the practice of foreign countries, and the cluster incorporates all the elements of agricultural stability, integration and infrastructure. taking into account the increase in the following econometric analysis, we can observe the growth rates of the last 3 years and the positive state of the forecast indicator (Fig. 5).

As a result of the analysis of 12 specific values for the studied periods, we created the regression equation $Y=0.4773x+49.223$ for wheat, and if we make a forecast for 2022 using the regression equation, the expression $y=0.4773*13+49.223$ is equal to the value of

Also, as a result of the analysis of 12 specific values, we created the regression equation $Y=0.1545X+24.779$ for cotton productivity, and if we make a forecast for 2022 using the regression equation, it will be equal to the value of the expression $y=0.1545*13+24.779$.
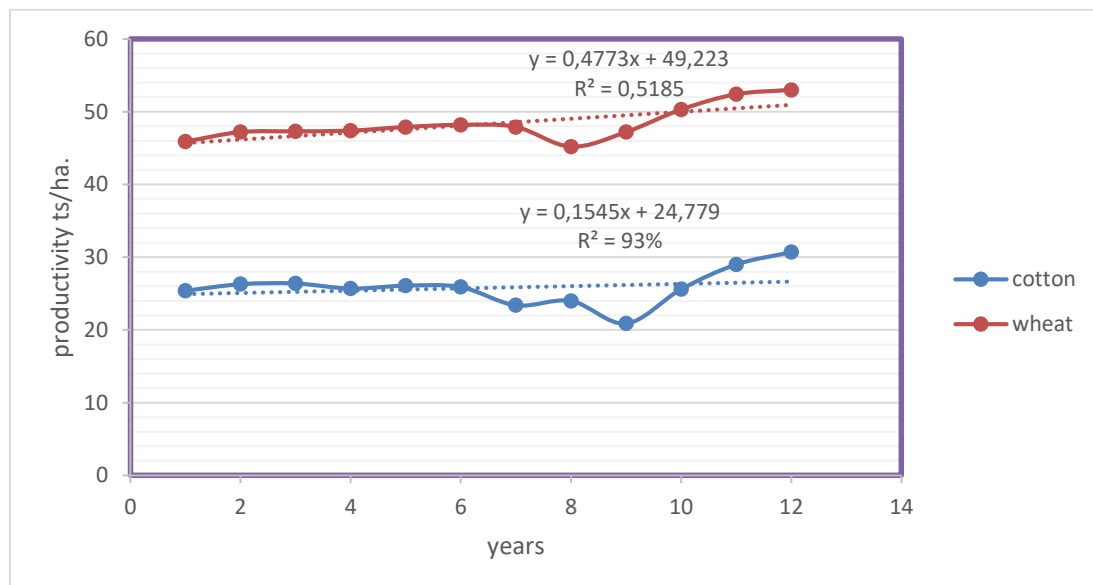
Figure 5. Forecast indicators of cotton and grain productivity in 2015-2021 and productivity in 2022-2024

Author development.

Conclusions and suggestions

The establishment of regional agricultural clusters serves the integration (cooperation) of the production, storage, processing and sale of final products in the domestic and foreign markets and, as a result, the full realization of the agricultural potential of the republic.

The formation of agricultural clusters increases the attractiveness of investment, which, in turn, makes a significant contribution to the economic growth of the country and serves the sustainable development of villages.

The development of clusters is supported by the improvement of the legislative framework by the state and local authorities, the elimination of obstacles to local competition, the concentration of efforts to attract investors, the expansion of trade markets, the creation of programs for the training and retraining of specialized personnel, research and developments are having a significant impact by attracting business entities to participate in cluster activities. It is also necessary to take into account the possibility of macro-economic risks, the impact of which cannot be prevented or reduced at the regional level.

Agricultural and processing enterprises, peasant (farm) holdings and personal homesteads of the population are not separate links, but a whole, and only their cooperation and integration will ensure the successful functioning of the entire agro-industrial complex for the population of the region. should be the key to guaranteeing food safety.

Based on the establishment of clusters, the sustainable economic development of the region presupposes, first of all, the initiative and activity of business entities, as well as joint efforts with executive and legislative authorities. At the same time, the roles of business and government are different but complementary. The development of the economy using clusters ensures an increase in the employment of the population, the attraction of highly qualified specialists serves the development of various sectors of the economy. Another positive aspect of the formation of clusters is the attraction of foreign direct investments to the regions.

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UDC: 330.1
IMPLEMENTATION OF INFORMATION TECHNOLOGY IN ECONOMIC SECTORS.

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Annotatsiya. Iqtisodiyotga yangi texnologiyalarning hayotga tadbiq etishi natijasida taraqqiyot tamoyillari, ijtimoiy hayotda jadallashuv va rivojlanish mezonlari vujudga kelmoqda. Axborot texnologiyalari bilan bogʻliq yangiliklar insonlarda ilgʻor fikrlash, innovatsion yondashuvlarni paydo qilmoqda.

Kalit soʻzlar. Iqtisodiyot, axborot, axborot texnologiyalari, taraqqiyot, ijtimoiy hayot, innovatsiya, raqamli iqtisodiyot.

Аннотация. В результате внедрения новых технологий в экономику появляются принципы развития, ускорения и критерии развития в общественной жизни. Инновации, связанные с информационными технологиями, формируют у людей передовое мышление и инновационные подходы.

Ключевые слова. Экономика, информация, информационные технологии, развитие, социальная жизнь, инновации, цифровая экономика.

Annotation. As a result of the implementation of new technologies in the economy, the principles of development, acceleration and development criteria in social life are emerging. Innovations related to information technologies are creating advanced thinking and innovative approaches in people.

Keywords. Economy, information, information technologies, development, social life, innovation, digital economy.

Introduction. In modern conditions, the principles of development, acceleration and development criteria in social life are emerging as a result of the implementation of new technologies in the economy based on their internal capabilities. Innovations related to information technologies are creating adaptability to modern conditions, advanced thinking, and innovative approaches in people. This situation, in turn, strengthens the process of in-depth study and effective use of modern information technologies in the economy. Information technology has its place as a highly effective

tool in the development of society, and is manifested as a systematic mechanism in economic activity and innovative development.

Analysis and results. The President of the Republic of Uzbekistan, Sh. Mirziyoev, states that the introduction of information and digital technologies in the economy and social sphere is a necessary process: "In order to achieve progress, it is necessary and necessary to acquire digital knowledge and modern information technologies. This gives us the opportunity to take the shortest path to ascension. After all, information technologies are deeply penetrating all areas of the world today. It is possible to widely introduce digital technologies in state and community management, social sphere, increase productivity, in a word, improve people's lives."

Today, the rapid development of information technologies in the world ensures rapid development and high levels of growth in all sectors of the economy, including finance, banking, entrepreneurship, production, industry. In today's era, socio-economic processes and digitization of all spheres are characterized by information and informatization. The rapid spread of information and communication technologies, information and digitization has greatly changed the economy and social life of countries and regions.

Today, the importance of information and communication technologies is rapidly increasing in the world, providing speed in the processes of information transmission, reception, and exchange, and the wide spread of information flow throughout the globe. As a result of rapidly developing information technologies, digital technologies, mobile communications, Internet, and the development of new generations of computers, the information space has reached its peak and the globalized world is realizing economic development and social development.

Today, in turn, informatization has the character of determining not only the internal, but also the external economic potential of the country and the position of the state. International economic relations, customs systems, transport-logistics, tourism and other areas cannot be imagined without information technologies. According to Academician A. Saidov, "in the conditions of globalization, instead of traditional indicators such as territory, population, level of economic development, size and armament of the army, scientific and technical base, information-communication and intellectual potential, position in the world financial markets , speed of assimilation of new technologies and innovations, influence in international organizations, ideological-political and ideological tools are coming to the fore."

The introduction of information technology into economic sectors is a socially useful, conscious, economic, cultural and educational activity. In addition, it affects political activity, because it plays a driving role in the implementation of economic policy in society. Information technologies serve to increase the capacity of personnel serving in economic sectors and facilitate their work processes. This feature forms the process of interaction between the information environment and the economic sphere, and active processes occur in the economic sphere of society. That is why information technology acts as a factor reflecting the intense and rapid process of economic activity and at the same time its future development levels.

In this regard, Z. Suyarov stated that the development of any country or region in the 21st century, which is called the "Information Age", cannot be imagined without

active information exchange. Of course, during the historical development of mankind, society has developed on the basis of the exchange of information and knowledge in a certain form and volume. Currently, information is becoming the most important source of people's and society's well-being, the information technology industry is the largest sector in the economy of developed countries.

Also, the content of the process of introducing information technologies in economic sectors includes:

1) having scientific, technological and high results (economic results)

2) high integration in the economy (economic activity)

3) realizing the benefits from this process at the appropriate pace (economic culture)

4) having a wide range of information and a database (information culture)

5) adapting one's knowledge and skills to economically useful and cost-effective activities (motivational aspect).

Experts say, "The world practice shows that the development of information and communication technologies has the main factor in increasing the country's competitiveness, collecting and summarizing large flows of information, and creating ample opportunities for organizing management at a strategic level. At the moment, more than 5.5% of the gross domestic product created in the world is accounted for by information and communication technologies. According to experts, this indicator will exceed 9 percent in 2020.

In modern conditions, the sources of information and the processes of applying information technologies in the economy are growing day by day. There is an increase in the possibilities of information storage and transmission, rapid and modern development of the use of information technologies and communication tools in economic sectors. As a result, by collecting, processing and effectively using the billions of data around us, knowledge is being gained that is important for the current and future of the economy.

The Decision of the President of the Republic of Uzbekistan "On measures to bring the field of information and communication technologies to a new stage in 2022-2023" was signed. According to the decision, the following goals were set for the development of information technologies in our country: "to double the number of users to 4 million by involving the private sector in the provision of electronic government services; Increase the export volume of IT services to 100 million dollars; by developing personnel training activities in the field of digital technologies in the form of distance education, to enable the education of more than 6.5 thousand young people per year in the field of information technologies; introduction of more than 214 information systems and software products in state bodies, including local government bodies, and enterprises in the real sector of the economy."

The application of information and communication technologies, their effective use, and full coverage of all areas are becoming stronger in the current economic systems. As a result of information technologies and the opportunities created by them, appropriate organizational and methodical processes are being carried out in order for the employees working in the economy to learn information technologies on time and apply them in production activities.

As a result of the daily development of information technologies, their effective use in the economy, the modern knowledge, consciousness and outlook of the personnel working in the economic sectors are also changing. Now, the vices of carelessness, laziness, delaying the completion of relevant work, and complacency have disappeared and their place has been replaced by advanced ideas such as initiative, innovation, creativity, and creative perfection based on freedom and independence is being formed.

Korean professor Jinwon Ho said that "big data is not a technology, but a treasure for cooperation with new technologies such as artificial intelligence, product internet, and the important thing is to be able to use it. It is possible to obtain knowledge and obtain necessary information from extremely large and complex data, and such information, in turn, leads to the discovery of new laws and philosophical views. Information becomes knowledge, changes our lives, defines strategy, determines the direction of choice, other sciences and technologies help to implement social research.

Conclusion. Today's essence of the introduction of information technologies to the economic sectors and the priority tasks of the formation of its social character are the following:

- improvement of the use of modern information technologies by wide sectors of the economy, entrepreneurs, businessmen, businesses and manufacturers on a more modern basis;

- full access to the world information space to support all-round economic integration processes in the international economic relations, transport and logistics system;

- development of the regulatory legal framework in order to improve the use of information technologies in the system and increase its efficiency in order to develop the national economy;

- effective formation of scientific and innovative research and digital economy in economic sectors, development of socially significant ICT programs in business and consulting.

- effective provision of information security in order to operate all systems of the economy on a stable basis and formation of the potential of qualified personnel in this regard.

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UDC: 330

MANAGING WELL-BEING VALUES OF KNOWLEDGE WORKERS – IMPORTANCE OF AUTONOMY AND ACADEMIC FREEDOM

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Annotasiya. Quyidagi muhokama aqliy mehnat xodimlariga ta'sir ko'rsatadigan ba'zi omillarning ahamiyatiga, bu erda akademik xodimlarning farovonligi va mahsuldorligi nuqtai nazaridan, avtonomiya va akademik erkinlikka urg'u berilgan. Muhokama O'zbekiston institutlari ilmiy xodimlarini rag'batlantirishga qaratilgan kadrlar siyosatini ko'rib chiqishni taklif qiladi.

Kalit so'zlar: farovonlik, aqliy mehnat xodimlari, bilim xodimlari, qadriyatlar

Аннотация. Приведенный ниже дискурс посвящен важности определенных факторов, влияющих на работников умственного труда, в данном случае на академический персонал, с точки зрения их благополучия и продуктивности, с акцентом на автономию и академическую свободу. Обсуждение предлагает рассмотреть кадровую политику, направленную на мотивацию профессорско-преподавательского состава вузов Узбекистана.

Ключевые слова: Благосостояние, работники умственного труда, ценности

Abstract. The discourse below dives into the importance of certain factors impacting knowledge workers, here Academic staff in terms of their well-being and productivity, with an emphasis on autonomy and academic freedom. The discussion invites to consider the human resource policies aimed at motivating the Academic staff at the institutions of Uzbekistan.

Keywords: Well-being, knowledge workers, values

Introduction. Academic staff, including professors and researchers, play a crucial role in advancing knowledge and educating the next generation of scholars. To do so effectively, they need to uphold their well-being values, among which are autonomy and academic freedom to pursue their research and teaching interests without fear of censorship or interference. The discourse below explores the importance of autonomy and academic freedom for academic staff, drawing on relevant literature.

Literature review. The demands of academic profession can be overwhelming, accompanied by decrease motivation and high rates of burnout (Jaremka, et al. 2020). To construct proper motivation schemes for academia it is important to recognize the well-being values academics hold in high regard. Understanding the values navigate toward proper human resource policies and well-being practices at work, anywhere in the world, including the context of Uzbekistan. Below we present the discussion of some the values impacting the well-being of Academics internationally.

To start from, achieving a work-life balance is crucial for academics and professors (Crabtree S. et al, 2021)). These individuals often work long hours, and it is

essential to have a flexible work arrangement that allows them to manage their time effectively. Many academics value the ability to work remotely, which allows them to spend more time with their families or pursue other interests outside of work.

Another important value for academics and professors is intellectual challenge (Dallin S, 2015). These individuals thrive on intellectual stimulation and the opportunity to engage in challenging research and teaching activities. The pursuit of knowledge is a driving force for many academics, and they value the opportunity to explore new ideas and concepts.

Workplace culture is another important factor that affects the well-being of academic staff. A toxic workplace culture can lead to stress, anxiety, and depression among academic staff. On the other hand, a positive workplace culture that promotes collaboration, respect, and support can improve their well-being.

Another important value for academics and professors is intellectual challenge (Dallin S, 2015). These individuals thrive on intellectual stimulation and the opportunity to engage in challenging research and teaching activities. The pursuit of knowledge is a driving force for many academics, and they value the opportunity to explore new ideas and concepts.

Another important factor for academics and professors is collaboration (Abramo et.al 2019). There are research findings that indicate academics valuing teamwork and appreciate working in an environment that promotes knowledge sharing and encourages collective problem-solving. Collaboration allows academics to learn from their colleagues and develop new ideas that can advance their respective fields. Recognition and appreciation are also critical values for academics and professors. These individuals want to feel valued and appreciated for their contributions. Feedback and recognition from their colleagues, students, and university administration can go a long way in promoting their well-being. Continuous learning is another value pursued by academics; thrive on learning and developing new skills. They value opportunities for professional development and growth, which can help them stay up-to-date with the latest trends and developments in their respective fields.

Autonomy

Autonomy is another value that academics and professors hold in high regard (Amarasena T. et al, 2015). To start with, defining autonomy: Autonomy refers to the ability of academic staff to make decisions about their work independently, without undue influence from external sources (Deci, Koestner, & Ryan, 1999). There are several reasons why it has an impact on their motivation and well-being. First, it allows academic staff to pursue their research interests and teaching methods without being constrained by external pressures, such as funding requirements or administrative mandates. This freedom to pursue one's interests can lead to more innovative and impactful research and teaching.

Second, there is evidence that from early to up to date studies that autonomy can increase job satisfaction and motivation among academic staff. A study by Kreis, Kathleen; Brockopp, Young (1986) found the need of autonomy can be labeled as important factor impacting job satisfaction. It can be concluded that providing opportunities for professional development and autonomy can increase job satisfaction among teachers. Similarly, Deci et al. (1999) found that autonomy is a critical factor

in intrinsic motivation, which refers to motivation that comes from within oneself rather than from external rewards or pressures. When academic staff feel that they have control over their work and are free to pursue their interests, they are more likely to be motivated and engaged in their work.

Analysis and results. Academic freedom is another important aspect of autonomy for academic staff. Atbatch (2001), concludes academic freedom to be the central value of higher education. It affects the academic profession in all aspects of academic work. Now there can be various interpretations of academic freedom. American Association of University Professors (1940) for instance, had defined as academic freedom refers to the ability of academic staff to pursue their research and teaching interests without fear of censorship or interference from external sources.

For the case of Uzbekistan, no formal definition for the term was found. As Uzbekistan is rapidly developing and opening up to more variety of educational institutions, it may be the time to raise the awareness and formally define the terms within the confines of relevant human resource managers at the very least. Academic freedom is important because it allows academic staff to pursue controversial or unpopular topics without fear of retribution or retaliation. This freedom is essential for the advancement of knowledge and the promotion of critical thinking, particularly in the developing economies.

Academic freedom also allows academic staff to challenge existing paradigms and assumptions, which can lead to new insights and discoveries. As we all recall, the case of Galileo Galilei's who challenged to the geocentric model of the universe and the retaliation he went through relating to public authority's being unforgiving of his wording. His discoveries of the heliocentric model nevertheless have revolutionized astronomy. Without academic freedom, such challenges to established ideas may not be possible.

However, it important to state the limitations of academic freedom and stating that it is not absolute. Academic staff have a responsibility to conduct their research and teaching in an ethical and responsible manner, and to respect the rights and dignity of others. Academic freedom does not give academic staff the right to engage in hate speech, discrimination, or other forms of harmful behavior.

To sum up, it is imperative, the well-being values of academics and professors are essential for their overall well-being, motivation and performance. Intellectual challenge, work-life balance, autonomy, collaboration, recognition and appreciation, continuous learning, and academic freedom are all critical values that these individuals hold in high regard. By recognizing these values, organisations can help create a supportive environment that promotes the well-being of academics and professors.

The challenges facing academic staff in Uzbekistan may be similar to those faced by academic staff internationally. There is insufficient research regarding the topic to draw conclusions on. More investigation is planned to be conducted relevant to the field in Uzbekistan. However, given the information currently available there are also opportunities to improve their well-being. Among such are investing in professional development and training, work-life balance, recognition and appreciation along with recognizing the values listed above can help human resource managers of Academic

Institutions to build proper policies leading to a greater job satisfaction and better mental health of their academic staff.

Conclusions: To draw upon our emphasis of the discourse: autonomy and academic freedom are essential for academic staff to pursue their research and teaching interests effectively. No formal accepted definition of academic freedom was found for the case of Uzbekistan, which is being recommended to be revised. Autonomy allows academic staff to make decisions about their work independently, which can increase job satisfaction and motivation. Academic freedom allows academic staff to pursue controversial or unpopular topics without fear of interference, which is essential for the advancement of knowledge and the promotion of critical thinking. However, academic freedom comes with responsibilities, and academic staff must conduct their work in an ethical and responsible manner.

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INQUIRY-BASED LEARNING HISTORY AT A GLANCE

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Annotatsiya. Bugungi kunda ta'lim sohasida xususan chet tillarni yangi metodlar yondashuvlar asosida o'qitish davr talabi hisoblanadi. Shunday metodlardan biri so'rovga asoslangan ta'lim (IBL) dars jarayonida qo'llaniladigan zamonaviy yondashuvlardan biri hisoblanib, o'quvchilarda nafaqat so'rab o'rganish balki tilni o'rganishga bo'lgan ishtiyoqni ham oshiradi. Ushbu maqolada so'rovga asoslangan ta'limning nazariy va amaliy asoslari haqida fikr yuritiladi.

Kalit so'zlar: So'rovga asoslangan ta'lim, talaba mustaqilligi, izlanish, savollar.

Аннотация. В настоящее время появляются новые методы обучения для решения проблем, связанных с многочисленными изменениями в современную эпоху, которые предъявляют значительные требования к учителям и воспитателям. IBL — это метод преподавания и обучения, в котором основное внимание уделяется использованию вопросов в качестве отправной точки для обучения. В данной статье рассматриваются теоретические и практические основы исследовательского образования.

Ключевые слова: Исследовательское обучение, самостоятельность студента, исследовательский процесс, вопросы.

Annotation. New methods of teaching are currently emerging to meet the challenges posed by the numerous changes in the modern era, which have placed significant demands on teachers and educators. Due to its deeply rooted, inquiry-based learning (IBL) can be seen of as a viable method for overcoming obstacles in a variety of efficient ways. IBL is a method of teaching and learning that emphasizes the use of questions as a starting point for learning. Through hands-on activities carried out by students themselves with teachers' support on the side, learners are immersed in the process of generating and posing questions to find the truth, information, or knowledge.

Key words: Inquiry based learning, student independence, research process, questions.

"If we teach today's students as we taught yesterday's, we rob them of tomorrow." -
John Dewey

Introduction. How can educators get today's students ready for the future? Teachers have the difficult task of ensuring that their pupils acquire the knowledge and skills necessary to function in the rapidly changing world of today.

Although there is no single "recipe" for attaining these objectives, inquiry-based learning may be a viable option. As a result, this thesis is concerned with a technique known as inquiry-based learning. It is a method of learning in which pupils explore, experiment, and research topics that are of interest to them. When students are able to explore and are engaged, they become more involved in the process, which promotes learning. The method is based on discovery learning, and the teacher serves as a

facilitator, learning alongside pupils rather than providing immediate answers and solutions. Even while inquiry-based learning is well-known in other areas, particularly science and history, it is gradually making its way into the language teaching domain and has the potential to be effective.

Humans are naturally inquisitive; from infancy, they are always asking questions to make sense of their surroundings, learn about the world they live in, and even figure out how everything works.

They become active learners in a constant hunt for new information as a result of their persistent enquiring - asking questions. When trying to figure out how and why things work the way they do, inquiries frequently lead to further questions.

Inquiry can be defined as a way of looking at the world while questioning, it is the attitude people take when they seek to learn something new. Almost everyone has experienced the feeling of truly being interested in something, it drives us to keep looking for as much information as possible, and be completely emerged in the pursuit of new facts thanks to wanting to know more, our deep interest is the element that helps us to reveal and remember those facts afterward.

Literature review and methodology. The IBL approach is often connected with John Dewey (1859 – 1952), the American philosopher and educationalist, who first suggested that IBL be applied in science subjects in 1910 (Barrow, 2006). He explained that the role of the teacher is to guide and facilitate tasks for students. On the other hand, learners have to be highly engaged in the process of learning. The model that Dewey recommended "was the basis for the Commission on Secondary School Curriculum" in 1937. When IBL emerged by Dewey, it was defined in many ways and has become popular in the education field. Renzulli (2015) stated that teaching science has to represent the science practiced in the era. Thus, he supported the idea that those learners should go through hands-on experience in a lab, but not after they study a coursebook. He thought it enables learners to "ask questions and begin the process of collecting evidence and constructing explanations".

Inquiry-based learning is a didactic principle in higher education that relies on student independence: learning by conducting their own research. (Mieg, 2018) Most institutions of higher learning use the definition of inquiry-based learning developed by Ludwig Huber (2009) as a working definition:

In contrast to other learning methods, inquiry-based learning is characterized by the fact that learners shape, learn and deliberate on the process of a research project, which is aimed at obtaining insights that are of interest to third parties, doing so throughout all the essential phases of said project; from developing questions and hypotheses, selecting and implementing the methods, through testing and presenting the results, either by working independently or in active collaboration with an overarching project.

This definition highlights three characteristics of inquiry-based learning: firstly, students should go through the entire research process; secondly, the results should have some degree of value in terms of novelty, and not just for the students themselves; thirdly, inquiry-based learning should be conducted independently.

Inquiry-based learning is a learner-centered exploratory method that encourages a high level of student involvement and employs inductive learning techniques,

problem-solving activities. One of the goals of inquiry-based learning is to achieve meaningful learning, give learners possibilities to learn how to think, and learn strategies how to learn while at the same time develop multiple skills that function "as active processors, independent and critical for knowledge construction" (Arauz,2014). IBL promotes active learning in which students participate in investigating new concepts by asking questions, exploring materials, analyzing the explored and collected data.

Lee (2014) claims that inquiry-based learning is "a pedagogical approach as well as learning strategy". This definition is supported by Gomez (2017) who adds that as a pedagogical method it intends to help learners develop skills such as problem-solving when facing real-life situations, that inquiry-based learning as a pedagogical approach opposes the traditional teaching methods, specifically the notion of repetition and accumulation of conceptual knowledge. Traditional approaches are contrasted with IBL also by the direct instruction that builds factual knowledge by means of highly structured teachers' guidance and explicit exposition to learning content. However, it is not an inflexible methodology or an array of procedures, it encompasses an overall mindset that permeates school life to cultivate a culture of collaboration and thinking improvement (Chiarotto, 2011).

Analysis and results. Inquiry-based learning is a circular process that heads to higher-level understanding in which the teacher or the learner chooses a question or a topic that is consequently explored through numerous sources of information with the goal of seeking the answers, these discoveries are then shared with other participants, and in the end, the whole process is reflected while giving possibilities to discussing further topics, questions, and wonderings (Bowen, Smith, 2016).

One of the benefits of IBL is that the activities used in such learning develop not only learning skills but also advocate lifelong learning and foster metacognitive awareness (Caputo, 2014). Metacognitive awareness means that individuals are aware of how they think, which enables learners to be mindful of what they do and why, and furthermore, how the skills they are learning might be utilized variously in different situations (Jaleel, 2016).

IBL is not only about asking and answering the questions and getting the right answers through several sources. The journey as a whole is significant and according to Kuhlthau (2007), it also contains different parts of the pursuit of the solutions, including research, exploration, and study. Hattie (2010) characterizes inquiry-based teaching as the "art of developing challenging situations in which students are asked to observe and question phenomena" (Hattie, 2010), at the same time the students should provide explanations of what they are observing, in science subjects, they usually create and perform experiments whose date support or disprove their initial theories. Therefore, IBL allows learners to engage in discovery, in an investigation of resources, and in looking for solutions. Learners can think deeply about their learning through getting their minds about something and looking closely; what helps them in this quest is having time to explore concrete concepts, so that they can apply these concepts to abstract ones (Beltran., 2013).

Perry and Richardson (2001) define IBL as a process of meaningful and valuable knowledge creation from knowledge at hand by asking questions, drilling, and

analyzing information. This method presupposes that learning relies on research. "The teacher as a facilitator provides guidance and support for students, getting them involved in the learning process as they play an active and participatory role" (Renau, 2016,). Other scholars specify that inquiry-based approaches are "one of many instructional approaches that use meaningful tasks such as cases, projects, and research". Learners come to new experiences with the ideas already formed from earlier thinking and experiences through their inquiry. Students learn something about specific content, but more importantly, they develop an understanding of similar events by linking past and new experiences. They work in collaborative and cooperative groups to identify what else they need to learn to solve a problem and gain necessary research skills. Moreover, students are at the center of the learning experience and take ownership of their learning. The teacher's role in IBL is to guide students and promote thinking and curiosity.

Conclusion. To summarize, inquiry lessons are frequently organized in stages that include opportunities for learners to pose questions, become engaged in the topic of the lesson, interact with various resources in an exploratory manner, explain and elaborate on their findings, and finally evaluate the entire process. To successfully conduct inquiry classes, teachers must be aware of their duties, assist learners in understanding their roles, and provide appropriate assistance throughout inquiry lessons. Aside from that, educators must create well-structured lesson plans and have a good understanding of how to analyze such a method of learning.

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SELF-MANAGEMENT OF STUDENTS OF HIGHER EDUCATION INSTITUTIONS

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Annotatsiya: Ushbu maqolada oliy ta'lim muassasasi talabalarining o'zini-o'zi boshqarishi Germaniya tajribasi misolida talabalarning o'z-o'zini boshqarishni tashkil qilishning xorijiy tajribasini o'rganish xaqida fikr yuritilgan.

Kalit so'zlar: Nemis tadqiqotchilari, o'z-o'zini boshqarish, Germaniya OTMlari, ijtimoiy birlashmalar (uyushmalar).

Аннотация: В данной статье рассматривается студенческое самоуправление вузе (на примере немецкого опыта), то есть изучение зарубежного опыта организации студенческого самоуправления.

Ключевые слова: педагогическая деятельность, творческие способности, теоретические знания, квалификационная практика.

Abstract: This article discusses the study of student self-management of higher education institutions (as an example of the German experience), that is, the study of foreign experience of organizing student self-management.

Key words: German researchers, self-management, German HEIs, social associations (associations)

Introduction. In the field of pedagogy, it is important to study the foreign experience of organizing student self-management in order to distinguish the aspects of interest for the leaders of HEIs and student self-management in Uzbekistan.

Germany is one of the centers of world science and culture. This country is world-famous for its centuries-old scientific schools, scientists and artists such as Goethe, Hegel, Beethoven, Nietzsche, and Einstein. Internationally recognized German educational institutions pay special attention to the formation of independent thought and a broad outlook. New methods applied to the educational system are very difficult for those who do not use the latest information technologies effectively. In a society that is rushing towards the destination of development, it is impossible to have a place without knowledge. By the way, the characteristics of iron discipline and unanimity characteristic of Germans are also formed in educational institutions.

Literature review. The issue of student self-management in German higher education institutions is considered by German researchers under the following thematic blocks:

- historical-pedagogical conditions of the formation of student corporations and associations as a basis for the development and formation of student self-government in Germany (H. Bartsch, I. Birnbaum, D. K. Jarausch, A. Kurth, etc.);

– normative and legal basis of student organizations with charters and governing bodies (E. Denninger, K. Jarausch, O. Jauch, H. Zinn, etc.);

- Academic self-management of HEIs and student self-management within the framework of scientific freedom and democracy (O.A. Keller, P. Pasternak, U. Preub, etc.);

- practice of student representatives (H. Buck, H. Bart-sch, W. Damkowski, T. Denninger, K.D. Deumeland, Ch. Habermann, A. Keller, H. Kruger, U S. Peters, Preub, U. Rohvedder and others);

– student movement, initiatives and student self-management (W, Hardwig; J. Schutte);

- social foundations of student self-management (F. Baumeister, J. Habermas, S. Kiel, A. Mutius).

The study of the issue shows that the self-management of German students is designed to develop a more socio-economic and legal basis, which is given more freedom in the independence of self-management.

Analysis and results. Determining the characteristics of the development of student self-management in German higher education institutions in this study requires us, first of all, to study the nature of student self-management in the above-mentioned country.

"Essence" in philosophy is usually defined in the external appearance of the existence of science, and its internal content is understood. Essence is the main, basic determinant in science, it is specific properties, connections, contradictions and tendencies that develop the object.

German pedagogues believe that there is no student without talent. Accordingly, they strive to discover the undiscovered aspects of the student, to educate them in the spirit of innovation and invention. "If I think, then I live!" says the famous philosopher René Descartes. In German schools, this proverb is accepted as the golden rule. Educators first of all aim to achieve the student's independent opinion, even if it is a mistake. And the educational process relies on the integral cooperation between parents and teachers. Let's analyze the concept of "self-management".

German mentality Gerhard Warig's German dictionary defines self-government as follows: "Self-government is the performance of state functions by corporations (associations);

-trade unions and others, which are recognized by the state:

-self-management with communities, universities. In addition, "self-management

1. Participation of citizens in the implementation of state functions.

2. Independence of public associations (communities) in performing state duties under their personal responsibility.

Germany has more free higher education than any other European country. Foreigners can also study in German universities on the basis of non-state funds and government grants. As we mentioned above, young people who have graduated from local gymnasiums and received a certificate of honor enter universities without exams. Foreigners take a German language test to enter the university. In universities, the bachelor's degree lasts up to four and a half years, the master's degree lasts from one to four years, and the doctoral degree lasts from two to five years. Usually, undergraduate and graduate students take a state exam and defend a dissertation at the end of their studies. A student has the right to choose the winter or summer academic term for studying. The summer season is April-September, and the winter season is October-March. Germany is home to ancient universities such as Heidelberg, Cologne, Freiburg, Tübingen. Heidelberg University, founded in 1386, is included in the list of the most prestigious higher education institutions of the old continent. Entering this university was a dream of European nobles in the Middle Ages. The prestige of this university, which is located in the beautiful city of Heidelberg, Germany, is still high. World-known scientists such as Hegel and Jaspers, as well as about ten Nobel Prize winners, grew up here. The university prepares strong personnel in the fields of jurisprudence, biology, chemistry, and medicine. 12% of the 25,000 students studying here are foreigners. The Ludwig-Maximilians-Universität in Munich provides Europe with the best specialists in medicine. Currently, 45,000 students are studying in the educational institution with a five-century history. Vocational higher schools or institutes, as a unique link of the German education system, provide specialists in the fields of engineers, economists, designers, mechanical engineering, production, information technologies, and healthcare. According to data, about 2 million students, including 246,000 foreigners, are studying in more than 370 higher education institutions in Germany. We will analyze the concept of "self-management" as a characteristic of the German mentality. Gerhard Warig's German dictionary defines self-government as follows: "Self-government is the performance of public functions by state-recognized corporations (associations), partnerships and other associations, self-governing non-profit organizations. execution. This right is guaranteed in Article 28 of the Basic Law of the GFR. Self-governing associations include universities, social carriers, industry, trade.

The culture of student self-management is created with the help of students and public opinion. Culture also includes common goals, the history and development of student self-management. As I. Kant wrote, "all achievements that serve as a school

for a person in culture have as their goal the application of acquired knowledge and skills in life".

Communication as a process of interaction plays a special role in students' self-management. This is information and information exchange between students, some groups, professors and teachers and other public organizations. Communication serves as a necessary tool in coordinating student self-management activities. Communication is based on cooperation and dialogue with the management of HEIs, other government and public bodies.

The analysis of the content of student self-management in German HEIs based on methodological approaches such as systematic-structural and comparative allowed to make a general comment on the self-management of students in German HEIs.

First, student self-management in German HEIs is a method of introducing students to socially necessary activities in order to develop their social activity, initiative, and independence. Secondly, the integrative form of creative activity in the educational policy of HEIs to the economic, social and cultural spheres of German students' life. Thirdly, the conditions for the acquisition of cultural values and their subsequent re-creation.

Conclusion. It should be said that in German higher education institutions, students are formed in self-management, controlled by the external and internal environment, in order to solve their vital issues as a determinant of self-management, as a social community. under their responsibility is the self-management of student affairs and the student itself, which is constantly developing in accordance with the requirements of modern German society.

So, we can assume that the concept of "self-management in an educational institution" in German society is a social institution recognized by the state, social relations regulated by normative documents, in the development, acceptance and implementation of state and social tasks. monitoring of citizens' participation in the implementation of the government based on the representatives of the relevant bodies participating in the increase.

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METHODS AND MEANS OF ORGANIZING THE EDUCATIONAL PROCESS DURING THE INTRODUCTION OF SMART TECHNOLOGIES IN THE HIGHER EDUCATION SYSTEM

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Annotasiya. Maqolada oliy ta'lim tizimida Smart-texnologiyalarning imkoniyatlari ko'rib chiqilgan. Oliy ta'lim tizimida Smart-texnologiyalarni joriy etish jarayonida loyihaviy o'qitish, keys-texnologiya, Internet- texnologiya, mobil o'qitish texnologiyasi, shuningdek veb – kvet texnologiyalaridan foydalanish imkoniyatlari tavsiflangan.

Kalit so'zlar: Smart-texnologiya, kompetentlik, loyihaviy o'qitish, keys-texnologiya, Internet-texnologiya, mobil o'qitish texnologiyasi, veb – kvet texnologiyasi, ta'lim texnologiyasi.

Аннотация. В статье рассмотрены возможности Smart-технологий в системе высшего образования. Описаны возможности технологий проектного обучения, кейс-технология, Интернет технологии, технология мобильного обучения, а также технология веб – квет в процессе внедрения Smart-технологий в систему высшего образования.

Ключевые слова: Smart-технология, компетенции, проектное обучение, кейс-технология, Интернет-технология, технология мобильного обучения, технология веб – квет, образовательные технологии.

Abstract. The article discusses the possibilities of Smart technologies in the higher education system. The possibilities of project-based learning technologies, case technology, Internet technology, mobile learning technology, as well as web quest technology in the process of introducing Smart technologies into the higher education system are described.

Keywords: Smart technology, competencies, project training, case technology, Internet technology, mobile learning technology, web quest technology, educational technologies.

Introduction. Currently, one of the foremost tasks of higher educational establishments is to provide a high point of training of specialists and the formation of a personality ready to make socially responsible decisions in a society, ready for innovative career advancement and professional growth.

The education system today offers a remarkable selection of technologies and teaching aids that can provide a sufficiently high standard of education that meets the challenges of modern society. One of the modern educational platforms providing a high level of training is "Smart – technologies" [1].

Smart - technologies are moving into the category of priority ones, which are able to establish the next stage of the progress of society after the information one [2].

The word Smart (smart) in translation from English means "clever". When people talk about Smart, they are talking about the paradigm of development and formation of a new society.

The uniqueness of Smart technologies lies in the fact that all teaching aids are technically based on a single educational information platform and their use allows the teacher to develop an author's digital teaching resource. Such resources are aimed at creating an innovative model of the academic process, creating conditions for the formation of universal pedagogical activities in the process of using Smart technologies.

An analysis of the scientific literature has displayed that a number of didactic and methodological issues related to the implementation of the pedagogical capabilities of Smart technologies remain insufficiently developed. Thus, until now, the ways of using modern methods and teaching aids used in Smart-learning have been out of the field of view of researchers. Meanwhile, these issues occupy a large place in the professional activities of a modern teacher. One of the most important tasks of Smart-learning, in our opinion, is the choice of methods, forms, as well as means of organizing the teaching process that ensures the quality of education.

Literature review. In recent years, many studies have appeared in the scientific literature or academic work on Smart technologies in education. The description of the process of using Smart-technologies in the education system was carried out by such scientists and lecturers as: N.V. Tikhomirova, E.S. Aletdinova, M.P. Lapchik, A.A. Melnichenko, A.V. Nesterov, E.A. Molchanova, E.S. Belova, L.S. Esina and others. Today, there are several interpretations of the concept of "Smart-technologies". N.Tikhomirova defines Smart technologies as devices that lead to the expansion of labor mobility: in education, in public service and in many other areas of employment [1].

A.Nesterov emphasizes that Smart technologies allow giving rise to educational Smart products that enable various categories of users to obtain individual education in an initiative and interactive way, namely Smart education [3]. M.Prokhorova and O.Vaganova define the concept of "Smart technology" as an innovative gadget in which the educational process takes place in an electronic environment, the Internet [4]. M.Lapchik notes that Smart-technologies are based on interaction and exchange of experience. They make unconventional changes in academic management strategies [5].

L.Esina puts forward the following components of the implementation of Smart technologies in the system of vocational training: adaptation and personalization of the process of education and upbringing; freedom of learning in an electronic reciprocal educational environment; unlimited access to data around the world [6]. The relevance of the study is substantiated. The need of society for high-class specialists who own contemporary methods and tools for the integrated use of Smart technologies is increasing and becoming a leading factor in the field of professional training of specialists.

Research methodology

As we mentioned before, the purpose of the article is to reveal the possibilities of Smart technologies in the system of higher education. To achieve this goal, it is

necessary to solve the following tasks:

- to reveal the essence of Smart-technologies in the system of modern education;

- to identify the role and place of Smart-technologies in the system of technical teaching aids;

- to determine modern methods and technical means for the implementation of Smart technologies in the education system.

The article uses the method of analysis and synthesis.

Analysis and results. Smart learning technologies are a type of pedagogical technologies that use various hardware and software tools to work with knowledge and information [7]. Currently, Smart-technologies contribute to the immersion of all subjects of the academic process in the electronic educational environment. The purpose of Smart technologies in the system of vocational education is the creation and use of information resources in accordance with the needs of the subjects of the educational process, as well as the mastery of professional competencies [8].

The main objectives of introducing Smart technologies into the educational process are:

- formation of individual electronic educational resources in order to create new competencies among students, as well as for independent study of educational material;

- creation of data resources in the course of joint activities of all subjects of the educational process;

- creating an environment for the interaction of students both among themselves and with expert communities on the Internet [9].

Smart technologies include:

- project-based learning technology - this technology is aimed at developing specific competencies in students aimed at performing professionally oriented tasks. It includes practice-oriented, simulation-game, as well as information-analytical projects.

- case-learning technology is aimed at analyzing and solving specific situations that are presented in the "case". Since e-learning is actively used in the implementation of case technologies, it can be attributed to Smart technologies. Cases, as a rule, are close to real problem situations. There are certain rules for organizing cases: a problem situation is described; a given problem situation should not have an unambiguous solution; specific data are provided that allow finding a solution to the problem; solving a problem situation should be aimed at the active use of various competencies [16].

- Internet technology - this technology involves the interaction of the subjects of the educational process on the Internet. It contributes to the transfer of knowledge of students among themselves, thereby ensuring the processes of mutual assistance and interaction. A teacher who uses Smart-technologies in his classes can use Internet technologies using the built-in Internet browser in the Smart Notebook software solution, which allows you to find, demonstrate, process and save information in the created teaching resource for a specific lesson with students.

- "Web - quest" technology - this technology allows disabled students to become full-fledged participants in the educational process. In addition, the web quest allows teacher to increase students' motivation for learning and organize learning activities in an interactive form [10].

- mobile learning technology - involves the use of the necessary information from

various electronic media.

The main technical means of implementing Smart technologies in the education system are: personal computer; keyboard and mouse; telecommunication block; Printer; projector; devices for recording (inputting) information; video and audio means; mobile devices; computer-controlled devices [11].

One of the leading functions of Smart-technologies is performed by an interactive Smart-board (Smart-board). The interactive whiteboard is a learning tool for the entire group. This is a visual resource that helps the teacher convey information using various multimedia sources, hold discussions with students and study how to get new material in more detailed form. Using an interactive whiteboard, the teacher can simplify the explanation of diagrams and help students to understand a complex problem. Smart-boards are more resistant to mechanical damage, but they have one significant drawback - it is impossible to write on them without a special stylus.

Table 1 presents the advantages of using Smart technologies in education, both for students and teachers.

Table 1

Benefits of implementing Smart technologies in teaching process

Benefits for students	Benefits for teachers
- an individual form of studying given material;	- delegation of a number of functions from the teacher to the computer;
- providing instant feedback;	- variety of work;
- individualization of the learning process;	- facilitating the management of the educational process;
- formation and development of creative abilities;	- improving the quality of education;
- flexibility of training;	- simplified knowledge control mechanism;
- unlimited access to all necessary educational resources.	- application of innovative pedagogical technologies.

Smart technologies in the vocational training system change the content of the disciplines studied. The presentation of information has direct connections to information networks, databases and forums.

Conclusions.

In the process of work, we achieved the goal:

1) The possibilities of Smart-technologies in the system of higher education are revealed. The introduction of Smart technologies in the education system provides an opportunity to choose various modern methods, forms and means of organizing the teaching process.

2) Modern Smart technologies evolve students' creative abilities and form their professional competencies.

3) The revealed possibilities of Smart-technologies necessitate their further introduction into the educational process.

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USE OF MATHEMATICAL AND COMPUTER MODELING METHODS IN CALCULATING TEXT AND GRAPHIC INFORMATION

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Annotatsiya: Ushbu maqolada Informatika fanidan mashg'ulotlar uchun dasturlash tillari yordamida matematik va kompyuterli model tuzish hamda elektron pedagogik dasturiy qo'llanma yaratish texnologiyalari haqida so'z borgan.

Kalit so'zlar: Matematik va kompyuterli modellashtirish, Dasturlash tillari, matnli axborot, grafik axborot, matnli va grafik axborotlarni kodlash, Xartli formulasi, matnli va grafik axborot hajmini hisoblash, pedagogik dasturiy vositalar.

Аннотация: В данной статье рассказывается о технологиях создания математической и компьютерной модели и создания педагогического программного пособия с использованием языков программирования для обучения информатике.

Ключевые слова: Математическое и компьютерное моделирование, Языки программирования, текстовая информация, графическая информация, кодирование текстовой и графической информации, формула Хартли, расчет объема текстовой и графической информации, педагогические программные средства.

Annotation: This article talks about the technologies of creating a mathematical and computer model and creating pedagogical software manual using programming languages for training in computer science.

Keywords: Mathematical and computer modeling, Programming languages, textual information, graphic information, coding of textual and graphic information, Hartley's formula, calculation of the volume of textual and graphic information, pedagogical software tools.

Introduction: In the theory of teaching, new pedagogical and information technologies cannot be separated from each other, because the wide introduction of new pedagogical technologies changes the educational paradigm and only modern information technologies and new pedagogical technologies ensure effective use of opportunities. [1].

Today, computer modeling technology exists, and its purpose is to speed up the process of understanding and understanding the nature that surrounds us, the phenomena that occur in it, events and changes in society by means of modern methods. Mastering computer modeling technology requires a good knowledge of computer systems (as an intermediary device) and the ability to use modeling technologies in it.

Literature review. Innovation (English innovation) means introducing something new.[2]

Introducing and adopting innovations in science requires a lot of work.

To improve the education system of our country, to use mathematical and computer modeling methods that increase the interactivity of the educational process in the organization of teaching, the concept and theory of computerization, the use of computer and information technologies in the educational process, the scientists of our Republic A.A.Abdukadirov, M.M.Aripov, U.Sh.Begimkulov, F.I.Zakirova, N.A.Muslimov, H.T.Olimov, R.H.Hamdamov, M.Kh. Lutfullaev, Sh.S.Sharipov, N.I.Tailakov, O.H.Torakulov, J.A.Khamidov, S.K.Tursunov, M.Fayzieva, N.Khaytullaeva and others conducted scientific research. Also, A.A.Andreev, N.V.Apatova, V.V.Dovgan, E.S.Polat, I.V.Robert, E.G.Skibitsky and I. Allen, N.Jennifer, M.Prensky, S.Robert, R.Porter, L.Breeman, A.T.Collins, R.Sears, A.Smith, F.Tendbrook, K.Franco and others have covered a number of problems related to information and modeling in their scientific works.

Research methodology. Information, like many other concepts (for example, time, work, temperature, distance, etc.) is measured. But its unit of measurement is

different from the units of measurement that you are familiar with in mathematics or physics.[3]

Calculating the information volume of a text message (the amount of information contained in an information message) depends on the number of symbols in this message, including spaces, and determining the information weight of one symbol, which is used in the transmission and storage of this message.

In conventional encoding, 1 byte (8 bits) is used to encode one character. This value is the information weight of one character, and an 8-bit code allows us to encode 256 different characters, because we know that $2^8 = 256$.

Currently, the new international standard Unicode, which allocates two bytes (16 bits) for each character, is widely used. It can be used to encode $2^{16} = 65536$ different characters.

Hartley's formula or Hartley's measure is a logarithmic measure of information that determines the amount of information contained in a message:

$$I = \log_2 N$$

Here N is the number of characters in the used alphabet (alphabet strength), I is the weight of the character in a bit.

Thus, the formula $V = a * i$ is used to calculate the information volume of a text message, where V is the size of the text message measured in bytes, kilobytes, megabytes; a is the number of characters in the message, i is the information weight of one character measured in bits.

We give examples of problem solving.

Example 1. There are 32 letters in the alphabet. How much information does one letter have?

Solution:

The strength of the alphabet is N = 32;

I is the weight of one sign;

$N = 2^i$ according to Hartley's formula $32 = 2^5$, i=5 means the weight of one symbol;

Answer: 5 bits.

Yechish:

Alfavitning kuchi N = 32;

I – bitta belgi og'irligi;

$N = 2^i$ Xartli formulasiga ko'ra $32 = 2^5$, i=5 bitta belgining og'irligini anglatadi;

Javob: 5 bit.

Example 2. A message written with letters of the 16-character alphabet consists of 10 characters. How much information does it contain in a bit?

Solution:

The strength of the alphabet is N = 16;

i - weight of one symbol;

$N = 2^i$ according to Hartley's formula 16 = 2 4, i=4 means the weight of one symbol;

Text consists of a=10 characters;

Information size V=a*i=10*4 bits=40 bits;

Answer: 40 bits.

Example 3. A 300-bit informative message consists of 100 characters. What is the power of the alphabet?

Solution:

Text consists of a=100 characters;

Information volume V=a*i=300 bits

i is the weight of one character i=300/100=3 bits

The strength of the alphabet is $N = 2^i$ according to Hartley's formula

$$N = 2^3 = 8$$

So the answer is: 8.

Analysis and results. We focus on the above issues when working with textual information. For these types of issues, we can recommend developing a convenient software product in the C++Builder programming environment.

The following electronic software product in the C++Builder programming environment is effective for students to obtain the result based on the given parameters of the problem to be solved and compare it with their own results:

The program and code of the electronic development being created in the C++Builder programming environment will look like this:

```
#include <vcl.h>
#pragma hdrstop
#include "Unit2.h"
#include "Math.h"
#include "Unit1.h"
//---------------------------------------------------------------------------
#pragma package(smart_init)
#pragma resource "*.dfm"
TForm2 *Form2;
//---------------------------------------------------------------------------
__fastcall TForm2::TForm2(TComponent* Owner)
    : TForm(Owner)
{
}
//---------------------------------------------------------------------------
void __fastcall TForm2::Button1Click(TObject *Sender)
{ float a,b;
a=StrToFloat(Edit1->Text);
b=log(a)/log(2);
Label1->Caption=FloatToStr(b);
}
//---------------------------------------------------------------------------
void __fastcall TForm2::Button2Click(TObject *Sender)
{
 float a,b,c;
a=StrToFloat(Edit1->Text);
c=StrToFloat(Edit2->Text);
```

```
b=log(a)/log(2)*c;
Label2->Caption=FloatToStr(b);
}
//---------------------------------------------------------------------------
void __fastcall TForm2::Button3Click(TObject *Sender)
{ Form1->Visible=true;
  Form2->Visible=false;
}
//---------------------------------------------------------------------------
void __fastcall TForm2::Button4Click(TObject *Sender)
{
Edit1->Text=" ";
Edit2->Text=" ";
Label1->Caption=" ";
Label2->Caption=" ";
}
//---------------------------------------------------------------------------
```

The appearance of the form representing the result is as follows:
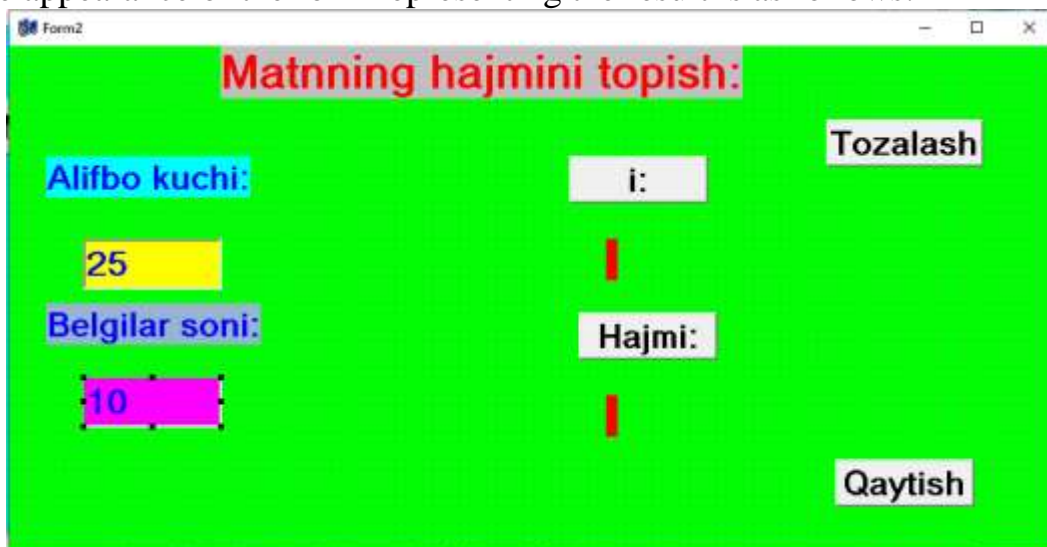
Now let's think about the second issue - working with graphic information.

The concept of graphic information is covered during the study of computer science in higher education institutions. A special RAM that creates a graphic image is video memory. In other words, to get a picture on the monitor screen, you need to save it somewhere. Video memory is required for this.

The size of the video memory is calculated according to the following formula: $V=I*X*Y$ in the buyer, I is the color depth of one point, X,Y are the horizontal and vertical screen dimensions (the product of x and y is the screen size).

In working with graphic information, several types of issues are studied. We are engaged in solving such problems and creating educational software for them.

Issue 1. The screen resolution of the monitor is 1024x768 pixels, and the color depth is 16 bits. What is the amount of video memory required in this graphics mode?

Solution:

Total points on screen: 1024 × 768 = 786432

The amount of video memory required is 16 bits × 786432 = 12,582,912 bits = 1,572,864 bytes = 1536 KB = 1.5 MB

A: This graphics mode requires 1.5 MB of video memory.

Issue 2. Black and white (no gray color) bitmap graphics size 10x10 points. How much memory does this image take?

Solution:

1. Number of points – X*Y=10*10=100

2. Only two colors are black and white. Number of colors N=2 and color depth r= 1 from $N = 2^i$;

3. According to the formula $V = r * X * Y$, the size of the video memory is V= 1*10*10 bits = 100 bits.

Answer: 100 bits.

Issue 3. How much video memory is needed to store four sheets of an image, if the bit depth is 24 and the display resolution is 800 x 600 pixels?

Solution:

1. We find the amount of video memory on one page: 800 * 600 * 24 = bits = 1440000 bytes = 1406.25 Kb ≈1.37 MB
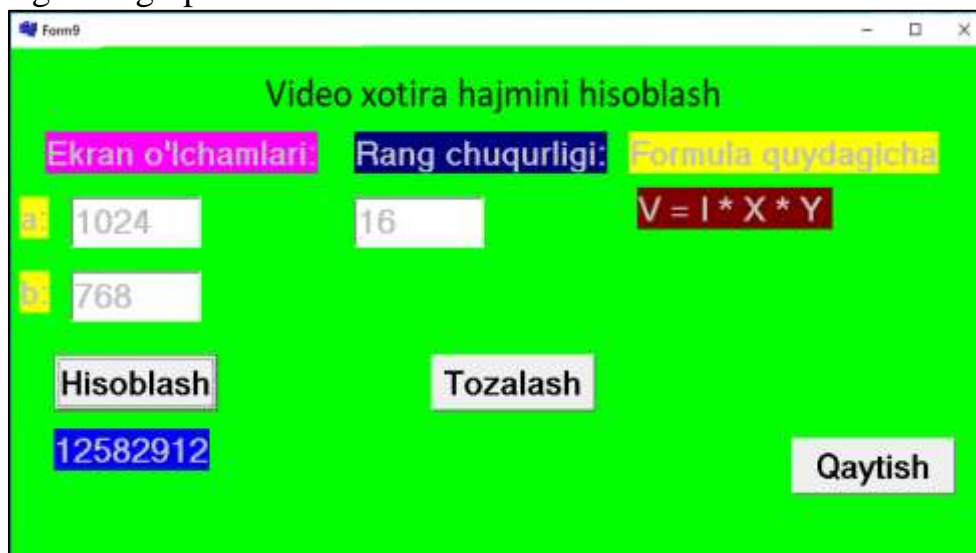
2. 1.37 * 4 = 5.48 MB ≈ 5.5 MB to store 4 pages.

Answer: 5.5 MB.

We use the C++Builder programming environment to create a software product that outputs results for problems of this type.

We recommend the following software in the C++Builder programming environment for the calculation of information volumes:

Here we will create a form as follows for calculating the size of video memory when working with graphic information:

Program text:
```
//---------------------------------------------------------------------------
#include <vcl.h>
#pragma hdrstop
#include "Unit9.h"
#include "Unit8.h"
```

```
//-------------------------------------------------------------------
#pragma package(smart_init)
#pragma resource "*.dfm"
TForm9 *Form9;
//-------------------------------------------------------------------
__fastcall TForm9::TForm9(TComponent* Owner)
      : TForm(Owner)
{
}
//-------------------------------------------------------------------
void __fastcall TForm9::Button1Click(TObject *Sender)
{int a,b,c,v;
a=StrToInt(Edit1->Text);
b=StrToInt(Edit2->Text);
c=StrToInt(Edit3->Text);
v=a*b*c;
Label6->Caption=IntToStr(v);
}
//-------------------------------------------------------------------
void __fastcall TForm9::Button3Click(TObject *Sender)
{Edit1->Text="";
 Edit2->Text="";
 Edit3->Text="";
 Label6->Caption="";
}
//-------------------------------------------------------------------
void __fastcall TForm9::Button2Click(TObject *Sender)
{Form8->Visible=true;
 Form9->Visible=false;
}
//-------------------------------------------------------------------
```

Conclusions and suggestions. As a result of creating electronic manuals, electronic development and electronic textbooks for solving such problems, we can achieve our goal. The use of information technologies in the course of the lesson is one of the current issues of the day. Therefore, every pedagogue turns to information technologies to effectively organize their lessons and achieve results.

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METHODS OF ORGANIZING PRACTICAL TRAINING FOR FUTURE MATHEMATICS TEACHERS.

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Annotasiya: Ushbu maqolada amaliy mashg'ulotlari qanday tashkil etish kerakligi haqida fikr yuritilib, amaliy mashg'ulotni tashkil etishda ikki tomonlama fikrlar mavjudligi, ya'ni an'anaviy va noan'anaviy usullar asoslangan va bu fikrlarning yechimi yangi pedagogik texnologiyalar asosida ijobiy hal etish ta'kidlangan. Amaliy mashg'ulotni tashkil etish bosqichlarini olib borilishi sxemasi keltirilgan.

Kalit so'zlar: ko'nikma, malaka, nofaol, an'anaviy, noan'anaviy, o'qituvchining innovattsion faoliyati (kordinatorlik, yo'naltiruvchilik, hamkorlik, maslahatchilik), yangi pedagogik texnologiya, ilg'or ta'lim texnologiya, integratsiya, Shtolts teoremasi, Tyoplits teoremasi, uch ketma-ketlik haqida teorema, kreativ yondashuv, matematik kompetentlik.

Аннотация. В данной статье рассматривается как должно быть организовано практическое обучение, подчеркивается, что существует два пути организации практического обучения, то есть на основе традиционных и нетрадиционных методов, и решение этих идей есть положительное решение, основанное на новых педагогических технологиях. Представлена схема проведения этапов организации практического занятия.

Ключевые слова: умение, компетентность, пассивная, традиционная, нетрадиционная, инновационная деятельность педагога (координирующая, направляющая, сотрудничество, консультирование), новая педагогическая технология, передовая образовательная технология, интеграция, теорема Штольца, теорема Теплица, теорема о трех последовательностях, творческий подход, математическая компетентность.

Abstract: This article discusses how practical training should be organized, it is emphasized that there are two ways of organizing practical training, i.e. based on traditional and non-traditional methods, and the solution of these ideas is a positive solution based on new pedagogical technologies. The scheme of conducting the stages of organizing a practical training is given.

Keywords: skill, competence, passive, traditional, non-traditional, innovative activities of the teacher (coordinating, guiding, cooperation, consulting), new pedagogical technology, advanced educational technology, integration, Stoltz's theorem, Töplitz's theorem, a theorem about three sequences, creative approach, mathematics competence.

Innovation is the only way to win.
Steve Jobs

Introduction. Nowadays, a lot of attention is paid to mathematics education in the field of education. As clear proof of this, our President's speech - "Mathematics is the basis of all exact sciences. A child who knows this subject well will grow up to be smart, broad-minded, and work successfully in any field" [1].

The main goal of the higher education system is to train competitive personnel who can meet international requirements. The training of such personnel requires, first of all, the further formation of a well-educated, comprehensively mature team of professors and teachers. Also, the quality of training organized by professors is an important factor.

Literature review. Sh. Alimov, B. Abdullayeva, R. Shodiyev, S. Alikhanov, M. Barakayev, G. Zlosky, J. Ikromov, M. Tozhiyev, T. Tolaganov, D. Yunusova, N. Gaibullayev conducted scientific research on improving the teaching methodology of mathematics [2].

Several educational literature on the basics of mathematical analysis and differential equations teaching and organization of lessons M.S. Salohiddinov, G'.N. Nasriddinov, A.U. Abduhamedov, M. Braum, T.A. Azlarov, Sh. Created by N. Dilmurodov, T. J. Jorayev, A. Sadullayev, and others [3].

Research methodology. In this article, we want to tell about how to organize practical training.

Practical training is one of the leading forms of teaching (giving knowledge) in the higher education system. Providing students with practical training based on theoretical knowledge implies the ability and competence to independently work in solving mathematical problems.

How practical training is organized to fully achieve its goal is one of the urgent problems today. Mainly, two-fold ideas are emerging in the organization of practical training: traditional and non-traditional methods.

Proponents of the first opinion argue that due to the abundance of information in the information space today, it is a practical training that helps students think logically and make independent decisions. Therefore, it is believed that giving basic concepts in the form of a short introduction to solving practical problems after the lectures and before starting the practical training will be more effective in the practical training.

Supporters of the second opinion consider the traditional method as a "passive" form of practical training, when information and data are sufficient, independent reading and creativity are given great importance, and there are virtual and animated practical training. they support the need to put it on the ring and remove it from the educational process.
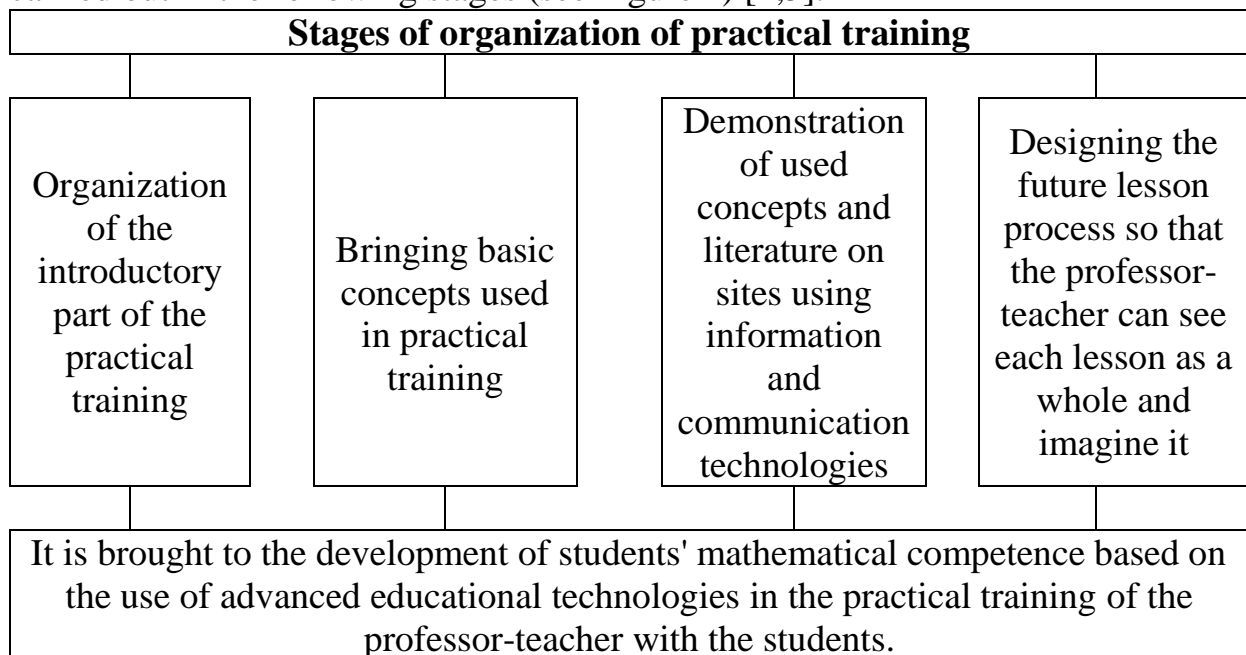
Based on a certain sequence from the practical training, the professor-teacher brings the necessary theoretical materials to the students' attention. Acceptance of information and information is a process directly related to students' knowledge levels, qualifications, basic information, and age.

When practical training is organized based on traditional methods, i.e. when the problems are read or presented orally by the professor-teacher, using slides and handouts, the main conditions of the problem are defined and written down, and students have an average (satisfactory) practical training. learns to solve problems independently.

If the practical training is conducted in a non-traditional interactive or interactive style, that is, if a discussion and debate are organized on the method of problem-solving, if the student's activity is increased, a certain part of the practical training is organized by the student's independent work in the auditorium, and the professor-teacher is innovative (If the integration of the student's activity is connected with the activity of the professor-teacher (coordinating, guiding, cooperation, consulting), the student acquires the skills of independent thinking and solving the problem well (at an excellent level).

The above two contradictory opinions are reasonable in a certain sense and the solution of these opinions should be positively resolved based on new pedagogical technologies [3,4].

According to our conclusion, the organization of practical training should be carried out in the following stages (see Figure 1) [4,5].

Stages of organization of practical training			
Organization of the introductory part of the practical training	Bringing basic concepts used in practical training	Demonstration of used concepts and literature on sites using information and communication technologies	Designing the future lesson process so that the professor-teacher can see each lesson as a whole and imagine it
It is brought to the development of students' mathematical competence based on the use of advanced educational technologies in the practical training of the professor-teacher with the students.			

1- figure. Stages of organization of a professor-teacher with students using advanced educational technologies in practical training.

Analysis and results.

1-problem. $a_n = \sqrt{n^2 + (n-1)\sin n} - n$ show that the sequence is bounded.

Solution: $a_n = \sqrt{n^2 + (n-1)\sin n} - n$ we change the form as follows:

$$|a_n| = \frac{\left|n^2 + (n-1)\sin n - n^2\right|}{\sqrt{n^2 + (n-1)\sin n} + n} = \frac{(n-1)(\sin n)}{\sqrt{n^2 + (n-1)\sin n} + n} \overset{|\sin n| \leq 1}{\Rightarrow} a_n < \frac{n-1}{\sqrt{n^2 + (n-1)\sin n} + n}, \quad \forall n \in N,$$

$\overset{\sin n > -1}{\Rightarrow} \quad \forall n \in N: \quad n^2 + (n-1)\sin n > n^2 - n + 1 \quad$ or $\quad n^2 - n + 1 > (n-1)^2 \quad$ from $\quad \forall n < N:$

$\sqrt{n^2 + (n-1)\sin n} > n-1 \quad \Rightarrow \quad \sqrt{n^2 + (n-1)\sin n} + n > 2n - 1.$ So, $\quad \forall n < N: \quad \Rightarrow$

$|a_n| < \dfrac{n-1}{\sqrt{n^2 + (n-1)\sin n} + n} < \dfrac{n-1}{2n-1} < \dfrac{1}{2}$ from $\forall n < N: \ |a_n| < \dfrac{1}{2}$ [6].

2-problem. If there is $\lim\limits_{n \to \infty} a_n = a$, find the result of $\lim\limits_{n \to \infty}\left(\dfrac{a_n}{1} + \dfrac{a_n}{2^1} + \dfrac{a_n}{2^2} + \cdots + \dfrac{a_n}{2^{n-1}}\right)$ by using Stolz theorem [6].

Solution: According to Stolz theorem, the following would be

$$\frac{a_n}{1} + \frac{a_n}{2^1} + \frac{a_n}{2^2} + \cdots + \frac{a_n}{2^{n-1}} = \frac{a_n}{2^{n-1}} + \frac{a_n}{2^{n-2}} + \cdots + \frac{a_n}{2^1} + \frac{a_n}{1} = \sum_{k=1}^{n} \frac{a_n}{2^{n-k}} = \frac{1}{2^n}\sum_{k=1}^{n} 2^k a_n.$$ Here is $y_n = 2^n$,

$x_n = \sum\limits_{k=1}^{n} 2^k a_n$. Obviously, $\forall n < N: \ y_n < y_{n+1}$, and $\lim\limits_{n \to \infty} y_n = \infty$, and

$$\begin{cases} x_n - x_{n-1} = \sum\limits_{k=1}^{n} 2^k a_n - \sum\limits_{k=1}^{n-1} 2^k a_n = 2^n a_n \\[2mm] y_n - y_{n-1} = 2^n - 2^{n-1} = \dfrac{2^n}{2} \end{cases}$$

Equal   to

$$\lim_{n\to\infty}\left(\frac{a_n}{1} + \frac{a_n}{2^1} + \frac{a_n}{2^2} + \cdots + \frac{a_n}{2^{n-1}}\right) = \lim_{n\to\infty}\frac{\sum\limits_{k=1}^{n} 2^k a_n}{2^n} = \lim_{n\to\infty}\frac{x_n}{y_n} = \lim_{n\to\infty}\frac{x_n - x_{n-1}}{y_n - y_{n-1}} = \lim_{n\to\infty}\frac{2^n \cdot a_n}{2^n \cdot 2^{-1}} = 2\lim_{n\to\infty}a_n = 2a.$$

This limit can be solved using the Toeplitz theorem. It is enough

$$c_{n,k} = \frac{y_k - y_{k-1}}{y_n} = 2^{k-n-1}$$ to get it.

3-problem. $\lim\limits_{x\to\infty}\sum\limits_{n=1}^{\infty}\dfrac{nx}{(n^2 + x)^2} = \dfrac{1}{2}$ prove the equality $(x > 0)$ [7].

Solution. *1-way.* When calculating this sum $\sum\limits_{n=1}^{\infty}\dfrac{nx}{(n^2 + x)^2}$, we use the exact integral

definition: $\sum\limits_{n=1}^{\infty}\dfrac{nx}{(n^2 + x)^2} = \sum\limits_{n=1}^{\infty}\dfrac{nx}{n^4\left(1 + \dfrac{x}{n^2}\right)^2} = \sum\limits_{n=1}^{\infty}\dfrac{\dfrac{x}{n}}{\left(1 + \dfrac{x}{n^2}\right)^2}\cdot\dfrac{1}{n^2} =$

$$= \left| \begin{array}{l} t = \dfrac{1}{n}, n = 1\,da\,t = 1, \\[2mm] n = \infty\,da\,t = 0.\ \Delta t = \dfrac{1}{n^2} \xrightarrow[n\to\infty]{} 0 \end{array} \right| = \int_0^1 \frac{xt}{(1 + xt^2)^2}\,dt = \left| \begin{array}{l} u = 1 + xt^2, xt\,dt = \dfrac{1}{2}\,du, \\[2mm] t = 0\,da\,u = 1, t = 1\,da\,u = 1 + x. \end{array} \right| = \frac{1}{2}\int_1^{1+x}\frac{du}{u^2} =$$

$$= -\frac{1}{2}\left(\frac{1}{u}\Big|_1^{1+x}\right) = -\frac{1}{2}\left(\frac{1}{1+x} - 1\right) = \frac{1}{2}\cdot\frac{x}{1+x} = \frac{1}{2}\cdot\frac{1}{1+\frac{1}{x}} \;.\; \text{So,}\; \lim_{x\to\infty}\sum_{n=1}^{\infty}\frac{nx}{(n^2+x)^2} = \frac{1}{2}\lim_{x\to\infty}\frac{1}{1+\frac{1}{x}} = \frac{1}{2} \;\text{it will}$$

be equal to $\displaystyle\lim_{x\to\infty}\sum_{n=1}^{\infty}\frac{nx}{(n^2+x)^2} = \frac{1}{2}\lim_{x\to\infty}\frac{1}{1+\frac{1}{x}} = \frac{1}{2}$.

2-way. Let it be $\displaystyle\sum_{n=1}^{\infty}\frac{nx}{(n^2+x)^2} = S_n$. It is known that the positive term for series is

from and according to Cauchy's integral formula, $u_n = f(n) = \dfrac{nx}{(n^2+x)^2} > 0$ in other words

$0 \le f(n) = \dfrac{nx}{(n^2+x)^2}$ function n to be decreasing concerning the function from $f'(n) \le 0$

at $x > 0$ $\quad n > \sqrt{\dfrac{x}{3}}.\quad u_1 = \dfrac{x}{(1+x)^2}$ According to Cauchy's integral theorem

$$u_n + \int_1^n \frac{tx}{(t^2+x)^2}dt \le S_n \le u_1 + \int_1^n \frac{tx}{(t^2+x)^2}dt. \;\Rightarrow\; \frac{nx}{(n^2+x)^2} + \int_1^n \frac{tx}{(t^2+x)^2}dt \le S_n \le \frac{x}{(1+x)^2} + \int_1^n \frac{tx}{(t^2+x)^2}dt$$

$n\to\infty$ at $\displaystyle\lim_{n\to\infty}\frac{nx}{(n^2+x)^2} = 0$ if we take into account that in

$$\lim_{n\to\infty}\int_1^n \frac{tx}{(t^2+x)^2}dt \le \lim_{n\to\infty}S_n \le \frac{x}{(1+x)^2} + \lim_{n\to\infty}\int_1^n \frac{tx}{(t^2+x)^2}dt, \quad \text{and then the outcome is}$$

$$\lim_{n\to\infty}\int_1^n \frac{tx}{(t^2+x)^2}dt = \frac{x}{2}\lim_{n\to\infty}\int_1^n \frac{d(t^2+x)}{(t^2+x)^2} = -\frac{x}{2}\lim_{n\to\infty}\left(\frac{1}{t^2+x}\Big|_1^n\right) = -\frac{x}{2}\lim_{n\to\infty}\left(\frac{1}{n^2+x} - \frac{1}{1+x}\right) = \frac{x}{2(1+x)}. \quad \text{So,}$$

$$\frac{x}{2(1+x)} \le \lim_{x\to\infty}S_n \le \frac{x}{(x+1)^2} + \frac{x}{2(1+x)} \;\Rightarrow\; \lim_{x\to\infty}\frac{x}{2(1+x)} \le \lim_{x\to\infty}\sum_{n=1}^{\infty}\frac{nx}{(n^2+x)^2} \le \lim_{x\to\infty}\frac{x}{(x+1)^2} + \lim_{x\to\infty}\frac{x}{2(1+x)}$$

$$\Rightarrow\; \frac{1}{2}\lim_{x\to\infty}\frac{1}{1+\frac{1}{x}} \le \lim_{x\to\infty}\sum_{n=1}^{\infty}\frac{nx}{(n^2+x)^2} \le \lim_{x\to\infty}\frac{1}{x\left(1+\frac{1}{x}\right)^2} + \frac{1}{2}\lim_{x\to\infty}\frac{1}{1+\frac{1}{x}} \;\Rightarrow\; \frac{1}{2} \le \lim_{x\to\infty}\sum_{n=1}^{\infty}\frac{nx}{(n^2+x)^2} \le \frac{1}{2}. \quad \text{It}$$

follows that $\displaystyle\lim_{x\to\infty}\sum_{n=1}^{\infty}\frac{nx}{(n^2+x)^2} = \frac{1}{2}$ [7].

4-problem. Calculate the $\displaystyle\lim_{n\to\infty}n\cdot(\sqrt[n]{e} - 1)$.

Solution. As the $\forall n < N:\; \left(1+\frac{1}{n}\right)^n < e < \left(1+\frac{1}{n-1}\right)^n,\; n\ge 2\;\; 1+\frac{1}{n} < \sqrt[n]{e} < 1+\frac{1}{n-1}$ or

$\dfrac{1}{n} < \sqrt[n]{e} - 1 < \dfrac{1}{n-1}$ from this comes out $1 < n\cdot(\sqrt[n]{e} - 1) < \dfrac{n}{n-1}$. Then,

$\displaystyle\lim_{n\to\infty}\frac{n}{n-1} = \lim_{n\to\infty}\left(1+\frac{1}{n-1}\right) = 1$ is equal, according to the theorem about the limit of three

sequences $\displaystyle\lim_{n\to\infty}n\cdot(\sqrt[n]{e} - 1) = 1$.

5-problem. Calculate the $\displaystyle\lim_{n\to\infty}\sin\left(\pi\sqrt{n^2+1}\right)$ [5].

Solution. The following law of identity examples are relevant: $\forall n < N$, $\sin \pi\alpha = (-1)^n \sin(\pi \cdot \alpha - \pi \cdot n)$. Now we write the following:

$$\sin\left(\pi \cdot \sqrt{n^2+1}\right) = (-1)^n \sin\left(\pi \cdot \sqrt{n^2+1} - \pi \cdot n\right) = (-1)^n \cdot \sin \frac{\pi}{\sqrt{n^2+1}+n}$$ from this,

$$\lim_{n\to\infty}\sin\left(\pi \cdot \sqrt{n^2+1}\right) = \lim_{n\to\infty}(-1)^n \cdot \sin \frac{\pi}{\sqrt{n^2+1}+n} = 0$$ is equal, because the limit of the product of the bounded sequence with the sequence whose limit tends to zero is equal to zero.

6-problem. $f : R \to R$ find all functions that satisfy the following equality $f(x)$ [6]. $(x-y)f(x+y)-(x+y)f(x-y)=4xy\left(x^2-y^2\right)$

Solution. $(x-y)f(x+y)-(x+y)f(x-y)=4xy(x^2-y^2)$ equality will be divided by (x^2-y^2), and we will get this: $\dfrac{f(x+y)}{x+y} - \dfrac{f(x-y)}{x-y} = 4xy$. Next, we get the following in this formula. $\begin{cases} x+y=t \\ x-y=z \end{cases} \Rightarrow \begin{cases} x = \dfrac{t+z}{2} \\ y = \dfrac{t-z}{2} \end{cases}$. So, we will have a function. If we take into account that it is here $4xy = 4 \cdot \dfrac{t+z}{2} \cdot \dfrac{t-z}{2} = t^2 - z^2$, then it will be $\dfrac{f(t)}{t} - \dfrac{f(z)}{z} = t^2 - z^2$. Let's separate the variables: $\dfrac{f(t)}{t} = t^2 + k$, $\dfrac{f(z)}{z} = z^2 + k$, we will get the followings from these equations - $f(t) = t^3 + \kappa t$, $f(z) = z^3 + kz$. Well, we can get this function - $f(x) = x^3 + kx$.

Conclusion/Recommendations. The organization of practical training similar to the above will form a future mathematics teacher (students) who studied in higher education institutions, such as creativity, inquisitiveness, and creative approach, in a word, a specialist with innovative activity.

As a result, it is guaranteed that the future specialist will be able to make independent decisions and apply the acquired knowledge to the educational process, therefore, together with the organization of two-way communication of the future mathematics teacher in HEIs (higher educational institutions) in solving problems during the lesson, it will lead to the development of the student's mental activity and mathematical competence. will come.

Patterns for understanding and solving topic-related problems.

1-problem. Find the function of $f(x)$ if the function $f : R \to R$ is continuous at the origin and satisfies the equation $f(x) + f\left(\dfrac{2015}{2016}x\right) = x$.

2- problem. Find the solution to the following: $\displaystyle\int_{-1}^{1} \frac{dx}{\left(e^x+1\right)\left(1+x^2\right)}$.

3- problem. Find the solution to the following: $I = \displaystyle\int_{0}^{2016} \frac{\cos x}{\cos x + \cos(2016-x)}\,dx$.

4- problem. R would be the set of real numbers. Find all functions of $f : R \rightarrow R$ that satisfy the equality $f(x + xy) = f(x) \cdot (2y + 1) + f(xy)$ for all numbers of $(x, y) \in R$.

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ANALYSIS OF PROVIDER TOOLS OF LINGUISTIC SUPPORT OF DISTANCE MULTIMEDIA LEARNING SYSTEMS

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Annotatsiya: Multimedia yordamida masofaviy ta'lim shakli bugungi kunda ommaviy uzluksiz o'z-o'zini o'qitish va umumiy ma'lumot almashish tizimini yaratishga imkon beradi. Ushbu maqolada masofaviy multimedia ta'lim tizimlarining dolzarbligi, ularning imkoniyatlari va rivojlanish istiqbollari, multimediaga asoslangan masofaviy ta'lim tizimlarining lingvistik dasturiy vositalari imkoniyatlarini ko'rsatib, ularning afzalliklari va kamchiliklari tahlil qilinadi.

Kalit so'zlar: Multimedia masofaviy ta'lim, o'qitish tizimlari. Multimedia dasturiy vositalari, elektron oʻquv platformalari, lingvistik tahlil, kommunikativ koʻnikmalar, interfaol oʻqitish modellari.

Аннотация: Форма дистанционного обучения с использованием мультимедиа сегодня позволяет создать систему массового непрерывного самообразования и обмена общей информацией. В данной статье рассмотрена актуальность систем дистанционного мультимедийного образования, их потенциал и перспективы развития, показаны возможности лингвистических программных средств систем дистанционного образования на основе мультимедиа, а также проанализированы их преимущества и недостатки.

Ключевые слова: Мультимедийное дистанционное образование, обучающие системы. Мультимедийные программные средства, платформы электронного обучения, лингвистический анализ, коммуникативные навыки, интерактивные модели обучения.

Abstract: The form of distance education with multimedia today makes it possible to create a system of mass continuous self-education and sharing of general information. In this article, the relevance of distance multimedia education systems, their potential and prospects for development, showing the possibilities of linguistic software tools of distance education systems based on multimedia, and analyzing their advantages and disadvantages.

Keywords: Multimedia distance education, teaching systems. Multimedia software tools, e-learning platforms, linguistic analysis, communicative skills, interactive teaching models.

Introduction. Nowadays, modern information technology tools are rapidly developing in every field, including education. The development of information technologies and telecommunications leads to the emergence of new forms of education and training. One of their popular forms is distance learning systems. The rapid growth of this direction depends on many factors. That is, the development and birth of a new type of society, globalization, universal computerization, etc.

Based on multimedia tools, the distance education system provides analysis of the student's personal qualities, level of knowledge, as well as learning. In addition, the possibility of carrying out the educational process without stopping the professional activity and the student's lack of connection to the location of the educational institution significantly increases the role of the form of education. In addition, such systems are very relevant among socially unprotected layers of the population, that is, those with limited opportunities.

Main part. Multimedia Distance Education showed a high degree of adaptability to the features of the group and individual education. Distance education technology, now known as e-learning, allows the use of new multimedia and Internet technologies to increase the quality of education by improving the use of resources and services, as well as distance knowledge exchange and cooperation. Therefore, the development of distance education is inextricably linked with the introduction of new computer technologies into the educational process, in particular, in the context of multimedia systems and e-mail, distance multimedia education systems. Distance multimedia educational systems are complex educational systems for providing an

educational process based on multimedia and telecommunication tools. Currently, distance education systems focused on natural sciences and technical areas of education are the most widespread. The largest number of distance education courses were created and introduced in the areas of information and communication technologies, management, and foreign language studies. At the same time, today the processes of developing a remote multimedia educational system in the creative directions of education and implementing it into the educational process do not meet modern requirements in terms of their speed and scope. Linguistic aids accompany the entire process of creating a distance multimedia education system; determine the content and structure of the multimedia system. E-Learning platforms are linguistic software tools of multimedia teaching systems. Some of the best online learning platforms include Coursera, Skillshare, Udemy, Codecademy, Edx, Pluralsight, Future Learn, and Moodle.

LinkedIn Learning. It is an educational platform that offers professional courses in video lesson format in more creative fields like business, digital marketing, web development and design among other subjects. The platform is offered as a premium service for LinkedIn users and offers more than 16,000 courses in 11 languages, with a focus on helping individuals invest in their professional development. LinkedIn Learning also partners with top companies to provide their students with the most sought-after professional certifications and well known and respected in the B2B community. LinkedIn Learning has the following features:

  • Comes with a one-month free trial
  • Provides personalized course recommendations for users
• Gives a certificate after completing the course
• Allows assessment of progress with quizzes
• Offline learning is available for on-the-go learning
• Allows you to use premium features

Udemy. One of the most popular online courses on the Internet. Udemy allows anyone to create a course with the opportunity to learn new skills. In doing so, it offers a range of online learning materials, including PDF documents, PowerPoint, text and video content, and more. Teachers can join Udemy and start teaching online. Udemy's features include:
• The opportunity to have a full specialization.
• Shareable certificates.
• Practice quizzes.
• Assignments graded with peer feedback.
• Quizzes graded with feedback.
• Graded programming assignments.

Coursera. Offers individual courses, majors, certificates, and degree programs (for undergraduate and graduate degrees), supported by on-demand video lectures, homework exercises, peer-reviewed assignments, and community discussion forums.
• Opportunity to learn new concepts from industry experts
• Have a basic understanding of the subject or medium
• Develop work-related skills with practical projects
• Have a shareable career certificate

Teachable. It is an online learning platform that caters to the everyday teacher and helps them turn their knowledge into a business. Teachable provides an easy and simple solution for uploading your learning content, setting up your online school and communicating effectively with your students.

• Academic/Education.
• Activity dashboard.
• Evaluation management.
• Asynchronous learning.
• Billing and invoicing.
• Blended learning.
• Built-in course authoring.
• Certification management.

There are 10 types of Linguistic Software for Distance Multimedia Learning Systems:

Asynchronous online learning - This type of e-learning platform is usually aimed at more students. This allows students to access online materials at their own time and speed.

Synchronous Online Learning - Groups of students can engage in learning activities simultaneously and remotely in real time.

Computer-led learning (CML) uses computers to guide learning processes. It uses databases containing modular data ratings that support personalized learning.

Computer Assisted Instruction (CAI) is an e-learning platform that combines computer-based instruction with traditional instruction.

Interactive e- learning enables active communication between students and teachers.

Linear E-Learning Platforms-This form of distance education is limited because it does not allow two-way communication between students and teachers.

Collaborative Online Learning - Collaborative e-learning platform allows students to work in groups.

Individual online learning - This method allows students to achieve their educational goals through independent study.

Adaptive e-learning platforms-Adaptive e- learning is new and innovative. It supports the redesign of learning materials to suit individual learning preferences.

The content used for **Fixed E-Learning**-Training does not change. All students participating in the educational process receive the same educational material.

The following table lists the 10 most common tools, their characteristics and efficiency have been analyzed. The results of the analysis are presented in the table below.

№	Linguistic programs of distance education systems	Tasks performed by the program Languages	Languages	Languages Availability	Accuracy of analysis	Website	Used Technologies
1	LinkedIn Learning	Training of required personnel in business, digital marketing, creative fields	12	No	78%	https://www.linkedin.com	Java, Python, C#

2	Udemy	Identifying problems in the IT field, teaching troubleshooting	10	yes	98%	https://www.udemy.com	Python
3	Coursera	Teaching in a number of fields, including bachelor's and master's degrees, from the world's leading universities	5	yes	95%	https://www.coursera.org	Kotlin
4	Teachable	Introducing new ways to take your business to new heights, grow your audience and generate revenue	English	No	89%	https://teachable.com	Python , R
5	MasterClass	Lectures from famous people on various topics	English	No	88%	https://www.masterclass.com/	Java, C#, MySql
6	Pluralsight	Develop skills critical to achieving user goals and initiatives	English	No	90%	https://www.pluralsight.com/	C++ , Python
7	EdX	Ensuring that every employee is trained at the highest quality level	7	No	97%	https://www.edx.org/	Python
8	Skillshare	Providing thousands of classes for creative and curious people in illustration, video, freelance and other topics	3	no	84%	https://www.skillshare.com/	Python , Php
9	Udacity	Teaching technological skills in a short time	15	yes	93%	https://www.udacity.com/	C++ , Python
10	iSpring Learn	Creating dialogue simulations with networked scenarios through talking videos, presentations	6	yes	97%	https://www.ispringsolutions.com/ispring-learn	JavaScript

Conclusion. This article depicts an analysis of the tools that develop the linguistic support of remote multimedia teaching systems, and compares their differences, advantages, disadvantages, and types. Due to the growing demand for distance education, the development of linguistic support for such systems has become an urgent issue. To date, linguistic software tools of distance learning systems are being created in the Uzbek language. But since there are so few of them, we can see a growing demand for the development and implementation of such tools.

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MODERN PROBLEMS OF PHILOLOGY AND LINGUISTICS

UDK: 811:1

MECHANISMS OF THE LEXICOGRAPHICALLY MONO-SEMANTIC STRUCTURE OF MINING TERMS

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Annotatsiya: Maqolada konchilik atamalarining leksikografik mono-semantik tuzilishi mexanizmlari ochib berilgan, hamda konchilik terminologiyasiga asoslangan lug'atlar taqdim etilgan. Mutaxassislar nutqida konchilik sanoati ob'ektlari, jarayonlari va hodisalariga murojaat qilish uchun ishlatiladigan kasbiy lug'atni, xususan: atamalar, professionallik va professional nutqni tahlil qilishga qaratilgan. Maxsus soha lug'atining har bir turi o'ziga xos xususiyatlarga ega bo'lib, bu leksemalar kasbiy muloqot doirasida kasbiy bilimlarni tashkil etuvchi ma'lum hajmdagi ma'lumotlarni saqlash, qayta ishlash va uzatish imkonini berishi qayd etiladi.

Tayanch so'z va iboralar: mono-semantika; muddat; maxsus lug'at; terminologiya; konchilik, leksikografik mexanizmlar.

Аннотация: В статье раскрываются механизмы лексикографического моносемантического строения горных терминов, а также представлены словари, основанные на горной терминологии. Он направлен на анализ профессиональной лексики, используемой для обозначения отраслевых объектов, процессов и явлений в речи специалистов, в частности: терминов, профессионализмов, профессионального жаргона. Каждый вид специального полевого словаря имеет свои особенности, и отмечается, что данные лексемы позволяют осуществлять хранение, обработку и передачу определенного объема информации, составляющей профессиональные знания, в рамках профессионального общения.

Ключевые слова и фразы: моносемантика; продолжительность жизни; специальная лексика; терминология; горных терминов, лексикографические механизмы.

Annotation: The article reveals the mechanisms of lexicographic mono-semantic structure of mining terms, dictionaries based on mining terminology are presented. It aims to analyze the professional vocabulary used to refer to industry objects, processes and events in the speech of specialists, in particular: terms, professionalism and professional jargon. Each type of special field dictionary has its own characteristics, and it is noted that these lexemes allow to store, process and transfer a certain amount of information that constitutes professional knowledge in the framework of professional communication.

Key words and phrases: mono-semantics; lifetime; special vocabulary; terminology; mining, lexicographic mechanisms.

Introduction. The terminology of the Uzbek language as a systematic set of special terms and the so-called general scientific terminology unites the names of special concepts related to all spheres of professional activity of society, and both English and Russian terminological systems are of no exception. The formation of the

Uzbek language terminology is always unique and reflects the way of the formation of the relevant linguistic and cultural community, as well as the development of the literary language, science, fields, social thought, culture and education, that is, a certain language parameters determining the essence of the terminology.

The field of the mining as a science consists of two sections: theoretical (analysis of terms and systems of terms, the laws of their creation and operation) and practical (solving a number of practical problems with certain use of methods of working on terms and their collections). The practical result of solving various terminological issues are dictionaries and collections of terms, terminological standards, databases, terminological file cabinets, etc. One of the most important rules of the theoretical term management for our research is the concept of an integral connection between the term as a unit of the lexical subsystem of language and the scientific view of the world as a mental structure that reflects the cognitive activity of a person. [7].

Literature review. Modern languages and, in particular, their vocabulary is in the process of constant change and renewal in the conditions of rapid scientific and technical progress. The organization of scientific knowledge, its systematization, description, and translation takes place precisely through terminology. This situation creates conditions for preserving modern scientific knowledge and concepts, as well as combining and gathering new knowledge based on existing knowledge. In addition to being a specific set of terms, terminology is also part of a special vocabulary. The latter, in addition to the actual terminology, go into neighboring areas of the vocabulary of the language and includes professionalism, special jargon, and other smaller subsystems. At the same time, the general laws of the formation and development of special vocabulary are to a large extent characteristic of terminology.

It is no secret that special vocabulary works in certain linguistic and extra linguistic contexts related to special areas of human activity. Terms are developments and formulas of theories and concepts [7] describing strictly specialized and regulated areas of knowledge and activity, nomenclature elements, nominal terms, symbols, mathematical formulas, symbols of chemical elements, structural elements of artificial programming languages, etc.

Research Methodology. The growing interest in the terminological dictionary can be explained by "experts paying great attention to the theory of knowledge and its reflection in scientific language" [5]. The terminological layer of the language is a means of reflecting and expressing socially organized reality, in particular, science, technology, art, politics, etc. [1; 2]. Thus, the terminology is a part of the lexical system of the language, the boundaries of which are determined by the principles of distinguishing between specific social organizations of reality and types of specialized activities.

Unfortunately, the question of what a term is as a unit of the lexical system of a language and what is the characteristic feature of its activity in the process of professional communication has not been resolved in the science of local or foreign linguistics. In fact, according to E.I.Golovanova, the parameters and forms of professional communication have not yet been defined, its main features have not been defined, the cases of professional communication have not been clearly distinguished, and the complete typology of communicative-pragmatic professional units. [6]. Thus,

the mono-semantic study of terminological units, in our opinion, is relevant for understanding the essence of the cognitive-discursive mechanisms of representatives of various fields of professional activity, in particular, experts in the field of mining.

Analysis and results. Speaking about the semantic structure of the term, it should be noted that it is divided into a certain number of components and is the core and auxiliary field of mono-semantics. The core area means the semantic core of the term, that part of the semantic space of the terminological unit that includes the main functional feature taken into account in the process of terminological nomination. The semantic core of the term receives the main conceptual load. In addition, an auxiliary field can be distinguished within any term, the elements of which have only a grammatical meaning, not a lexical one. This domain manages and organizes conceptual information and is usually represented by prepositions and other functional words and thermocouples [14].

It should be noted that when translating a terminological unit from one language to another, in order to ensure translation equivalence, the initial correlation of core areas carrying the main semantic load should be preserved.

Differences between terminology and general vocabulary are much better studied [6; 9], but only terms do not exist within the scope of the special dictionary. After all, not every special word is a term, not every special word group can be called a terminology. An example of such a special vocabulary that does not belong to the category of terminology can be professionalism, which is not a generally accepted means of defining any scientific concept [4]. As shown below, the function of professionalism is different from the function performed by terms.

It's no secret that professional activity plays a very important role in human life, and therefore occupies a worthy place in the speech activity of people. This is related to the need to transfer the professional knowledge and experience accumulated during the existence of a certain field of material production to other representatives of it in the framework of written and oral speech, as well as to discuss various professional problems. According to Latu M.N. professional communication is a type of communication characterized by the generality of special knowledge and perception of communication participants, the stereotype of communication situations, as well as the presence of special goals outside the situation. Professional communication, unlike mass communication, for example, is included in the context of specialized professional activity that determines its specific characteristics.

As mentioned above, terms are words or phrases that clearly name special concepts in the field of any production, science, or art. They form the vocabulary of the network and convey the main part of the scientific concepts of this field of activity.

This term is "always the result and means of professional thinking and special professional communication" [7]. At the same time, terms represent the most important mental representations of the objects and processes of professional activity, verbalize the logical model of a certain knowledge system, and act as cognitive symbols within such systems [3].

Conclusion/Recommendations.

We agree with the point of view of Latu M.N. who believes that the emergence of this "special language" is primarily related to the isolation and specialization of the

conceptual professional apparatus, the need to create and transmit new knowledge based on figurative meaning, as well as scientific is to turn experience into everyday experience [3]. Professional jargon takes its external socio-structural position due to the national-cultural specificity of the national production activity existing in the society. Examples of units included in professional jargon. Due to its internal form, slangs become a means of creating expressiveness, they have important metaphorical images. In addition, this term refers to a relatively objective scientific phenomenon of the world, while professionalism and professional jargon express a simple picture of the world, everyday reality in words.

Thus, on the basis of the above considerations, it can be concluded that each type of special sectoral vocabulary (mining terms, professional words, professional jargon) has its own characteristics, and by combining these lexemes, it is possible to preserve professional knowledge, re-enables operation and transmission, adapted to express a certain amount of information within the framework of professional communication.

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LEXICAL ANALYSIS OF THE WORD "FACE" IN ENGLISH, RUSSIAN AND UZBEK LANGUAGES

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Abstract. This article analyzes lexicographic meaning of the word "face" in three languages, here also given the analysis of synonymic graduonomy of this word in Russian, English and Uzbek languages.

Key words. Face, synonyms, lexicographic meaning, neutral, positive, negative connotations.

Abstrakt. Ushbu maqolada "yuz" so'zining uch tildagi leksikografik ma'nosi tahlil qilingan, bu yerda rus, ingliz va o'zbek tillarida bu so'zning sinonimik graduonomiyasi tahlil qilingan.

Kalit so'zlar. Yuz, sinonimlar, leksikografik ma'no, neytral, ijobiy, salbiy ma'nolar.

Абстракт. В данной статье анализируется лексикографическое значение слова «лицо» в трех языках, а также дается анализ синонимической градуономии этого слова в русском, английском и узбекском языках.

Ключевые слова. Лицо, синонимы, лексикографическое значение, нейтральные, положительные, отрицательные коннотации.

Introduction. In the article, a group of Uzbek words with synonyms was identified, and all of them are shown in tables in accordance with their English equivalents. For example, the word yuz (face) has the following synonyms: chehra (лик), oraz (вид), ruxsor (личико); qiyofa (вид), siymo (лицо), bashara(вид), etc. In English, this word is expressed in the following forms: face, look, expression, features, visage, countenance. It should be noted that not all synonyms of a given word can replace each other, because they all have their place of use, determined in the process of researching the topic. In the course of writing the dissertation, it was revealed that synonymy is not inherent in all the words of the languages under consideration.

Analysis. When considering synonyms of the word "face/litso/yuz" in English, Russian and Uzbek languages, we can give some examples with positive, neutral and negative meanings. Let's discuss some sentences:

Я хорошо́ по́мню его́ лицо́.

I remember his face well.

Она́ закры́ла лицо́ рука́ми.

She covered her face with her hands.

Мы сиди́м лицо́м к лицу́.

We are sitting face to face.

Анто́н поверну́лся лицо́м к сте́нке.

Anton turned his face to the wall.

Но́чью неизве́стные ли́ца угна́ли автомоби́ль.

At night, unidentified persons stole a car.

Юриди́ческое лицо́ зарегистри́ровано в Москве́.

The legal entity is registered in Moscow.

Неожи́данно он измени́лся в лице́.

He suddenly changed his countenance.

Он ничу́ть не измени́лся в лице́.

He kept his countenance unchanged.

 He not slightly changed in face.

Лю́ди бы́ли нарисо́ваны ме́лко, так что лиц не разберёшь.

People were drawn very finely, so that you can't tell their faces.

The word "face" is not only used for persons, but also all the type of surfaces or front parts of objects:

в поте лица = in the sweat of thy face; by the sweat of one's brow [1].

лик = face, image

фасад = facade, front

облик = look, appearance

личность = personality, person

субъект = subject

лицевой = (adjective) facial

рожа = (colloquial) mug

In most cases, synonyms of the word "face" individually changes its own meaning within idioms and phrases. It can be a part of phrase which loses its front look, but can be connected something back or background of the person as V.I.P., true face of the person and others.

смотреть правде в лицо = to face the truth (literal) to look truth into face

измениться в лице = to change one's countenance (literal)   change in face

лицо мужского пола = male person (literal) person of masculine sex очень важное лицо = V.I.P.

стереть с лица земли = to crumble smth to dust (literal)   to erase from the face of the earth

показать своё истинное лицо = to show oneself in one's true colors (literal) to show one's true face.

Discussion. In the course of writing the article, it was revealed that synonymy is not inherent in all the words of the languages under consideration. For example, in the Uzbek language, the words buyrak (kidneys), jigar (liver), burun (nose), mijja (eyelashes) basically do not have synonyms. Another group of words, on the contrary, has synonyms that can replace them.

The figurative meanings of words expressing body parts in English and Uzbek languages are close in meaning. For example, the word yurak (heart) figuratively expresses bel (middle), oriq bel (middle of something); or the word yuz (face) in a figurative sense in both languages can express the upper part of objects. But not all words can have this property. For example, the word qosh (eyebrow) in the Uzbek language is also found in a figurative sense: kamon (semicircle), lab (edge) or lablar uchi (end of something), but in English it cannot express all these meanings.

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[1] http://masterrussian.com/vocabulary/litso_face.htm

In Russian, the word "**лицо**" means a lot of meanings as:

1) Передняя часть головы человека.

2) а) перен. Индивидуальный облик, отличительные черты кого-л., чего-л.

б) Наиболее показательная, выражающая сущность явления, предмета сторона чего-л.

3) а) Человек как член общества.

б) устар. Человек, занимающий высокое общественное положение, пользующийся авторитетом, известностью и т.п.; особа, персона.

в) Человек с его специфическими особенностями; личность.

г) Действующее лицо; персонаж.

4) а) перен. Наружная, передняя сторона чего-л.

б) Верхняя, лицевая сторона ткани, одежды.

2. ср. Грамматическая категория, обозначающая отношение производителя действия к говорящему, выражаемая формами глагола и личными местоимениями (в лингвистике). [2]

Some synonyms of the word "face" in English include:

1. Visage
2. Countenance
3. Facial features
4. Appearance
5. Aspect
6. Expression
7. Look
8. Mug
9. Physiognomy
10. Profile

A lexicographic analysis of these synonyms reveals that they all relate to the physical appearance of a person's face or the expression on their face. Some synonyms, such as "visage" and "countenance," are more formal and literary in tone, while others, such as "mug," are more colloquial and slangy. The word "physiognomy" is a more technical term that refers to the study of facial features and their relationship to personality traits. Overall, these synonyms demonstrate the versatility of the English language when it comes to describing the human face.

The word "face" is a common word in all three languages, but there are some notable differences in usage and meaning. In English, the word "face" has a wider range of idiomatic expressions and phrasal verbs, which reflects the language's tendency to use figurative language. Uzbek and Russian languages tend to use compound words that combine "face" with other words to create specific meanings.

Despite these differences, all three languages use the word "face" to refer to the front part of the head, the expression on a person's face, and the surface of an object.

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[2] *Ефремова Т.Ф. Толковый словарь русского языка.*

However, the frequency of usage differs, with English using the word more frequently than Uzbek and Russian.

Finally, the pronunciation of the word "face" is different in all three languages due to differences in phonetics and alphabet. While these differences may seem small, they reflect the unique characteristics of each language and how they approach the concept of "face."

Conclusion and results. After conducting a lexical analysis of the word "face" in English, Uzbek, and Russian languages, the following conclusions can be drawn:

1. The word "face" has multiple meanings in all three languages, including the front part of the head, the expression on a person's face, and the surface of an object.
2. The English language has a wider range of idiomatic expressions and phrasal verbs that use the word "face" compared to Uzbek and Russian languages.
3. In Uzbek and Russian languages, the word "face" is often used in combination with other words to create compound words that have a specific meaning, such as "face mask" or "face cream."
4. The word "face" is used more frequently in English language compared to Uzbek and Russian languages.
5. The pronunciation of the word "face" is different in all three languages due to differences in phonetics and alphabet.

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GRADUONYMIC SERIES AND THEIR GENERALIZATION SCHEMES

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Annotasiya. Ushbu maqola sinonimlar, antonimlar va omonimlardagi graduonomik qatorlarni so'zlar o'rtasidagi tizimli munosabatlar shakli sifatida tahlil qiladi. Graduonomyc seriyasiga asoslanib, maqola ikki bo'limga bo'lingan:

1-bo'lim: So'z turkumlaridagi graduonimik qatorlar.

2-bo'lim: Umumlashtiruvchi sxema bilan graduonomik qator.

Kalit so'zlar. Tilning semantik ma'nosi, gradatsiyasi, tizimli munosabatlari, so'zlarning mos kelishi, tizimliligi.

Аннотация. В статье анализируются градуономические ряды в синонимах, антонимах и омонимах как форма систематических отношений между словами. На основе градуономической серии статья разделена на два раздела:

Раздел 1: Градуонимические строки в словосочетаниях.

Раздел 2: Градуонимические ряды с обобщающей схемой.

Ключевые слова. Семантическое значение, градация, систематические отношения, словосочетание, системность языка.

Abstract. This article analyzes graduonomyc series in synonyms, antonyms, homonyms as a from of systematic relations between words. Based on the graduonomyc series, the article is divided into two sections:

Section 1: Graduonymic lines in word groups.

Section 2: Graduonymic series with a generalizing scheme.

Key words. Semantic meaning, gradation, systematic relations, word coincidence, systematic nature of the language.

Introduction. Graduonymic series are not generally distinguished in modern Uzbek language, and this chapter can be tested as a first experiment in Uzbek linguistics. Therefore, we would like to say in advance that, first of all, we never intend to give a complete list of graduonymic series in Uzbek, and not only one maybe even 10-15 people are difficult to implement. Nevertheless, we will try to open some juzey issues in this area.

Analysis. Based on two properties of the graduonymic series, we will study this article in two sections;

Section 1: Graduonymic lines in word groups.

Section 2: Graduonymic series with a generalizing scheme.

As we mentioned in chapter 1, the graduonymic relationship is a semantic relationship between words, the meaning of which is close to each other and within separate meaning types of the word group. Therefore, when counting graduonymic lines, it is observed to divide words into meaningful categories (41).

For example, on the basis of increasing age

1. Lullaby \ baby \ baby \ child \ boy \ girl \ man \ woman \ old man \ old woman \ old man Lullaby - …… old man

2. To grow - ……to grow old

3. To grow old

4. Qulun - ……strings of horses are created.

Of course, we can consider the graduonymic series that any symbol can form, because some symbols can form hundreds of graduonymic series, such as: size, width, height, etc. In addition, we can emphasize one more limitation. Therefore, we We will consider only one of the polysemantic words, and if this word is the leading word of the word series, we will consider only the graduonymic series in the first relation. Based on three of these five meanings, the word "house" forms three graduonymic series.

1. Ruins \ hut \ room \ room \ house \ yard \ palace \ palace \ house.

2. House \ house \ hall

3. House \ neighborhood \ daxa \ area

The word room does not have a case sign. Therefore, this word can easily be combined with large and small determiners. But from the aspect of size, the room is part of the apartment with a yard. and these words are vague in terms of size, but not small. The meaning of poverty is also moderate for a room. That is why the combinations of a poor room and a luxurious room are often used.

It can be concluded that the hut \ cell \ room forms a small chain.

The word "room" is connected with the word "house" in this line, in essence, the Tajik word "room" is synonymous with the word "house". For example, we sat in a big room. the meaning of expressing the whole is strong.

As mentioned, if the words on the left and right side of the line have a spiritual closeness to each other, then the spiritual conflict between the words on the right and left side is closer due to the closeness of meaning. To the right and to the left, the quality mark increases and decreases.

Antonomic relations are mainly built on the basis of poverty and conflict, and this conflict can increase at this level. can be included in the graduonymic series. For example:

If you have a good home with your friend, you will be happy

If a friend does not take a step, the house is ruined.

In this example, it is clearly seen that the house is described by two opposite words, ruin and castle. Although all three words have the meaning of residence, the meaning of the place of residence is drowned in the meaning of the house, and the meanings of luxury and poverty are darkened. On the other hand, the terms "ruin" and "castle" have weakened their predative sign and strengthened their quality meaning. That is why the graduonymic series includes the word "ruin" in part.

The same kind of spiritual contradiction can be seen in hundreds of nouns. We have listed many of them in the dictionary. The examples given are enough to draw a conclusion about the existence of gradational rows of similar nouns among different characters. But the contradictions are not limited to specific nouns. Maybe it also occurs in the context of abstract nouns.

"Shodlik" graduonymic series

This graduonymic series includes 6 words.

Sevinch \ xursand \ quvonch \ shodlik \ surur \ farax

The words in this graduonymic series express the feeling of satisfaction, temporary happiness, mood. It means the state of a person. The leading word of this series is happiness. For example:

Sevinch - the feeling of joy, happiness. (DDofUL, P.442)

Xursand - to spend time happily, cheerfully, with fun, leisure. (DDofUL, P.340)

Quvonch - to be satisfied with something, happiness, joy. (DDofUL, P.422)

Surur - a feeling of joy, happiness, happiness, joy. (DDofUL, P.88) This word is used more often in sharia.

Farax - happiness, feelings of joy, happiness, happiness. (DDofUL, P.295)

The main difference between the members of the graduonymic series located to the left and right of the main word shown above is the gradation of word meanings. and it increases. We can show it in the diagram as follows.

"rising"- sevinch \ xursandchilik \ quvonch \ shodlik \ surur \ farax

"falling" - sevinch \ xursandchilik \ quvonch \ shodlik \ surur \ farax

In this line of words, it is not possible to notice the anatomical relationship between the two extreme points. Therefore, it can be assumed that this line of words may be some kind of disconnected piece of zajir. Because similar meanings are the original adjectives sad \ satisfied \ happy corrects the series so that this series includes all the features typical for graduonymic series. Therefore, the series of graduonymic series like koinish \ khaftalik \ khftalik \ shodlik \ farakh may be combined, and this may determine future research. But abstract nouns and verbs formed from the presence of graduonymic series can clearly prove, because:

Cho`chimoq \ xadiksiramoq \ xafsiramoq \ qo`rqmoq \ xayiqmoq

In the features of the verb graduonymic series based on the sign of the sense of fear, it is possible to grade the sign of fear.

Discussion. Thus, it can be concluded that within abstract nouns, a series of gradations can be distinguished.

Due to the fact that adjectives are the leading sign of meaning in the word group, almost every original adjective takes place in a certain graduonymic series. and by S.Giyosov, as one of the general schemes of original qualities, the symbol level scheme was separated and analyzed in detail.

A good graduonymic series

This graduonymic series contains 5 words.

Overall positive review

Binoyi \ tuzuk \ durust \ yaxshi \ ajoyib

Since S.Giyosov has carefully analyzed the ranking of these words, we are content with noting the existence of such a line. It was analyzed that the ranking line like chiroyli \ suluv \ ko`rkam \ zebo \ go`zal is created on the basis of an external positive evaluation system. We entered the words. This forms a complete line.

In our opinion, it would be possible to arrange these words as follows:

Yoqimtoy \ istarasi issiq \ quxlix \ chiroyli \ suluv \ ko`rkam

This series fully meets all the requirements for a graduonymic series. Because the level scheme of the sign is mixed with stylistic schemes, and all these words are united around beautiful words. Beware of moderate words. In the words on the left side, the sign increases, and in the words on the left, it decreases.

Countable numbers themselves are a complete graduonymic system. The arrangement of ordinal numbers and fractional numbers, which are made up of countable numbers, does not require special research.

One, two, three, four, five, six, seven, eight, nine, ten...

First, second, third, fourth, fifth, sixth, seventh...

Ten, one hundred, two hundred, five hundred, thousand, ten, lakh.

Numerical words expressing quantity are part of the noun group, and words such as some, any occupy a special place in the lexical word group and are considered in this lexical section.

The increase in the total numbers does not require comment.

The characteristic of the series of numbers in the graduonomic series structure is that the whole essence of the number is the growth of quantitative gradation, so the graduonomic series composed of numbers is one-way, and the leading word (dominata) in these series has its own characteristics.

On the other hand, since numbers represent precise quantitative concepts, the quantitative difference between adjacent words in a graduonymic series represented by numbers is as clear as numbers. For example;

II, I2, I3, I4, I5, …… 30, 3I, 33, ….. 4I (difference- I (step) I 5/10, I,5, 2, 2.5 3 3.5 …..I0 5/10 (step 0.5) I0, I00, I000, I0000 (step (difference) I0 times))

In any case, series of numbers are connected by graduonymic relations. But the occurrence of graduonymy in them requires special study. Because here there are a number of problems that reveal interesting phenomena to us. For example:

I-0, I-I0, 2-I0, 3-I0, 4-I0, 5-I0, 6-I0, 7-I0, 8-I0, 9-I0, (-I0)

mathematics has a rule of integration. According to the rule of integration

If we want to integrate 9.5, we can take both I0 and II. So, among the antonyms of I0, II, I0.5 occupies the position of the leading word. From I0.5, if we integrate to the left, it will be equal to I0, we enter into a relationship of mutual synonymy. But I0.4; Integrating I0,6 gives I0 and II, that is, the antonymic relationship is preserved.

So, the law of mutual relations of graduonymy, antonymy, and synonymy is also reflected here. Therefore, it can be said that there are unique graduonymic series in the composition of numbers.

Since there are many different words in the word groups of ravishes, the grammatical lines of ravishes are also very different.Studying the grammatical lines of adverb may reveal many things to us. We will limit ourselves to counting a few graduonymic lines here.

1. Before \ now \ then
2. Yesterday \ today \ early
3. Near \ side \ far
4. A little \ little \ quite \a bit \ crazy
5. Many \ abundant \ much \ countless \ innumerable \ a lot \a number of
6. On purpose \ aimly \ purposefully
7. Immediately \ suddenly \ in crash

In conclusion, we can say that the ranking series for different meanings and groups of adverbs are also characteristic.

Conclusion. In the semantic classification of words, imitative words that in most cases deviate from the quality of independent words, exclamations, graduonymic series in accordance with their spiritual properties, the entire lexical system of the language with graduonymic relations is captured.

Therefore, the expression of graduonymic relations in these words can be described in the process of learning the occurrence of degrees in graduonymic meanings.

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PROBLEMS OF Y. V. BONDAREV'S NOVEL "HOT SNOW"

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Annotatsiya. Maqolada Y. Bondarev hayoti va ijodi haqida umumiy ma'lumotlar, asarlarining qisqacha tahlili keltirilgan. Shu bilan birga "Issiq qor" romani tahlili va asardagi muammolar izohlangan. Bundan tashqari asardagi qahramonlarning xarakteri ham e'tiborga olingan.

Kalit so'zlar: Y. Bondarev, "Issiq qor", roman, shaxsiy tajriba, stilistik figura, sovet yozuvchilari, qahramonlar, yovuzlik.

Аннотация. статья содержит общие сведения о жизни и творчестве Ю. Бондарева, краткий анализ его творчества. При этом разъясняется анализ романа «Горячий снег» и проблемы в произведении. Кроме того, учитывался и характер персонажей произведения.

Ключевые слова: Ю. Бондарев, «Горячий снег», роман, личный опыт, стилистическая фигура, советские писатели, герои, зло.

Abstract. the article contains general information about the life and work of Y. Bondarev, a brief analysis of his works. At the same time, the analysis of the novel "Hot Snow" and the problems in the work are explained. In addition, the character of the characters in the work was also taken into consideration.

Key words: Y. Bondarev, "Hot Snow", novel, personal experience, stylistic figure, Soviet writers, heroes, evil.

Introduction. The novel "Hot Snow" occupies a special place in the work of the writer Yuri Bondarev, stands out among other earlier works and is especially popular with readers of different generations. Before the release of the novel "Hot Snow" (1969), Y. Bondarev was already well known and recognizable. His 1957 story The Battalions Ask for Fire placed him in the forefront of Soviet writers. His innovation was unusual for that time, accepted at first with that timid surprise with which true artistic discoveries are always met. "Battalions Ask for Fire" is Y. Bondarev's second work about the war, but this is his first novel in which the writer's talent is so clearly manifested that he combines the analysis of the human soul and understanding of philosophical problems in his works. This is also the first novel of those years that did not contain patriotic exclamations: "Hurrah, we won! Long live our great socialist Motherland!" - but there was only the naked truth about the war. Here, for the first time, the question was raised about the means by which this victory was achieved.

The main problem of the story is the contradiction between the fate of specific people in the war and the fate of a strategic operation. Is it possible to sacrifice the lives of individuals for the sake of a common goal? Can such a sacrifice be justified? Bondarev is trying to solve these problems at the level of the Ermakov-Iverzev conflict. And the happy fate of Yuri Bondarev's novel "Hot Snow" began immediately after its first edition. The book has been published several times, in huge editions, many articles and dissertations have been written about it, it has been filmed and staged, translated into dozens of languages, it can be found in the most unexpected corners of the country and almost never on the shelves of bookstores, where it instantly disappears.

Literature review. Bondarev wrote "Hot Snow" after two works that took place in peacetime, the author also returns us to the chronology of the war. The heroes of his early stories had already crossed the Dnieper ("Battalions are asking for fire"); they fought, pursuing the retreating Nazis in Slovakia, and died during the victorious retreat, as Captain Novikov died ("The Last Salvos") ... "Why are we writing about the Second World War again? Not because, for sure, the weakness of the human race is the fear of death, and not because the mind is dominated by the instinct of self-preservation. We remember the war because man is the greatest value of this world, and his courage and his freedom is freedom from that fear, from that evil that divides people.

Analysis. In Y. Bondarev's article "Stalingrad" there is a phrase starting with the words: "Only now I understand ..." Decades passed before the artilleryman Bondarev, and then the writer Bondarev, saw the true scale of the battles in which he participated. Participant. In addition, this understanding could not wait for the "queue", observe the "order" in the writer's work, it burst out, helping us to restore the picture of the battles

before and after Stalingrad with sufficient completeness, expanding our ideas about the world, about the war, about people, exploits and more about something.

The history of the creation of the work is a personal experience. What is the reason for such a universal and strong recognition of the novel "Hot Snow"? How does it capture the reader's imagination? What strings in the souls of different people respond to it? However, the answer will be approximate and incomplete, because the secret of art - the secret of true art - will never be fully explained. But still, it can be said that the years have no power over the book, if the author managed to transfer real life into it, if he managed to reveal the connection between the individual destinies of its heroes and the history of the people, if, finally, this book turns out to be consonant with life's problems, presenting new each time before each new time. The success of the novel was largely due to the fact that, depicting one of the decisive moments of the grandiose Battle of Stalingrad; the writer relied on his personal military experience. He fought near Stalingrad, was wounded there, and then went through the entire war. Speaking about the creation of his books about the Great Patriotic War, Y. Bondarev emphasizes the fact that their ideas came from life, they are "his own living people, like those whom he met in the war, with whom he once walked along the streets of the Stalingrad steppes , Ukraine and Poland, pushed cannons with his shoulder, pulled them out of the autumn mud, fired, stood at point-blank range, ate, as the soldiers say, from one pot, shared the last tobacco after tank attacks. Front-line writers were forced to take up a pen, first, by a sense of duty to front-line friends, responsibility to their memory. "All the time I had the feeling that I was bringing back to life those about whom no one knows anything and about whom only I know, and only I must, must tell everything about them," said Bondarev.

The place and time of the action of the novel are indicated specifically, in full accordance with real historical facts, the author, according to him, does not set himself the goal of "providing a single and detailed document of the military events in the Stalingrad region and southwest of Stalingrad in December 1942." The heroic actions of the 2nd Guards Army, in severe frost on the open, windswept icy steppe, stopped and pushed back the Manstein group, more precisely, one battle that lasted a little more than a day, to which Bondarev dedicated his novel "Hot Snow". Depicting the widest panorama of the events of the past war, the events taking place alternately at the Headquarters of the Commander-in-Chief, then at the army headquarters, then at one of the artillery batteries, the writer could not, of course, limit himself to his own memories. He studied in its entirety the entire history of the battle, all the available documentary evidence, which gave the novel scale and stereoscopicity, a high degree of reliability.

In the novel "Hot Snow" the writer describes the authentic, important events of the Great Patriotic War: the Battle of Stalingrad - a turning point, the unblocking of the Murmansk road, the way the Allies presented help. Nevertheless, at the same time, the novel also depicts other, previously unknown sides of the war. Life appears before us with all the colors, emotions, truth and lies, good and evil, love and hate. Perhaps that is why these works continue to win the hearts of people.

Discussion. In the novel "Hot Snow" by Y. Bondarev there are no historical real personalities with the exception of Stalin, who would be a clear prototype of one of the

heroes, whose character traits and appearance he was endowed with. The prototypes of the novel "Hot Snow" are people whom the author has ever met in his life, whom he heard about, who left a mark on his memory. Therefore, the heroes of these works are collective images. So, Kuznetsov, Drozdovsky, Ukhanov, Rubin, Chibisov, Sergunenkov are images of comrades in the service, friends of acquaintances, not only in wartime, but also in civilian life. In particular, in the image of the main character Kuznetsov, one can notice the features of the author himself. Bessonov, Vesnin, Titkov - such are the ideas of the commander of an anti-tank gun about "superiority", analysis of orders and orders, repeated (after the war) meetings with the command of the troops, in particular with G.K. Zhukov. Zoya is the image of a sister of mercy, close to every soldier. Autobiography plays a significant role in the novel. In addition, the life of a person in the war is already the main material for writing a work of art, and the more a person saw, the deeper he felt, the brighter, more real and natural the picture of those terrible events appears before the reader. There is hardly anything more unnatural than war.

The title of the novel refers to nature, and not a word about man. At first, the novel had a different title. It was called "Days of Mercy". Therefore, we have before us the words that we have heard more than once, and which do not cease to attract the attention of readers. What is their mystery? In a somewhat unusual construction at the syntactic and lexical level. Therefore, "Hot Snow" is built on such a stylistic figure as an oxymoron (comparison of incomparable mutually exclusive concepts). However, it is impossible not to notice that the title of Bondarev's novel is nevertheless taken from the text itself, when the hero wiped his face wet from tears, "the snow on the sleeve of the cotton wool became hot from his tears" (the episode when Kuznetsov mourned Zoya). The name, as it were, does not contain the essence of what is happening, but the state of mind, the emotional tension that the characters convey to us, the readers. This is the subtlety, elusiveness and attractiveness of the title of this work.

"A trifle" and "generalization", as the writer himself called it, were invisibly connected. A number of Soviet writers following L. Tolstoy fruitfully used this general principle of instantaneous change of focus. However, before "Hot Snow" it was believed that Tolstoy's discovery could only be the property of epic logic. The fruitful principle of "diachrony" again manifested itself in the peculiar "bipolarity" of a small novel, which, thanks to this, absorbed half of the entire epic. In other words, in Hot Snow there is a constant switching between two visions of a grandiose battle with Manstein's divisions trying to break through to the encircled Paulus grouping: large-scale, all-encompassing - by Commander Bessonov - and "trenches", limited by a narrow space occupied by Lieutenant Kuznetsov's artillery battery. Showing how it was, Bondarev once again introduced himself to the reader as an excellent master of battle walls, possessing "absolute pitch" for the complex sound panorama of battle, sensitively feeling the atmosphere of the front line, full of colossal tension, explosive, full of dynamism.

Among the protagonists of the novel, such figures as a member of the Military Council Vesnin, the commander Bessonov, the Supreme Commander-in-Chief Stalin (and this is one of the main features of the epic) appear in Bondarev for the first time. But people in the novel "Hot Snow", just like in the story "And the Stars Are Quiet

Here", just like on the battlefields of the Patriotic War of 1812, are in an "either-or", extreme situation, in the face of death in which the essence of the characters is fully revealed. In the works under study, the extreme situation is twofold. On the one hand, people are "on the heels" of it, and on the other hand, the country itself found itself in an "either-or" position, as it was in 1812 and in 1942. Another similarity with L. Tolstoy's "War and Peace" is expressed in characters. These are young people who are characterized by youthful maximalism, but for Tolstoy's heroes the main thing is a career, not only this feeling drives Bondarev's heroes: who has revenge, hatred, who has a desire for a peaceful holiday (after all, war is exhausting). Nevertheless, all the heroes, participants in the 1st and 2nd World Wars are united by love for the Motherland. Based on this, the war acquires a national character. However, in "Hot Snow" there are no such scenes that directly speak of love for the Motherland. Heroes express this feeling with their deeds and exploits.

The heroes of any work are a tool with which the author wants to show something, express something. No matter how you look at it, the main thing in the novel is still people. The characters of works of art of different times differ significantly: their views on life, actions, mentality are different. Through man, we learn the essence of the era, its features and laws. That is why it is so important for a writer to choose the right character, to be able to control him. We observe this mastery in Bondarev's novel "Hot Snow".

The heroes of "Hot Snow" lived in the same era; they were witnesses of similar events. Nevertheless, they have significant differences. Perhaps it depends on the type of writers themselves, their experience and vision of the war. Thanks to the skill and talent of the authors, each character appears before us as a separate person with his own interests, thoughts, and finally appearance. Someone was severely "broken" by the war (who is weaker in character); someone is trying to be optimistic, not to be sad, and to help his or her comrades in arms. Each hero has his own past that other life, which was mentioned more than once, which, perhaps, left an indelible mark on the character of these people. That is why it's so important to compare them now. Fighters and battery commanders - lieutenants Kuznetsov, Drozdovsky, Davlatyan, senior sergeant Ukhanov, artillerymen Nechaev and Sergunenkov, medical instructor Zoya Elagina and others - we meet on the very first pages of the novel "Hot Snow". All these people, different in age, education, character, spiritual needs and mental disposition are united by a sacred duty - to protect the Motherland. "No step back! In addition, knock out tanks. Stand and forget about death! - Bessonov will tell them before the battle, in which almost none of the heroes will have to survive, but in which their characters will be revealed to the limit, their souls will be revealed to the last depth. They now had one share, which "one and the same moved towards them along with the roar of a tank rolling across the steppe."

Conclusion. The past of the characters in the novel plays a significant role in revealing their characters. For some it is almost cloudless, for others it is complex and dramatic. The events of the past determined the fate of Ukhanov in battle: a gifted, energetic officer who would have commanded a battery, but only the sergeant is to blame. The cold, rebellious character of Ukhanov determines his place in the novel. Chibisov's misfortunes from the recent past almost broke him (he spent several months

in German captivity), they responded to him with fear and determined a lot in his behavior. One way or another, in the novel, Zoya Elagina, Kasimov, Sergunenkov and the cheerful Rubin slip into the past, whose courage and loyalty to soldier's duty we can only appreciate at the end of the novel.

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PRINCIPLES OF CREATION OF THE VIRTUAL MUSEUM "DORUL HIKMAT AND MAORIF"

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Annotatsiya. Maqolada muhandislik geometriyasi va kompyuter grafikasi asosida virtual muzeylarni yaratish, muzey axborot resursining semantik qismi, muzey exponatlarini 3D ko'rinishida tasvirlash va tarixiy obidalarni ma'lum darajada o'rganish borasida madaniyat va san'at asarlarini targ'iboti, bilim va xordiq oluvchilarning faolligini oshirishda virtual reallikdan foydalanish orqali virtual muzey muhitlariga onlayn tashrif etish texnologiyalari ishlan chiqilgan.

Kalit so'zlar. Virtual musey, 3d, computer grafikasi, blender, virtual reallik

Аннотация. В статье приводятся создание виртуальных музеев на основе инженерной геометрии и компьютерной графики, смысловая часть музейного информационного ресурса, представление музейных экспонатов в 3D и в определенной степени изучение исторических памятников, популяризация культуры и творчества искусства, деятельности реципиентов знаний и развлечений, разработаны технологии онлайн-посещения виртуальных музеев с использованием виртуальной реальности.

Ключевые слова. Виртуальный музей, 3d, компьютерная графика, blender, виртуальная реальность

Annotation. In this state, the creation of virtual museums is based on the basics of engineering geometry and computer graphics, the sense of museum information

resources, the presentation of museum exhibits in 3D, the study of historical monuments at a certain level, the popularization of culture and the creative arts, the development of knowledge and entertainment for recipients, and the development of online access technology for a virtual museum with virtual reality.

Keywords. Virtual museum, 3d, computer graphics, blender, virtual reality

Introduction. Innovative technical integration of virtual museum, virtual reality technologies, digital museum exhibits and environments with various fields of society, including film and television, trade and industry, medicine and chemistry, tourism, military, in addition, its application in the fields of art and culture is one of the important questions. In this regard, within the framework of large-scale projects, much attention is paid to the development of methods and tools for the wider use of virtual reality environments, the transition to three-dimensional technologies, and the study of digital museum exhibits based on computer graphics.

Implementation of virtual reality environments of public and private organizations in the study of culture and art, spiritual and historical monuments after gaining independence of our republic, displaying exposition content in three-dimensional and video-electronic format, a virtual museum based on engineering geometry and computer graphics Particular attention is paid to the development of a national virtual museum environment. In particular, in the decree of the President of the Republic of Uzbekistan on the approval of the strategy "Digital Uzbekistan-2030" and measures for its effective implementation, including "... virtual reality and imagination, artificial consciousness and thinking, machine learning in the sectors of the economy, training, analysis of a large database and studying the possibilities of using "cloud" computing technologies and their implementation", "...development and stimulation of research work in the field of digital technologies, improvement of their organizational mechanisms. A number of tasks have been identified, such as ...". Accordingly, with the development of technology and technology, many people are interested in using the virtual museum world.Demand for an electronic catalog has also increased to preserve copies of cultural, artistic, spiritual and historical monuments based on applied geometry and computer graphics and virtual reality tools, and one of the important tasks is the development of software tools, automating virtual environments using digital models and algorithms of various methods [1].

Literature review. In the opinion of the general public, museologists, archaeologists and historians, the use of high-resolution video, photorealistic electronic resources in the virtual world, place, meaning, level of adequacy in the classification of materials in a virtual electronic format based on engineering geometry and computer graphics, the level of adequacy of the museum exhibiting process, the inclusion of virtual reality elements in the collection system Yu. B. Keith Atkinson, from foreign scientists on the development of applied systems, virtual environments and their implementation. The scientific works of Richard Hartley, Matt Weilberg and others deserve attention [2].

The use of virtual reality elements based on engineering geometry and computer graphics in the museum system of our republic, the use of methods and algorithms for visualizing three-dimensional models of objects for the virtual environment, scientific research on the software information system for automating the virtual museum

process, mainly A.X.Nishanov, R.D.Aloev, J.X.Djumanov, F.M.Nuraliev, B.B.Mo'minov, N.O.Raximov, U.R.Xamdamov, V.S.Xamidov, M.Artikova and others contributed. Currently, one of the urgent problems in the virtual world is the users of the museum's digital collections fund in a virtual environment, their creation of 3D models and the development of a software tool integrated with the Museum's automated information systems, the technologies of online visits to virtual museum environments via the Internet have not been sufficiently studied [2, 3].

Research Methodology. Based on the creation of virtual images of genuine museum exhibits based on engineering geometry and computer graphics, an object of study is created with a reflection of their exact geometric dimensions, color image, figurative and semantic features, as well as a detailed description. Digitization of museum exhibits for the purpose of theoretical and scientific-practical study, development of scanning devices, photo and video recording and visualization methods, algorithms and solutions for creating their virtual model or three-dimensional copy of cultural monuments, as well as presenting and preserving them beautifully to public technologies, and software tools for their digital processing should also be created.

The idea of a three-dimensional description of objects of national cultural heritage, museum collections and electronic documents is associated with the extremely rapid development of real and abstract structures based on the areas of engineering geometry and computer graphics of information technology, as well as digital objects as historical monuments, archeology, and even purely humanitarian and other fields.

Before starting modeling, it is necessary to answer the question of creating a conceptual model: which class model should be created so that it meets the requirements of the field of knowledge in which further work with the model will be carried out. All modeling methods are conditionally divided into two main areas: material modeling and abstract modeling.

The purpose of the research is to create three-dimensional models of museum collections based on engineering geometry and computer graphics, to develop methods, models, algorithms and software for forming virtual images and visualizing their exhibits.

To achieve this goal, the following studies were carried out with consistent tasks:

analysis of modern methods for creating three-dimensional models of cultural heritage objects based on scientific research, experiments, technological solutions of computer graphics at the international and national levels;

designing three-dimensional models of collections of cultural monuments and developing a conceptual model for creating a virtual museum based on engineering geometry;

development of methods and algorithms that increase the accuracy of the database structure of digital exponents, geometric shape, size and color texture of data when creating three-dimensional models;

development of visualization methods based on computer graphics, algorithms for calculating the perfect parameter when creating a three-dimensional model of cultural heritage objects;

development of a software module that takes the format of photo, audio and video files to create a three-dimensional model and display graphic information in real existence in a virtual museum environment;

an example of designing a logical functional structure of three-dimensional models of national objects in a virtual museum environment is the creation of the Mamun Academy Virtual Museum software.

The main part. In traditional geometric models of information data implemented in computer environments and based on set theory, the description of cultural heritage objects (CHO) based on the above can be formally presented in the form of a conceptual model with the following set of attributes:

$$MML_t = \{O(x, y, z), S(kol, Oyut), T(d)\}, \qquad (1)$$

where CHP_t is a cultural heritage project, that is, a record of a digital collection in the database of the accounting inventory division, a cultural heritage project with information about the time of recording;

O(X, Y, Z) is a data set that describes the spatial representation (metric and topology) of an object;

S (kol,Oyut) is a set of data describing the texture and colorimetry of the object's surface;

T (d) is a text representing, as a rule, the most detailed description (semantics) of the object, is a set of text data;

it's time to take a t-CHO or put its digital model in a database.

The semantic part of this complex T(d) information resource is comprehensively developed and created in most accounting systems (registers, inventory, electronic catalogs, databases, etc.).

In this study, the main attention is paid to obtaining and preserving spatial (metric), structural and colorimetric parameters of CHO, the preservation of which is widely discussed today as significantly increasing their size, and the issue necessary for constructing the dimensions of the graphical component of the model of objects. Applying virtual methods in the artistic and compositional foundations and trends in the formation of equipment for museum expositions, we note that 3D computer models of cultural heritage objects are detailed models in which any point on their surface at a certain point in time (t) is fixed in three dimensions (X, Y, Z).

To place such objects and their models in space, it is necessary to specify or select an orthogonal frame of reference. This can be a spatial rectangular coordinate system (x, y, z), and for large objects (architectural monuments, instruments, etc.) - a coordinate system on the Earth's surface - geocentric (X, Y, Z) or geographical (r, φ), as well as an angular coordinate system.

Three-dimensional systems involve working with 3 coordinates, while one coordinate should change visibility, and other representations should also automatically change accordingly. The work on their construction is carried out in the following sequence: first, 2D representations are created, then a 3D model is formed. There are various systems that convert individual assembly drawings of the orthogonal projection mechanism in parts into a 3D model of the finished product. Since these systems have automatic communication with image data of various geometric types,

modeling is used in applications where repeated appearance correction is required at all stages of the design plan.

To date, three-dimensional modeling methods can be divided into 3 types [4, 5]: frame-frame (wire) modeling; surface (mesh) modeling; carbide (full-turn, volumetric) modeling. Modeling the surface of an object is based on two basic mathematical axioms: any surface surface is approximated by a polygon, any surface is a simple flat polygon; in the model, along with plane polygons, second-order surfaces and surfaces not described analytically in descriptive geometry are determined using approximation and interpolation methods that make them different in shape [1, 7, 10].

When modeling an object around the axis of rotation, compared to the original one, the object has internal and external sides, basic geometric surfaces (which include flat surfaces obtained as a result of the following actions: a straight line segment, and then the application of a command that rotates this segment for a certain distance in space, thus rotating the surface) ·a flat surface, formed when rotating around a certain axis of the mask surface; * interface and intersection surfaces that belong to the class of sculptural (sculptural) surfaces (arbitrary shapes, surfaces), as well as tracing [8].

The shape, size, connection point and orientation of the object are represented by a triple tree graph, i.e. $G = \{U, V, S\}$, where U is a set of vertices that are the main elements of the theoretical form that make up the object, and V is a set of its edges that define the operations of set theory, as well as that they are correct performed on the formwork elements. The primitives of the model are divided into $S = \{X, Y, Z, \varphi_x, \varphi_y, \varphi_y, Dx, Dy, \ldots, Dn\}$ with a set of attributes, where X, Y, Z is a reference to the local coordinate system (link); $\varphi_x, \varphi_y, \varphi_y$ - rotation angles, $Dx, Dy, \ldots, Dn$ - metric parameters of the object - logical bullish operations are the main tool used to determine adjacent mutual positioning relationships. These operations are based on algebraic set theory, and the most basic operations are union, intersection, and subtraction.

Using a system called Blazor Web Assembly, connecting the C code # With Java Script API and its libraries is functional, such as vertex(vertex), edge(side), face(face), polygon(area), element(member), patch(path), handle(vector), (NURBS-surface actions have been applied to "Dorul Hikmat va Maorif" https://dorulhikmat.uz the design and decoration of the virtual museum on the basis of / Sati was carried out in the "blender" program. Modeling of the museum began with the study of the floor plan (Fig.1. A-facade, B-views from above).

At the initial stage, the museum itself and the exhibits inside the museum are measured. After the appearance of the virtual museum is ready, the interior decoration is carried out (Fig.1-C- inside). In the process of designing the interior of a virtual museum "Dorul Hikmat va maorif" great attention was paid to the quality of the interior complex architectural structures of the museum building, such as the arch, niche and pattern.
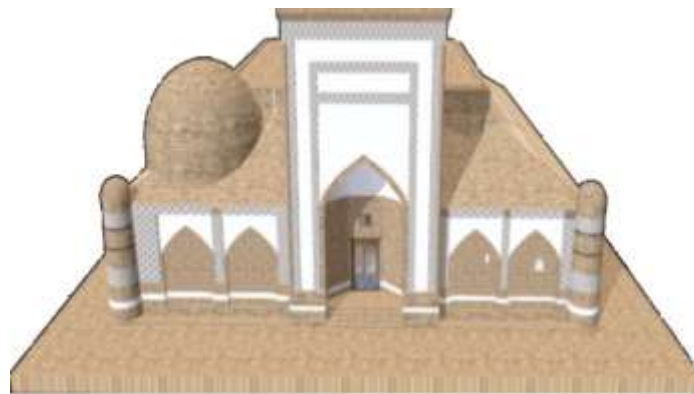
A- façade
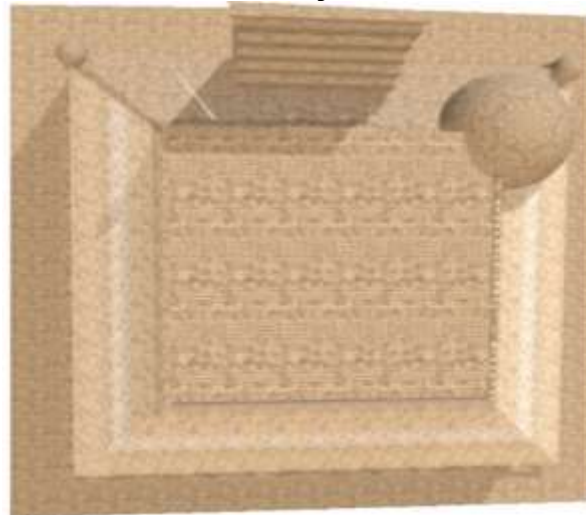
B- views from above

C- inside

Figure 1. Masks for creating thumbnails when rendering content

The project researchers at the next stages of these tasks should make sure that the drawing is monochrome, so that there is no white color on it, it is necessary to take into account the scale and make sure that the extreme interior scenes correspond to the entire border of the image. The sketch is created with dimensions corresponding to the construction plan, after which the drawing is copied from the folder to the model and converted into editing fields. Further work is carried out with the help of a fastening tool, that is, it allows you to create additional edges, which in this case are walls.

The exhibits of the virtual museum are the works of such great geniuses as Muhammad al-Khorezmi, Abu Rayhan Beruni, Mahmud Zamakhshari, Najmuddin Kubro, Abu Nasr ibn Iraq, Abu'l-khair Hammor, Masihi, Munis, Ogahi, who made a

great contribution to world science. The website in the domain consists of the following parts [2, 9, 11]:

Conclusion. Currently, the development of economic and social spheres in the republic using the latest achievements of information and communication technologies is one of the urgent tasks, the creation of a virtual museum based on the theory of engineering geometry and computer graphics served to implement the tasks in this area set out in the strategy of the President and Cabinet of Ministers of the Republic of Digital Uzbekistan-2030.

In the example of the national Virtual Museum, special attention is paid to the innovative technical integration of virtual reality technologies, exhibits and the environment of digital museum collections with various sectors of society, including the use of art and culture in cinema and television, trade and industry, medicine and chemistry, tourism and the army.

Development of a virtual museum platform for the museum "Dorul Hikmat Va Maorif" using the latest 3D modeling technologies developed using the Blender software, allows foreign tourists wishing to visit the virtual part of the museum to get a more complete picture of the museum and its exhibits, use virtual reality technologies and thereby increase the interest of tourists to the museum, and tourists - serves for increasing the flow [2].

The dynamic website of the "Dorul Hikmat va Maorif" Museum, based on the latest information systems software and artificial intelligence technologies, was developed using Microsoft's Blazor technology. As a result, most of the information on the site is presented in 7 languages, while using the Yandex Translator API based on artificial intelligence.

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ON THE PROPERTIES OF SOLUTIONS OF A CROSS-DIFFUSION SYSTEM WITH NONLINEAR BOUNDARY FLUX

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Annotatsiya. So'nggi paytlarda o'zaro kross - diffuziya deb ataladigan reaktsiya-diffuziya tipidagi matematik modellarni tahlil qilish va modellashtirishda keskin o'sish kuzatildi. Nochiziqli kross- diffuziyaning matematik modellari chiziqli bo'lmagan chegaraviy shartlar bilan berilgan nochiziqli xususiy xosilali parabolik tenglamalar sistemasi bilan tavsiflanadi. Ushbu maqolada avtomodel tahlil va standart tenglamalar usuliga asoslanib, nolokal chegara shartlar bilan berilgan nochiziqli kross - diffuziya sistemasining xususiyatlari o'rganilgan. Nochiziqli chegaraviy shartlar bilan berilgan nochiziqli kross - diffuziya sistemasining sonli parametrlarining ma'lum qiymatlari uchun ular o'z vaqtida global yechimlarga ega bo'lmasligi isbotlangan. Avtomodel tahlil va yechimlarni taqqoslash printsipiga asoslanib, Fujita tipidagi kritik ko'rsatkich va global yechim kritik qiymati belgilanadi. Taqqoslash teoremasidan foydalanib, global yechimlar uchun yuqori chegaralar va blow – up yechim uchun quyi chegaralar olinadi.

Kalit so'zlar: avtomodel tahlil, standart tenglamalar, kross - diffuziya, nolokal chegara, global yechimlar, kritik ko'rsatkich, blow - up.

Аннотация. В последнее время наблюдается всплеск анализа и моделирования математических моделей реакционно-диффузионного типа при наличии так называемой кросс-диффузии. Математические модели нелинейной кросс-диффузии описываются системой нелинейных параболических уравнений в частных производных, связанных с нелинейными граничными условиями. В данной работе на основе автомодельного анализа и метода стандартных уравнений исследуются свойства нелинейной кросс-диффузионной системы, связанной через нелокальные граничные условия. доказано, что при определенных значениях числовых параметров нелинейной кросс-диффузионной системы, связанных нелинейными граничными условиями, они могут не иметь глобальных решений во времени. На основе автомодельного анализа и принципа сравнения решений устанавливаются критический показатель типа фуджиты и критическое значение глобальной разрешимости. С помощью теоремы сравнения получены верхние оценки для глобальных решений и нижние оценки для решений с разрушением.

Ключевые слова: автомодельный анализ, стандартные уравнения, кросс-диффузия, нелокальная граница, глобальные решения, критический показатель, разрушение.

Abstract. Recently, there has been a surge in the analysis and modeling of mathematical models of the reaction-diffusion type in the presence of the so-called

cross diffusion. Mathematical models of nonlinear cross diffusion are described by a system of nonlinear partial parabolic equations associated with nonlinear boundary conditions. In this paper, based on a self-similar analysis and the method of standard equations, the properties of a nonlinear cross-diffusion system coupled via nonlocal boundary conditions are studied. It is proved that for certain values of the numerical parameters of the nonlinear cross-diffusion system coupled via nonlinear boundary conditions, they may not have global solutions in time. Based on a self-similar analysis and the principle of comparing solutions, a critical exponent of the Fujita type and a critical value of global solvability are established. Using the comparison theorem, upper bounds for global solutions and lower bounds for blow-up solutions are obtained.

Keywords: a self-similar analysis, standard equations, cross-diffusion, nonlocal boundary, global solutions, critical exponent, blow-up.

Introduction. In recent decades, much attention has been paid to various properties of mathematical models of cross-diffusion. Mathematical models describing cross-diffusion in the physical, chemical, biological, social and medical industries are largely based on systems of the "reaction-diffusion" type, where nonlinear terms describe kinetics, and transfer processes are represented by isotropic diffusion [21].

In this paper, we consider the properties of generalized solutions of systems of quasi-linear parabolic equations describing reaction-diffusion in an inhomogeneous medium with a cross-diffusion coefficient. Below we study the qualitative properties of a nonlinear mathematical model of cross-diffusion of the form:[29-32]

$$\begin{cases} \dfrac{\partial u}{\partial t} = \dfrac{\partial}{\partial x}\left(P_1(u,\upsilon)\dfrac{\partial u}{\partial x}\right), & x>0,\ t>0, \\[2mm] \dfrac{\partial \upsilon}{\partial t} = \dfrac{\partial}{\partial x}\left(P_2(u,\upsilon)\dfrac{\partial \upsilon}{\partial x}\right), & x>0,\ t>0, \end{cases} \tag{1}$$

$$\begin{cases} -P_1(u,\upsilon)\dfrac{\partial u}{\partial x}\Big|_{x=0} = Q_1\big(u(0,t)\big), & t>0, \\[2mm] -P_2(u,\upsilon)\dfrac{\partial \upsilon}{\partial x}\Big|_{x=0} = Q_2\big(\upsilon(0,t)\big), & t>0, \end{cases} \tag{2}$$

$$u(x,0)=u_0(x),\ \ \upsilon(x,0)=\upsilon_0(x),\ \ x>0, \tag{3}$$

where $u_0(x)$ and $\upsilon_0(x)$ are non-negative continuous functions with compact support in R_+.

Recently, they began to intensively engage in the analysis of mathematical models of the reaction-diffusion type in the presence of the so-called cross (cross) diffusion. Cross-diffusion is a process in which a concentration or density gradient of one chemical or biological species induces a flow (linear or non-linear) of another species. Accordingly, applications of the reaction-cross-diffusion of a system (1) - (3) are widespread in the literature and include the formation of pattern development in biology [14;16], electrochemistry [22], cancer motility [5;8;11] and biofilms [10]. The introduction of cross-diffusion in standard reaction-diffusion models has been shown to prevent cross-diffusion in order to prevent exacerbation phenomena associated with such systems [4;23]. Explicit analytical solutions of these complex and often

nonlinearly connected systems of partial differential equations are rarely existed, and thus, numerical methods are used to obtain approximate solutions.

It is known that a system of degenerate equations may not have a classical solution in the region where $u, \upsilon \equiv 0$. In this case, the generalized solution of system (1) is studied in a class having a physical meaning

$$u(x,t),\ \upsilon(x,t) \geq 0\ ,\ \ \upsilon^{m_1-1}\left|\frac{\partial u}{\partial x}\right|^{p-2}\frac{\partial u}{\partial x},\ u^{m_2-1}\left|\frac{\partial \upsilon}{\partial x}\right|^{p-2}\frac{\partial \upsilon}{\partial x} \in C\big(R \times (0,+\infty)\big).$$

and satisfying system (1) from the point of distribution [1;2; 3].

In recent years, the condition for global existence of solutions and the condition for the emergence of a blow-up regime have been intensively studied (see .[2-7; 8-11; 13; 15-28]). In [24;25] the conditions for global solvability and unsolvability in terms of time have been studied and the estimation of the solution near exacerbations time of a nonlocal problem of diffusion has been stated

$$u_t = u_{xx},\quad \upsilon_t = \upsilon_{xx},\quad x > 0,\ 0 < T < 0, \tag{4}$$

$$-u_x(0,t) = u^\alpha \upsilon^p,\quad -\upsilon_x(0,t) = u^q \upsilon^\beta,\quad 0 < t < T, \tag{5}$$

$$u(x,0) = u_0(x),\ \upsilon(x,0) = \upsilon_0(x),\ x > 0. \tag{6}$$

It is proved that if $pq \leq (1-\alpha)(1-\beta)$, then each solution of problem (4) - (6) is global.

In [17] the authors have investigated the following problem

$$u_t = \big(u^n\big)_{xx},\quad \upsilon_t = \big(\upsilon^k\big)_{xx},\quad x \in R_+,\ t > 0, \tag{7}$$

$$-\big(u^n\big)_x(0,t) = \upsilon^p(0,t),\quad -\big(\upsilon^k\big)_x(0,t) = u^q(0,t),\quad t > 0, \tag{8}$$

$$u(x,0) = u_0(x),\quad \upsilon(x,0) = \upsilon_0(x),\quad x \in R_+, \tag{9}$$

They have shown that the solution of problem (7) - (8) is global if $pq \leq (n+1)(k+1)/4$. Conditions were obtained for the numerical parameters of systems (7) - (9) under which the solution of the problem grows infinitely in a finite time.

The paper [21] should be also mentioned; here system (7) has been investigated with the following boundary conditions

$$-\big(u^n\big)_x(0,t) = u^\alpha \upsilon^p(0,t),\quad -\big(\upsilon^k\big)_x(0,t) = u^q \upsilon^\beta(0,t),\quad t > 0.$$

It is shown, that $\min\{y_1 - r_1,\ y_2 - r_2\} = 0$ where

$$r_1 = \frac{2p + k + 1 - 2\beta}{4pq - (k+1-2\alpha)(n+1-2\beta)},$$

$$r_2 = \frac{2p + n + 1 - 2\beta}{4pq - (k+1-2\alpha)(n+1-2\beta)},$$

$$y_1 = \frac{1 - r_1(n-1)}{2},\ \ y_2 = \frac{1 - r_2(k-1)}{2},$$

are the critical exponents of Fujita type.

Introduce the notation

$$\beta = \frac{(q_1-1)(q_2-1)-k(p-2)(q_2-1)-(m_1-1)(q_1-1)}{(k(p-2)+2)(q_1-1)(q_2-1)-k(p-2)(q_2-1)-(m_1-1)(q_1-1)} =$$

$$\frac{(q_1-1)(q_2-1)-k(p-2)(q_1-1)-(m_2-1)(q_2-1)}{(k(p-2)+2)(q_1-1)(q_2-1)-k(p-2)(q_1-1)-(m_2-1)(q_2-1)},$$

$$\alpha_1 = \frac{(k(p-2)+1)(q_2-1)}{l_1}, \alpha_2 = \frac{(k(p-2)+1)(q_1-1)}{l_2},$$

$$l_1 = (k(p-2)+2)(q_1-1)(q_2-1)-k(p-2)(q_2-1)-(m_1-1)(q_1-1),$$

$$l_2 = (k(p-2)+2)(q_1-1)(q_2-1)-k(p-2)(q_1-1)-(m_2-1)(q_2-1).:$$

Materials and Methods. Mathematical models of cross-diffusion are currently widely studied in the world, which are described using systems of equations of a parabolic type associated with nonlinear boundary conditions. Therefore, the development of methods for the numerical and analytical solution of non-linear cross-diffusion systems is considered a targeted scientific research.

Consider solutions of the following nonlinear cross-diffusion system with non-local boundary conditions

$$\begin{cases} \dfrac{\partial u}{\partial t} = \dfrac{\partial}{\partial x}\left(\upsilon^{m_1-1}\left|\dfrac{\partial u^k}{\partial x}\right|^{p-2}\dfrac{\partial u}{\partial x} \right), \\[4mm] \dfrac{\partial \upsilon}{\partial t} = \dfrac{\partial}{\partial x}\left(u^{m_2-1}\left|\dfrac{\partial \upsilon^k}{\partial x}\right|^{p-2}\dfrac{\partial \upsilon}{\partial x} \right), \quad x \in R_+, \ t>0, \end{cases} \tag{10}$$

$$\begin{cases} -\upsilon^{m_1-1}\left|\dfrac{\partial u^k}{\partial x}\right|^{p-2}\dfrac{\partial u}{\partial x}(0,t) = u^{q_1}(0,t), \\[4mm] -u^{m_2-1}\left|\dfrac{\partial \upsilon^k}{\partial x}\right|^{p-2}\dfrac{\partial \upsilon}{\partial x}(0,t) = \upsilon^{q_2}(0,t), \ t>0, \end{cases} \tag{11}$$

$$u(x,0)=u_0(x), \quad \upsilon(x,0)=\upsilon_0(x), \quad x \in R_+, \tag{12}$$

where $p > \max\{m_1,m_2\}+1$, $k>0$, $m_i>1$, $q_i>0 (i=1,2)$, u_0 and $\upsilon_0(x)$ are the non-negative continuous functions with compact carrier in R_+.

Theorem 1. Let $\min\{l_1,l_2\}>0$ then, any solution to problem (10) - (12) is unbounded for sufficiently large initial data.

Theorem 3 is proved as in [20].

Theorem 2. Let $\max\{\alpha_1-\beta, \alpha_2-\beta\}<0$ and the initial data are sufficiently small, then any solution to problem (10) - (12) is global.

Proof. Constructing bounded upper solutions, we can determine the conditions of solvability in time in the following way:

$$\begin{cases} u_+(x,t)=(T+t)^{-\alpha_1}f(\xi), \\ \upsilon_+(x,t)=(T+t)^{-\alpha_2}g(\xi), \ \xi=x(T+t)^{-\beta}, \end{cases} \tag{13}$$

where $T>0$, $f(\xi)$ and $g(\xi)$ are the sought for functions, which, by the solution comparison theorem, must satisfy the system of inequalities:

$$\begin{cases} \dfrac{d}{d\xi}\left(g^{m_1-1}\left|\dfrac{df^k}{d\xi}\right|^{p-2}\dfrac{df}{d\xi}\right)+\beta\xi\dfrac{df}{d\xi}+\alpha_1 f \le 0, \\[4mm] \dfrac{d}{d\xi}\left(f^{m_2-1}\left|\dfrac{dg^k}{d\xi}\right|^{p-2}\dfrac{dg}{d\xi}\right)+\beta\xi\dfrac{dg}{d\xi}+\alpha_2 g \le 0, \end{cases} \tag{14}$$

$$\begin{cases} -g^{m_1-1}\left|\dfrac{df^k}{d\xi}\right|^{p-2}\dfrac{df}{d\xi}(0)\ge f^{q_1}(0), \\[4mm] -f^{m_2-1}\left|\dfrac{dg^k}{d\xi}\right|^{p-2}\dfrac{dg}{d\xi}(0)\ge g^{q_2}(0). \end{cases} \tag{15}$$

Along with this, consider the following

$$\begin{cases} \bar{f}(\xi)=A_1\left(a-(\xi+h)^{\frac{p}{p-1}}\right)^{y}, \\[4mm] \bar{g}(\xi)=A_2\left(a-(\xi+h)^{\frac{p}{p-1}}\right)^{z}, \end{cases} \tag{16}$$

where $h\in\left(0,a^{\frac{p-1}{p}}\right)$, $a>0$, $A_2^{m_1-1}A_1^{k(p-2)}k^{p-2}\left(\dfrac{yp}{p-1}\right)^{p-1}=\beta$, $A_1^{m_2-1}A_2^{k(p-2)}k^{p-2}\left(\dfrac{zp}{p-1}\right)^{p-1}=\beta$. The

solvability of systems of inequalities (14) - (15) with respect to unknown parameters a, h, and under conditions $q_1>m_2+1$, $q_2>m_1+1$ is shown as follows. Substituting functions (16) into (14) and (15), we obtain

$$\begin{cases} (\alpha_1-\beta)\left(a-(\xi+h_1)^{\frac{p}{p-1}}\right)\le 0, \\[4mm] (\alpha_2-\beta)\left(a-(\xi+h_2)^{\frac{p}{p-1}}\right)\le 0. \end{cases}$$

hence the condition for the restrictions on $\max\{\alpha_1-\beta,\alpha_2-\beta\}<0$ and conditions for further calculations of a, h are given in the form:

$$a\le h^{\frac{p}{p-1}}+\min\left\{\left(A_1^{1-q_1}h\beta\right)^{\frac{1}{y(q_1-1)}},\left(A_2^{1-q_2}h\beta\right)^{\frac{1}{z(q_2-1)}}\right\} \tag{17}$$

Given this, we can conclude that if $\max\{\alpha_1-\beta,\alpha_2-\beta\}<0$ and the initial functions $u_0(x)$ and $\upsilon_0(x)$ satisfy the following inequalities:

$$\begin{cases} u_0(x)\le T^{-\alpha_1}A_1\left(a-\left(xT^{-\beta}+h\right)^{\frac{p}{p-1}}\right)^{y}, \\[4mm] \upsilon_0(x)\le T^{-\alpha_2}A_2\left(a-\left(xT^{-\beta}+h\right)^{\frac{p}{p-1}}\right)^{z}, \end{cases}$$

then the solution to problem (10) - (12) is global. The values of parameters a, h are selected from condition (17).

Theorem 2.3.. If $q_1\le 1$, $q_2\le 1$ then every solution to problem (10) - (12) is global.

Theorem 3 is proved as in [20].

Note 1. Theorem 3 shows that the critical exponents of the global existence of a solution are $q_{10}=1$, $q_{20}=1$.

Note 2. Theorem 1 shows that the critical Fujita exponents are $\min\{\alpha_1-\beta,\alpha_2-\beta\}=0$.

Theorem 4. Assume that $p > \max\{m_1, m_2\} + 1$ and $m_i > 1$ then the solution with compact carrier of the system of equations (14) at $\xi \to a^{(p-1)/p}$ has an asymptotic

$$\begin{cases} \varphi(\xi) = \tilde{\varphi}(\xi)(1 + o(1)), \\ \phi(\xi) = \tilde{\phi}(\xi)(1 + o(1)). \end{cases} \tag{18}$$

Theorem 4 is proved as in [20].

3. Results

Using the above numerical schemes, a computational experiment was conducted. Here are some results of numerical experiments. The grid step is quite small $h = 0.05$, the number of nodes is $N = 2500$, and the accuracy of the iteration is specified as $\varepsilon = 10^{-3}$. The counting was carried out up to $t = 2$ with step $\tau = 0.02$., Formulas (10), (14) were taken as the initial approximation for the iterative process.
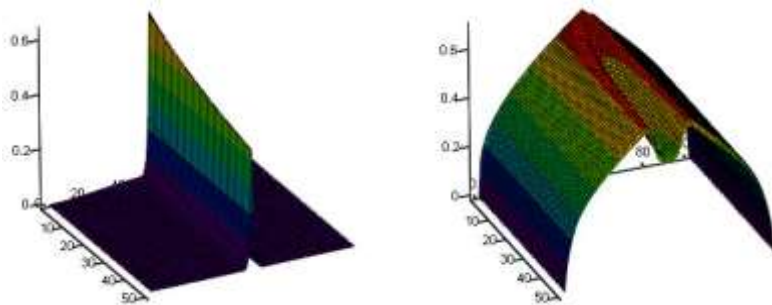

Fig. 1.Numerical solution of the problem (10)-(12)
$q_1 = 3, q_2 = 2.7 \ p = 1.3, p = 3.3, m_1 = 1.5, m_2 = 1.8$

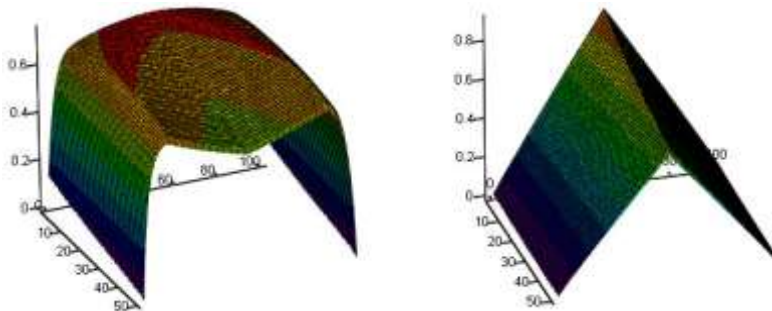*Source:* The value of the coefficients follows from the proof of the theorems.

Fig. 2.Numerical solution of the problem (10)-(12) at
$q_1 = 3.1, q_2 = 3.7, k = 1.25, p = 3.8, m_1 = 2.1, m_2 = 1.2$

Source: The value of the coefficients follows from the proof of the theorems.
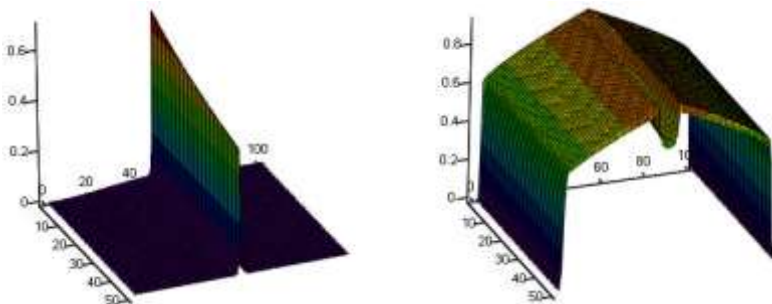
Fig. 3.Numerical solution of the problem (10)-(12) at $q_1 = 3.1$, $q_2 = 3.3$, $k = 1.4$, $p = 3.5$, $m_1 = 1.2$, $m_2 = 1.8$

Source: The value of the coefficients follows from the proof of the theorems.

Figs. 1-3, show the results of numerical solution of problem (10) - (12) at $m_i > 1$ $(i = 1, 2)$ corresponding to the case of slow diffusion. At $m_i > 1$ $(i = 1, 2)$ as follows from the asymptotic formulas (13), (17) and graphs, the object moves with a finite velocity. The depth of penetration of a diffusion wave depends on time and the wave front (the point at which $u(x,t)$, $\upsilon(x,t)$ for each medium located at the end point: $x_\phi = a^{(p-1)/p} (T+t)^\beta < \infty$

For the numerical study of the problem under consideration, a method is proposed for choosing the optimal initial approximation for the iterative process. Numerical calculations have been made. The results of the calculation are visualized in time and the analysis of the results is carried out.

Discussion. In work [33] consider the Cauchy problem for a cross-diffusion system of the following form

$$\begin{cases} \rho(x)\dfrac{\partial u_1}{\partial t} = \dfrac{\partial}{\partial x}\left(D_1 |x|^n u_2^{m_1-1} \left|\dfrac{\partial u_1}{\partial x}\right|^{p-2} \dfrac{\partial u_1}{\partial x} \right) + \rho(x)k_1 u_1 \left(1 - u_1^{\beta_1}\right), \\ \rho(x)\dfrac{\partial u_2}{\partial t} = \dfrac{\partial}{\partial x}\left(D_2 |x|^n u_1^{m_2-1} \left|\dfrac{\partial u_2}{\partial x}\right|^{p-2} \dfrac{\partial u_2}{\partial x} \right) + \rho(x)k_2 u_2 \left(1 - u_2^{\beta_2}\right), \end{cases} \qquad (19)$$

$$u_1\big|_{t=0} = u_{10}(x), \; u_2\big|_{t=0} = u_{20}(x), \qquad (20)$$

which describes the nonlinear process of a biological population with variable density in a two-component medium, the diffusion coefficients of which are equal to $D_1 |x|^n u_2^{m_1-1} \left|\dfrac{\partial u_1}{\partial x}\right|^{p-2}$, $D_2 |x|^n u_1^{m_2-1} \left|\dfrac{\partial u_2}{\partial x}\right|^{p-2}$. A study of the properties of the solution of the problem (37), (38) based on self-similar analysis and the method of comparing solutions [[33]]. Asymptotics of self-similar solutions of the Cauchy problem (19), (20), numerical schemes are constructed, and an algorithm for carrying out computational experiments is developed.

Conclusion. 1. The qualitative properties of solutions of the nonlinear cross-diffusion model in a homogeneous and inhomogeneous medium are investigated. The leading term of the asymptotics of self-similar solutions of the cross-diffusion system is obtained; for the numerical study of the problem under consideration, a method is proposed for choosing the initial approximation for the iterative process.

2. Various self-similar solutions of the nonlinear cross-diffusion problem are constructed, the values of the Fujita-type critical exponent and the critical exponents for the existence of a global solution are established.

3. It is proved that for certain values of the numerical parameters of a nonlinear system of parabolic cross-diffusion equations with nonlinear boundary conditions, they may not have global solutions in time.

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PROSPECTS ABOUT LOGISTIC CENTRES IN C. ASIA

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Annotatsiya: Maqolada Markaziy Osiyoda "quruq portlar" yoki logistik markazlarini rivojlantirish istiqbollari tahlil qilingan, statistik modeli transport ishi, ijtimoiy-iqtisodiy va infratuzilma-geografik omillari tizimining klaster tahlili yordamida O'zbekiston Respublikasi misolida ehtiyojlarni baholash va logistik markazlarini joylashtirish uchun joylarni tanlash shartlari ko'rsatilgan, logistik markazi faoliyati uchun zarur bo'lgan binolar va inshootlar taklif etilgan.

Kalit so'zlar: transport sektori, "quruq port", terminallar, logistik markazi, yuk tashish ob'ekti, transport infratuzilmasi, mintaqa, klaster.

Аннотация: В статье проанализирована перспектива развития так называемых "сухих портов" или логистических центров в Центральной Азии, приведены условия проведения оценки потребностей и выбора мест для размещения логистических центров на примере Республики Узбекистан с помощью кластерного анализа статистической модели системы факторов транспортной работы, социально-экономических и инфраструктурно-

географических, предложены здания и сооружения, необходимые для функционирования логистического центра.

Ключевые слова: транспортный сектор, "сухой порт", терминалы, логистический центр, грузовой объект, инфраструктура транспорта, регион, кластер.

Abstract: The article analyzes the prospects for the development of so-called "dry ports" or logistics centres in Central Asia, provides the conditions for conducting a needs assessment and choosing locations for locating logistics centres on the example of the Republic of Uzbekistan using a cluster analysis of a statistical model of a system of factors of transport work, socio-economic and infrastructural -geographical, proposed buildings and structures necessary for the functioning of the logistics centre.

Keywords: transport sector, "dry port", terminals, logistics centre, cargo facility, transport infrastructure, region, cluster.

Introduction. The LC concept is considered to be appropriate for the C.Asia region. It is expected that the development of freight villages would show similar benefits as in Europe. It is reasonable that the municipal and regional administrations coordinate the spatial planning. The state should be responsible for infrastructure development (roads, rail, waterways, ports, terminal concept). The LC concept is appropriate in general, but C. Asian countries specifics must be considered. The private sector could / should play a bigger role in development and financing (development funds, development enterprises). Openness of the freight villages should be ensured, monopolies should be avoided. Railways involvement is necessary (intermodal terminals). Pilot projects to learn from should be encouraged. Locally different solutions are possible. An umbrella organization and masterplanning would be helpful

Multimodal logistics network cannot exist without proper rail terminals. Railway is very important ingredient in a logistics network. Railways were very strong in old Soviet Union and there is a lot of infrastructure especially in Uzbekistan and Kazakhstan left from its heritage, that should be maintained for not being neglected with its role in comparison to the road transport. The Rail Terminals need renovation in general and better road connections. Some rail terminals need parking and manoeuvre areas for truck and warehouses. Some are congested as Chukursay and Almaty, but most other underutilized such as Bishkek, Tovarniny.

Kazakhstan can be seen as a model in the area in terms of developments in Logistics for setting up the legislation and preparing the proper environment for allowing PPP or totally private investments, but training, capacity building is needed in all 4 countries.

The possible government and private sector roles, as it is shown from international experience in seaport ownership and operation, are that the state usually has the ownership and is responsible for the regulation, while operation and management is given with concession agreements to private sector. Government also cares about improving transport infrastructure links to ports and ensuring competition in the sector.

The Criteria for Developing Logistics Centres

The LC's should be located on major transport corridors, on intersections of such corridors, near ports, airports or rail terminals, in the periphery of big cities, near major

border crossings near FEZ. The availability of cheap land, ample space for possible expansion is very important. An initial space of 10 to 30 hectares with the availability of additional land to expand is a prerequisite.

The location should have all required permits by the government for such land use, should have EIA and environmental terms and should not negatively affect other delicated land uses such as housing-residential.

The LC's are very important for improving transport operations and for contributing to the economic development of the region.

Potential benefits of logistic centres include: reduced transport costs and resulting improvements in export competitiveness; increased supply and use of logistics and associated services in business; potential employment creation as services are attracted to supply the dry ports; and environmental benefits, if a modal shift towards rail is encouraged;

LC's would allow shippers to undertake consolidation and distribution activities as well as export / import procedures at inland locations that are at relatively short distances from factories and farms.

These facilities could help reduce congestion and delays at border crossings and ports, thereby reducing transaction costs for exporters and importers. This is particularly important for landlocked countries.

LC's can be developed with PPP. Depending on the legislation of each country and the site ownership various combinations of public private partnerships will be examined such as concessions -DBFMO, DBFT, etc with possible involvement of IFI's too.

In summary the required conditions for preliminary assessment of needs and selection of location for the development of Logistics Centers are:

• Existence of O/D data by commodity, subregion for national, intl and transit movements of freight

• Availability of land

• Traffic, environmental impact studies for the site

• Availability of funds

• Consensus on location between government, local authorities, transport unions, forwarders, railways, transport operators, etc

• Existence of large scale consumption (big city) or production (manufacturing, mining, agriculture etc) near the site

• Major transit corridor and / or major border crossing nearby

• Major railway node, multimodal node, motorways junction nearby

• In case of LC's near borders, consensus with neighboring countries

• Preliminary Financial feasibility studies

Material and research methods. The issues of development of logistics centres, the effectiveness of planning, forecasting and management of cargo-container flows are given special attention in the works of scientists [1-5].

The problem of the optimal location of the logistics centres with the possibility of loading and warehousing should take into account such basic factors as the distance between the warehouse and suppliers and consumers, the volume of cargo transported,

transport rates and the time of delivery of goods from suppliers to the warehouse and from the warehouse to consumers, and be solved by determining the coordinates (x, y) of the logistics terminal so that the logistics costs equal to the sum of the products of the distances from suppliers to the logistics terminal and from the logistics terminal to the destination, which has coordinates (x_i, y_i), and the volumes of cargo transported Q_i (need or demand) were minimal, as shown by formula 1:

$$P = \sum_{i=1}^{n} Q_i d_i \rightarrow \min \quad , \qquad (1)$$

where: d_i is the distance from the logistics center to the i-th supplier or to the destination point ($i = 1, 2, \ldots n$).

If the task is enlarged to the level of location of distribution logistics centers in the country, then the model development procedure should be divided into several stages [6].

First stage. To determine the level of dependence between the factors influencing the location of logistics centers; the values of dependent (endogenous) variables y_1, y_2, $\ldots y_m$ are estimated depending on the values of independent (exogenous) variables x_1, x_2, $\ldots x_k$ taking into account the influence of random components ε_1, ε_2, $\ldots \varepsilon_m$ that cannot be measured (the influence of factors and random errors in the measurement of indicators is not included in the model) [7].

The exogenous or independent variables of the statistical model include climatic zones, availability of roads and railways, availability of transport corridors in the region, and population.

The remaining variables are defined as dependent (endogenous) ones.

Thus, a data array that statistically describes and allows assessing the change in time and space in the system of factors for the location of logistics centers consists of P factors for N regions of Uzbekistan over time intervals T [8].

Second stage. Cluster analysis is performed using various software systems (for example, Statistica) [9] to group multidimensional objects and present the results of individual observations by points of appropriate geometric space, followed by the selection of groups as clusters. Objects included in a certain cluster have similar properties.

Similarity with other objects is defined as the corresponding distance between objects in space, that is, the value of d_{ab} satisfies the axioms [10,11]:

$A1$. $d_{ab} > 0$, $d_{ab} = 0$,

$A2$. $d_{ab} = d_{ba}$, $\qquad (5)$

$A3$. $d_{ab} + d_{bc} \geq d_{ac}$.

It is appropriate to use the geometric distance between two points in a multidimensional space (the Euclidean distance) as a measure of distance:

$$d_{ab} = \sqrt{\sum_{i=1}^{K} \left(X_{ia} - X_{ib} \right)^2} \, , \qquad (6)$$

where: X_{ia}, X_{ib} are the values of i-th attribute of the a-th (b-th) object ($i = 1, 2, \ldots, k$, a, $b = 1, 2, \ldots n$).

Cluster analysis was conducted using the Excel program. All indices are normalized by the ratio of the difference between the initial and arithmetic mean values of the indices to the standard deviation (in the developed model, this tab is called "Cluster analysis").

Results and discussion. Next, the resulting data is selected and, using the Insert-PivotTable algorithm, is opened in a new sheet (in the developed model, this tab is called "Shortest Distances"). Here, the "regions" parameter is transferred to the columns, and the "region number" parameter (No) is transferred to the rows according to the selected value "Volume of freight rail transportation" (railway, million tons) with the field parameters set to the value "Maximum by field". Having previously chosen the value of 4 as (the number of clusters), formulas are set for the resulting data arrays, highlighting such factors as the distance to each cluster, the shortest distance, the cluster number, and the number of regions in each cluster. The target function is set (the sum of the shortest distances).

The "Search for a solution" tool is used in the "Data" tab, where it is selected as the value restriction with the search for the smallest value. The "Evolutionary search for a solution" method is used. The resulting data is split using the "Color Scale" tool in the "Conditional Formatting" tab; the regions of each cluster are classified by data commonality (see **Ошибка! Источник ссылки не найден.**).
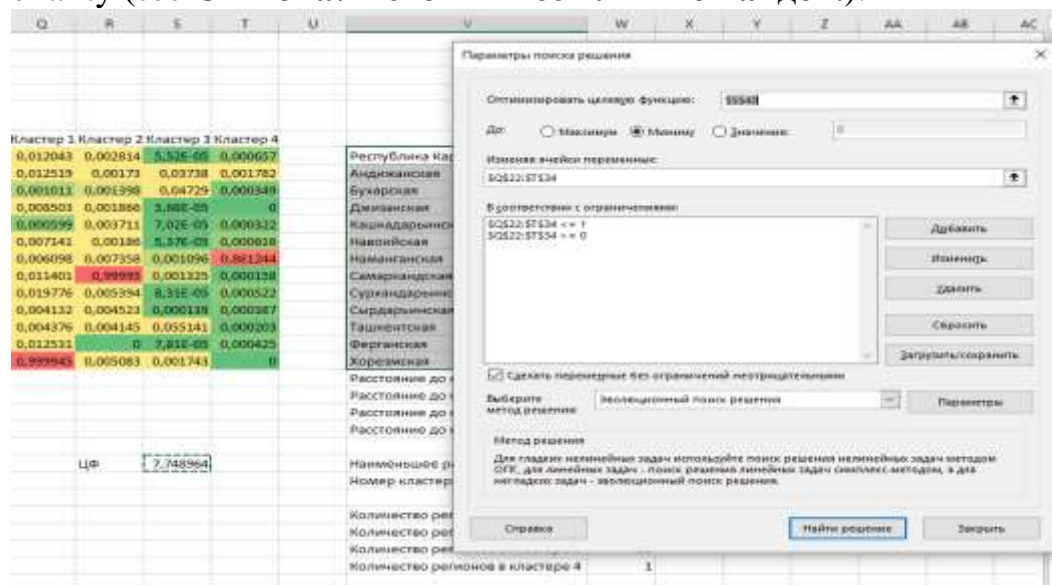

Figure 1. Setting the parameters of the "Search for a Solution" tool in the cluster analysis of the regions of Uzbekistan

As a result of the cluster analysis, 4 clusters were identified:

1st cluster - Khorezm region;

2nd cluster - Samarkand region;

3rd   cluster - Republic of Karakalpakstan, Andijan region, Bukhara region, Jizzakh region, Kashkadarya region, Navoi region, Surkhandarya region, Syrdarya region, Tashkent region, Fergana region.

4th cluster - Namangan region.

The dependence of rail transport volumes on the density of roads and railway coverage, imports, the cost of fixed assets per capita, road transport volumes, retail trade volumes and the availability of transport corridors was statistically confirmed. At

that, the indicator increases due to belonging to the first cluster (Khorezm region) and decreases due to belonging to the third cluster (Republic of Karakalpakstan, Andijan, Bukhara, Jizzakh, Kashkadarya, Navoi, Surkhandarya, Syrdarya, Tashkent, Fergana regions).

The LC's should be located on major transport corridors, on intersections of such corridors, near ports, airports or rail terminals, in the periphery of big cities, near major border crossings near FEZ. The availability of cheap land, ample space for possible expansion is very important. An initial space of 10 to 30 hectares with the availability of additional land to expand is a prerequisite.

The location should have all required permits by the government for such land use, should have EIA and environmental terms and should not negatively affect other delicated land uses such as housing-residential.

These facilities could help reduce congestion and delays at border crossings and ports, thereby reducing transaction costs for exporters and importers. This is particularly important for landlocked countries.

Conclusion. Is the LC Concept Appropriate for the Central Asia?

-        The development of freight villages would show similar benefits as in Europe.

-        It is reasonable that the municipal and regional administrations coordinate the spatial planning. The state is responsible for infrastructure development (roads, rail, waterways, ports, terminal concept).

-        So the LC concept is appropriate in general, but C.ASIAN countries specifics must be considered.

-        The private sector could / should play a bigger role in development and financing (development funds, development enterprises).

-        Openness of the freight villages should be ensured, monopolies should be avoided. Railways involvement is necessary (intermodal terminals).

-        Pilot projects to learn from should be encouraged. Locally different solutions are possible. An umbrella organization and masterplanning would be helpful.

Possible government and private sector roles. From international experience in seaport ownership and operation it is shown that the state usually has the ownership and is responsible for the regulation, while operation and management is given with concession agreements to private sector. Government also cares about improving transport infrastructure links to ports and ensuring competition in the sector.

Buildings. A Logistic centre may include various buildings such as:

• Depots for dried products as well as for cargos of various types
• Depots for frozen products
• Cargo distribution centre
• Regulation terminal of cargo transported in containers
• Multimodal terminal
• Buildings of common usage

Expansion of functions. The Potential expansion of functions at an inland intermodal facility may be the following: Container Yard; Container Freight Station; Inland Container Depot; Import Processing Zone; Industrial Park; Export Processing Zone; Special Economic Zone; Logistics and other Value Added Services.

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ANALYSIS OF PILE DRUMS OF THE 1XK MACHINE CLEANING COTTON FROM SMALL IMPURITIES

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Annotatsiya: Maqolada paxtani mayda iflosliklardan tozalash 1XK uskunasini qoziqli barabanini tozalash samaradorligini oshirish va paxta tarkibidagi chigit va tolaning mexanik shikastlanganligini kamaytirish maqsadida takomillashtirish bo'yicha texnik yechim taklif etilgan va kelgusidagi ilmiy tadqiqot yo'nalishi asoslab berilgan.

Kalit so'zlar: mayda iflosliklar, qoziqli baraban, to'rli yuza, paxta, chigit, mexanik shikastlanganlik, samara.

Аннотация: В статье предложено техническое решение по улучшению очистки хлопка от мелких примесей с целью повышения эффективности очистки колкового барабана установки 1ХК и уменшения механической повреждаемости семян и волокна в хлопке, а также обосновано дальнейшее направление научных исследований.

Ключевые слова: мелкие примеси, колковый барабан, сетчатая поверхность, хлопок, семена, механическое повреждение, эффект.

Annotation: The article proposes a technical solution to improve the cleaning of cotton from fine impurities in order to increase the efficiency of cleaning the 1XK pegboard drum and decrease the mechanical damage of seeds and fibers in cotton, and also substantiates the further direction of scientific research.

Keywords: fine impurities, spike drum, mesh surface, cotton, seeds, mechanical damage, effect.

Introduction: The primary processing of cotton consists of a number of technological processes (laying, storage, transportation, drying, cleaning, fiber ginniring, etc.) that form a single technological chain. This technological chain is closely related to the performance of each piece of equipment and the quality of the

previous machines. Taking into account this issue, we can conclude that the impact of the equipment of the technological chain on the quality indicators of cotton is great.

The competitiveness of cotton fiber in the world market is mainly determined by the appearance of the fiber, the length of the fiber, the amount of impurities and defects in the composition.

The use of cotton fiber in the world textile industry is 55-60 percent of the total amount of fibers. According to the latest data from world statistics and the International Cotton Advisory Committee (ICAC), "four exporters of cotton fiber in the 2018/2019 season are the United States, India, Australia and Brazil, and the importers are Bangladesh, Vietnam, China, Turkey and Indonesia are included. The consistent and stable development of the cotton ginning industry, the introduction of modern equipment at the enterprises of the industry, and the increase in the level of efficient and rational use of production capacities are the basis for the production of competitive products on the world cotton market. In this regard, special attention is paid to the improvement of high-performance cotton ginning equipment and the creation of resource-saving technologies in the global cotton ginning industry.

In the world experience, large-scale research work is being carried out to improve the technique and technology of the primary processing of cotton. In this area, among other things, the tasks are set to develop effective technologies for cleaning cotton from impurities, to create resource-saving and efficient equipment for drying and cleaning cotton. At each stage of production, identify factors that have a negative impact on the quality and quantity of the product, and develop technical solutions to eliminate them, maintain the initial indicators of cotton quality during the cotton cleaning process, develop technologies that allow you to control product quality, operating modes and conduct scientific research in the direction of optimizing its performance is of great importance.

In recent years, as a result of consistently implemented reforms in the field of modernization and diversification of agricultural production, the development of the processing industry, a new system of activities in the agricultural sector is being introduced - the cluster method.

In a short time, the cluster method of work has shown its positive aspects, and the introduction of resource-saving methods and technologies in agricultural production, the introduction of industry in rural areas and the creation of new jobs, high added value in finished form, significant work has been done in terms of production and infrastructure development [1].

By the decision of the President of the Republic of Uzbekistan dated July 7, 2022, the Cotton Council was established under the President of the Republic of Uzbekistan [2]. The Council will implement an efficient system to increase cotton yields and, by applying scientific and innovative planting, selection of varieties, tillage, fertilization and irrigation in cotton cultivation, will work towards increasing exports and incomes in the textile sector.

Literature review: A number of scientists of our Republic, including B.A. Levkovich, S.D. Boltaboev, A.N. Nuraliyev, S.A. Samandarov, G.I. Miroshnichenko, R.Z. Burnashev, G.D. Djabbarov, S.D. Baltabayev, G.I. Boldinsky, R.V. Korabelnikov, B.I. Roganov, H.K. Tursunov, A. Djurayev, E.T. Maksudov, T.M.

Kuliyev, A.E. Lugachev, H.T. Akhmedkhodzhayev, R.M. Muradov, B. Mardonov, Sh.Sh. Khakimov, O. Sarimsakov, H.K. Rakhmonov, I.D. Madumarov, A.Kh. Bobomatov and others made a worthy contribution to the development of the field.

In world and Uzbek practice, pile drums are mainly used to clean cotton from small impurities, only their designs, sizes and working methods can differ. According to the results of research by foreign experts, the number of pile drums has a great influence on the fiber class and the appearance of the technological process of processing cotton seeds. Fiber quality and appearance increase dramatically with increasing pile drums from 1 to 7 and increase relatively slowly with increasing pile drums from 7 to 20, but fiber quality and appearance do not improve with more than 20 pile drums.

The analysis of the cotton cleaning equipment used in foreign and local cotton cleaning enterprises revealed that today the issues of improving the working bodies of cleaning machines from small impurities, which ensure the extraction of high-quality fiber from cotton raw materials, have not yet found their effective solution.

Analysis of scientific and research work carried out on machines for cleaning seed cotton from small impurities.

We can cite scientific works [3, 4], which have made a significant contribution to the creation of scientific foundations for the technology of cleaning cotton raw materials. In these studies, the dynamics of the process was studied according to the main elements of the interaction of the working bodies with raw cotton. It is shown that the process and its efficiency are determined by two opposite factors - the quality of raw cotton and the efficiency of separation of dirty mixtures. This approach has become the general direction for the development of existing and new cleaning processes.

The analytical analysis [5] presents the results of a study of the parameters of the main working bodies of the cleaner, namely: the diameter and speed of rotation of the drum with piles, the angle of installation of piles and their number, the gap between the piles and the drum, the profile of the pile teeth was studied. In the same work, using the Keniga and Lagrange equations of the second type, taking into account the deflection of a piece of cotton wool held by piles, equations were derived to determine the shock impulses that occur when pieces of cotton hit the piles. The diameter of the pile drum was chosen based on the difference in the impact force of cotton pieces on piles of different diameters, which led to an increase in seed damage.

[6] Cotton and dirty compounds have been found to land on the surface of research papers, reflected differently than heaps. The direction of reflection and speed is determined by the angle of installation of piles to the radius of the corner drum. The best results can be achieved when setting the peg at an angle of 155-157^0. However, during the rotation of the calculations, during the rotation of the corner drum, it was not taken into account due to the proportion of cotton and was not taken into account during the speed of the tooth surface.

According to the analytical analysis, the latest research in the "Pile drum – pile" zone [7, 8] belongs to their scientific work. The result of the theoretical experts of the average interaction of cotton fragments is the slip on the surface of the cotton. As a result, it also became known that the temporary processes of reflection of the cotton

port and its initial return. The scientific selection of the structure and technological parameters of the share department was described.

At the moment, the experience and data collected during the cleaning of hard-to-clean cotton varieties from waste in our republic show a number of shortcomings of the 1XK type cleaners currently used, including the operation of drum drums, the same number of revolutions, the same type of cotton, type of cotton, humidity, initial contamination is not taken into account at all, according to the technological process, cotton passes on average through 14-20 pile drums, but the design of such drums is the same, although the cleaning efficiency of any number of pile drums in operation does not exceed 50% indicated [9].

In world practice, pile drums are used to clean cotton from small impurities, only their designs, sizes and working methods can differ. According to the results of research by foreign experts, the number of drums used has a great influence on the quality and appearance of the fibers obtained in the technological process of processing cotton seeds. Fiber quality and appearance increase dramatically with increasing pile drums from 1 to 7 and increase relatively slowly with increasing pile drums from 7 to 20, but fiber quality and appearance do not improve with more than 20 pile drums. are used.

In addition, increasing the number of applications of pile drums increases the mechanical damage to the fiber. Experts have determined an alternative number of pile drums at 13. In the technological process, an attempt is made to minimize their negative impact on the quality of cotton, along with the use of many working bodies [10].

Sosnovskiy Yu.S. [11] theoretically analyzed the movement of cotton from one pile drum to the second pile drum in the OHB-10 cleaner. The formula for the speed of a piece of cotton wool at the moment of impact on the pile is found and the impact force acting on a piece of cotton wool at the moment of impact is calculated. The relationship between the impact force, the angle of impact and the speed of the pile drum is determined. The critical speed of the pile drum, at which damage to cotton seeds begins, has been determined. In practice, this speed is recommended to be 9 m/s. In modern 1XK, SCh cleaners, which separate fine impurities from cotton, the speed of the pile drums is 8,8 m/s.
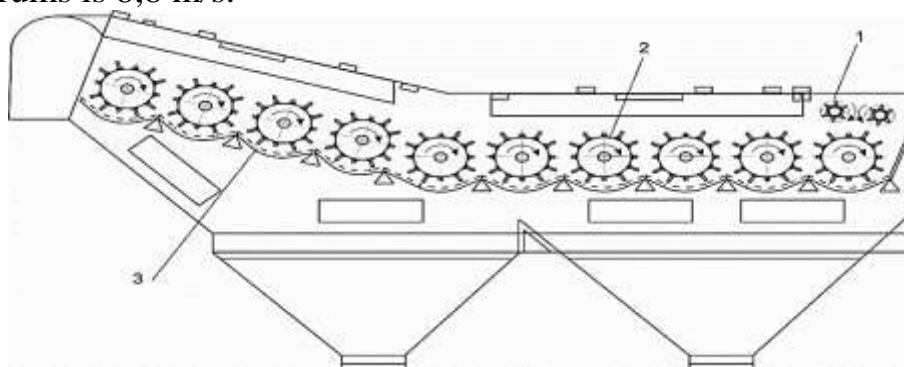
1-feeder, 2- pile drum, 3- mesh surface.
Figure 1. OXB-10 cleaner

Sidikov X. [12] found that the intensification of cotton cleaning and ginning can be achieved by increasing the speed of the pile drum by 12 m/s.

In the research of A. Usmanov [13], cleaning of cotton with a drum with piles is proposed to be carried out together with air blowing through its piles. As a result of testing this proposal on the UPX-1,5 mobile floor cleaner, it was found that when this pile drum is used, the cleaning efficiency of the UPX-1,5 cleaner increases by 1,3 times. Based on the scientific work, it is recommended that the speed of the pile drum in the UPX-1,5 cleaner is 11 m/s, the air speed is 12 m/s, and the gap between the pile drum and the mesh is 15-18 mm.

Usmanov D. A. [14] found theoretically the dependence of the movement of cleaned cotton on the surface of the pile on the height of the pile, the radius and speed of the pile drum. The differential equation of the movement of a piece of cotton on the surface of the pile is constructed. The process of separation of dirt on the surface of the mesh in pile drum cleaners has been studied. In OXB-10 cleaners, it has been found that changing the mesh opening from a round shape to a longer shape increases the cleaning efficiency. This recommendation also works well with current SCH, 1XK cleaners.

Taking into account the above, the task of our research was to create additional cleaning opportunities and reduce the mechanical damage of seed and fiber in cotton, without increasing the number of pile drums in cleaning raw cotton from waste. In order to fulfill the task, the construction and principle of operation of pile drums of 1XK cleaners used in cotton ginning enterprises were analyzed and a technical solution was proposed for further scientific research.

Today, to facilitate the assembly of cotton cleaning equipment, an EN.178 unit consisting of a pair of pile-plate drums is used (Fig. 2).

Four of these divisions were assembled to produce 8 pile-plate drum cleaning equipment of the 1XK model (Fig. 3). The convenience of EN.178 divisions allows for the creation of equipment for cleaning small impurities with the required number of pile-plate drums. These units are also used in the UXK unit [15].

The main disadvantages of the 1XK cleaner include jamming of cotton pieces between the drums and the mesh surface and increased mechanical damage to the fiber and seed in the cotton. One of the reasons for jamming between the drums of the 1XK cleaner and the mesh surface is that the raw cotton, which has not been pretreated, contains sufficiently dense particles that are larger than the size of the mesh surfaces. The pores of the surface become blocked. Clogging of a few pieces of cotton in the hole, especially the waste with high moisture content on the mesh surfaces and the formation of layers, can cause the drum to slow down and sometimes even stop the drum [15].

Clogged mesh surfaces with cotton pieces and dirt will reduce the cleaning efficiency of the cotton cleaner. In addition, it is known that the construction of drum piles leads to increased damage to the seeds and fibers in cotton.
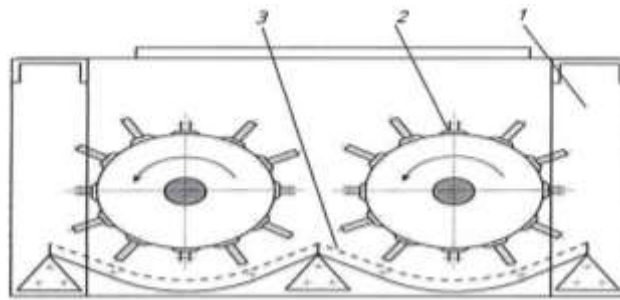
1- basis, 2-pile drum, 3- mesh surface.
**Figure 2. EN.178 cleaning division**
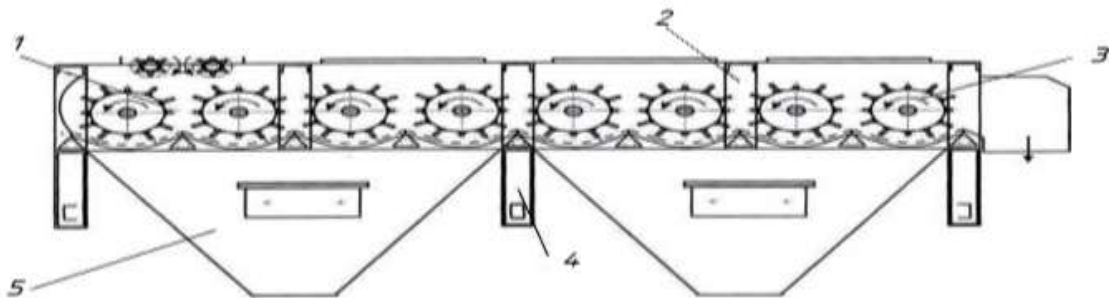
1- initial normalized pile section EN. 178.01 (with supporting rollers);
2, 4- column, 3- standardized pile section EN. 178.02, 5- waste hopper.
Figure 3. Scheme of the 1XK cleaning equipment

M.D.Sharakhmedova has been trying to improve the process of thoroughness and thoroughness with cotton emissions from cotton therapy from small pollution. But the construction of corn drums has remained unchanged, so that this work is caused in between this work, but the possibility of increased the impact of the stakes on the mechanical damage of the cotton and the mechanical damage of the fiber [16].

Based on the above analysis, a technical solution was developed to improve the construction of the pile drum in order to improve the efficiency of cleaning equipment for cleaning cotton from small impurities and to reduce the mechanical damage of seed and fiber in cotton. The essence of the technical solution is shown in Figure 4 below.
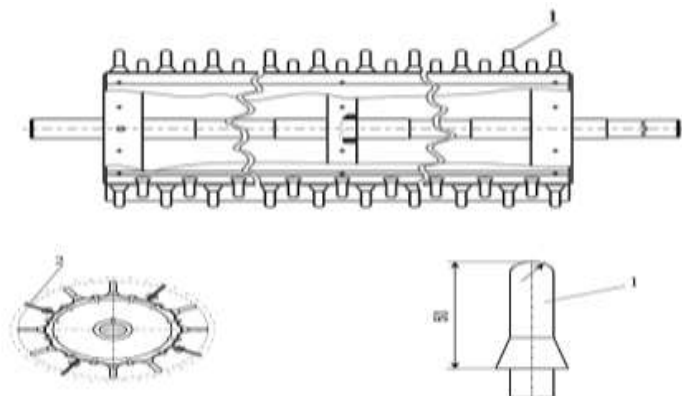
1-piles, 2- rubber gasket
Figure 4. The proposed scheme of the pile drum

According to the technical solution presented in Fig. 3, in the pile drum of the cotton gin, instead of pile piles with straight ends, arc-shaped piles (1) are used, which

smoothly enter the cotton being cleaned and leave it easily. The fibrous cotton is affected by the arcuate ends of the piles and is expected to reduce damage to the seeds and cotton fibers.

At the joints of the pile drum, it is supposed to install a rubber gasket (2), and the distance between the rubber gaskets and the mesh surface is 1÷2 mm to prevent clogging of the mesh surface with cotton particles and dirt performance improvement is expected.

In addition, it is planned to study how the speed of stacked reels increases sequentially with a pair.

Conclusion. Based on the analytical analysis, the following can be noted:

Based on the analysis of the cleaners used in local and domestic cotton cleaning technologies, it was determined that there are ways to improve the productivity of cotton cleaning in Japan and to ensure the efficient operation of the cleaning equipment.

The analysis of theoretical and practical research shows that insufficient research has been carried out on the improvement of the installed pile-plate drum in the existing equipment, and based on the analysis of the currently used equipment for cleaning small impurities from cotton, it has been determined that the pile-plate drums have a high negative effect on cotton raw materials. Despite the fact that it has been carried out, jams on the grid surface installed in existing foreign and domestic equipment and damage caused to the fibers due to the impact of the piles have been studied. needed to be developed.

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IMPROVEMENT OF AUTOMATED SOFTWARE INTERFACE FOR CONTROL OF RAILWAY AUTOMATION AND TELEMECHANICS DEVICES

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Annotatsiya: Maqolada QR kodlash texnologiyasidan foydalangan holda temir yo'l avtomatika va telemexanika qurilmalarini hujjatlashtirish uchun avtomatlashtirish tizimini qurish va tadqiq qilish ko'rib chiqilgan. Jarayonni to'liq holda avtomatlashtirish uchun dasturiy interfeys yaratilgan hamda uning ishlash ketma-ketligi to'liq tushuntirilgan. Tizimni tuzilish arxitekturasi bilan birgalikda qurilmalarni ro'yxatga olish jarayoni va qurilmalarni ma'lumotlar bazasida joylashuvi ko'rsatilgan. Avtomatlashtirilgan jarayonni dasturiy ta'minot qismini amaliyotga qo'llash orqali ko'plab qulayliklarga erishilgan.

Kalit so'zlar: elektron hujjat aylanishi, avtomatlashtirilgan tizim, QR-kod, ro'yxatga olish qurilmalari, qurilmalar paneli.

Аннотация: В статье описано построение и исследование системы автоматизации документирования железнодорожной автоматики и телемеханики с использованием технологии QR-кода. Создан программный интерфейс для полной автоматизации процесса и полностью объяснена последовательность его работы. Процесс регистрации устройств и расположение устройств в базе данных показаны вместе с архитектурой структуры системы. Многие удобства были достигнуты за счет реализации программной части автоматизированного процесса.

Ключевые слова: электронный документооборот, автоматизированная система, QR-код, записывающие устройства, панель инструментов.

Abstract: The article describes the construction and research of an automation system for documenting railway automation and telemechanics using QR code technology. A software interface has been created to fully automate the process, and the sequence of its operation is fully explained. The device registration process and the location of the devices in the database are shown together with the architecture of the system structure. Many conveniences have been achieved by implementing the software part of the automated process.

Keywords: electronic document management, automated system, QR-code, recording devices, toolbar.

Introduction. Currently, "Uzbekistan railways" has the confront of extremely decreasing the time and expense of structure of signaling, centralized, and blocking (SCB) systems due to a primary growth in the capacity of building and technical promotion, the organization of traffic. During the improvement, projects, construction, commissioning, operation, development, and disposal of processes utilizing the automatic technology methods and the utility of computerized record operation, systems that make sure authority of the full life revolution of railway automation and telemechanics systems must be developed [1].

Taking into report the aforementioned, there is a remarkable development in the practicality of the most recent automation and telemechanics systems in contemporaneous settings, as well as an improvement in their competency to receive and produce data for all services related to the formation of train traffic, the operation of signaling systems, monitoring the location of trains as well as the state of systems and appliances, and providing movement. The continued development of railway transportation systems undoubtedly leads to a growth in their diversity and, as a result, to the complication of their design. It also necessitates a growth in the number of subcontractors needed for the scheme, as well as in the formation and fund of tools, construction, and units. It also complicates the processes for identifying and removing system breakdowns, lengthening the time for checking systems during their improvement [2].

Material and research methods. As a result, at the current stage of the development of "Uzbekistan railways" information systems, the introduction of signaling systems utilizing the most recent design methodologies, a computerized method for arranging attachments, and character authorization of procedure on joining and getting information are required. As a result, at the current stage of railway automation and telemechanics development, the only viable solution is the creation of

a coordinating monitoring and operation method for scheme formation, nomination, funding of tools, devices, and materials, as well as research into the nature of services carried out using computerized methods.

In this research, an automated system of accounting and control of railway automation and telemechanics tools (ASA-CRAT) is considered [3].

Interface in a window for the automated system. The senior mechanic of the station is in charge of organizing the data's store and progress through the production of the job "Initial data entrance on appliances". The senior mechanic of the repair and technology section (RTS) fills the database (DB) with data about the distant apparatus for the first time. The senior mechanic creates form templates for the inventory of tools and their location at a distance, the senior mechanic or the complex restoration team fills out these forms, and they are delivered to the RTS. The RTS then incorporates this information into the ASA-CRAT.
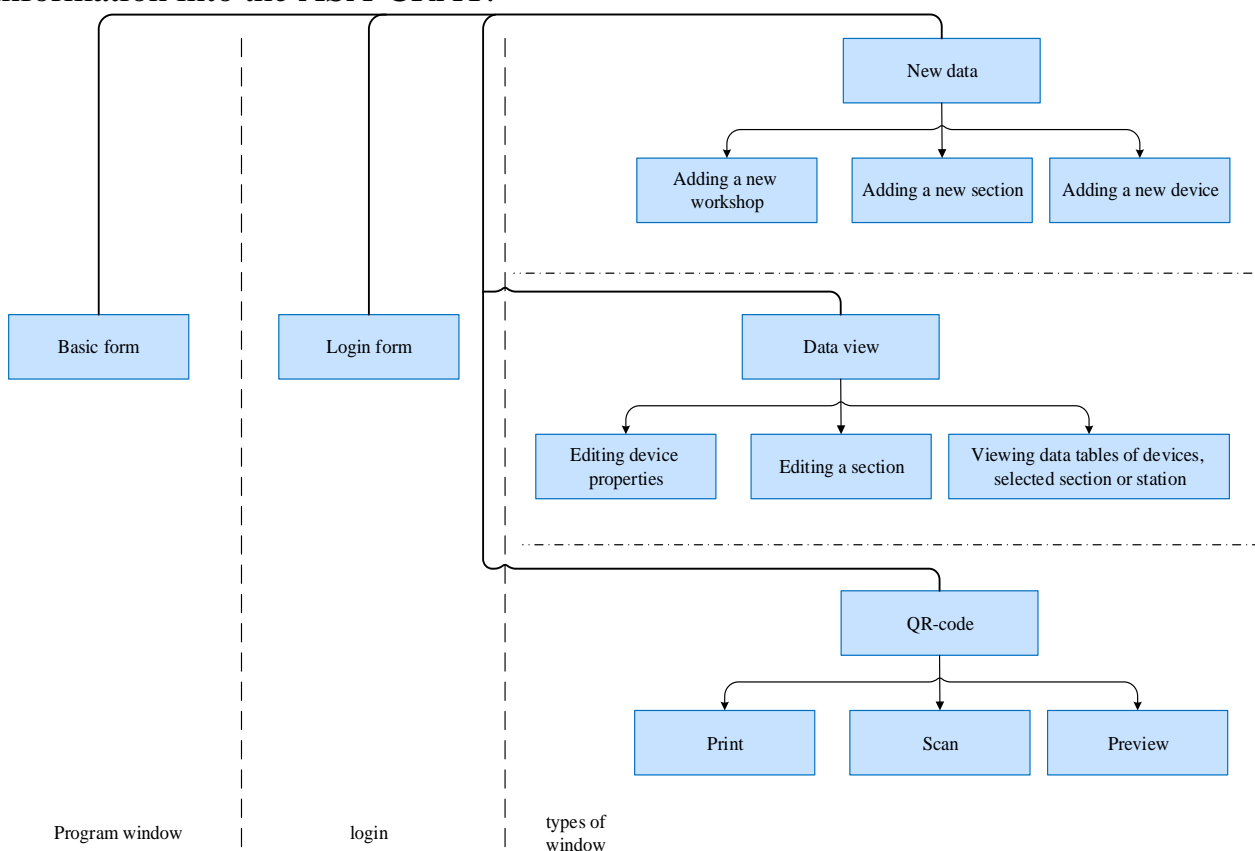
Fig.1. System windows architecture.

Control and modification methods for databases. Correction of errors made when distantly entering data, as well as remotely inputting new data in the same manner as during distant input.

Installation of the automation system. Before installing ASA-CRAT, the administrator configures access. In the future, the administrator will be the only one with access to this mode, which will be used to control and fix data access (for instance, when changing the server address). In order to configure data access, you must specify:
- the server name;
- name of the database.

If information has never been identified before when beginning a computerized method, it must do so when starting the failure taskbar [4].

Results and discussion. An automated system's windows are organized into three levels: the program window, the login screen, and the window views (fig. 1).

It appears in the application window as the main form. The login form is used to log in the method. The automatic method's work is carried out using the "New data" "View data" and "QR-code" windows, each of which is extra subdivided into smaller windows [5].

The user must be authorized in the "Identification" window that appears (fig. 2). In the "User" field's drop-down menu, locate the user. The brigade name (or chief's last name) in which this user is located is shown in brackets.

A job for managing the RTS's operations is called ASA-CRAT, and it is installed on a computer in the RTS. It is used to create the documentation required for creating work plans for the RTS distance, RTS branch, as well as particular projects for RTS personnel [6-10], as well as to keep a database on the movements of numbered and non-numbered devices.

Fig.2. Registration window.

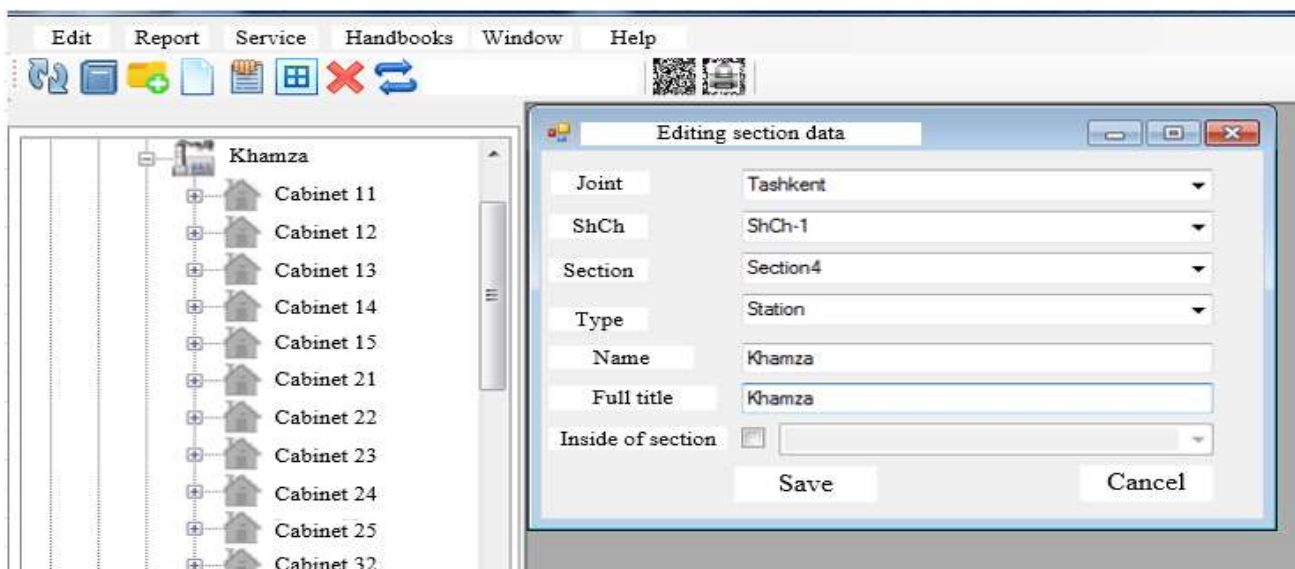

Fig.3. System interface.

The appearance of the automated system.

Fig. 3 displays the ASA-CRAT user interface. The computerized method is focused on employing a multi-window environment with a common interface, which consists of a collection of information access and data present devices:

MENU — models for selecting a form and entering primary orders;

WINDOW — for use in displaying data;

DIALOG — information-inputting device;

TOOLBAR — displays the program's status fundamental commands.

Description of working toolbars. Specific toolbars are used by the application to explain operation with patterns, a list of fixtures, alternative plans, etc. In fig. 4, panels of the tool list and putting places are provided.

Fig.4. Toolbar.

The following primary functions are represented by icons on the toolbar, allowing:

— a new information;

— include a workshop on signaling and long-distance communication;

— add a distinct item;

— add an appliance;

— the device's information can be modified;

— displaying the device information;

— take the thing away;

— change the component;

— read the device's QR code;

— print the device's QR code.

The repair technological section (RTS) or the control and measurement point's work is planned using the automated accounting and control system of SRAT devices, which is also intended to automate the explanation and monitoring of telemechanics and railway automation tools.

Conclusion. In order to organize the operation of a repair technical section (RTS) or a control and measurement point, the automated accounting and control system of SRAT devices is intended to automate the explanation and monitoring of railway automation and telemechanics apparatus.

It is recommended to use the automation and telemechanics appliances' performed modulate and explanation scheme, which makes use of a QR-code system, for automatic identification of signaling appliances in order to collect data on installed devices, verify that devices are replaced correctly, enter data on repair and acceptance, and automate data input on new devices that are received at the repair and technological sections.

The use of programmed QR code modules as well as software solutions for accounting and controlling appliances with a diversity of operating methods are some of the tools for automating the monitoring and control of the movement of devices.

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POSSIBILITIES OF VIRTUAL EDUCATIONAL TECHNOLOGIES IN THE DEVELOPMENT OF STUDENTS' COMPETENCE IN NETWORK TECHNOLOGIES

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Annotatsiya. Ushbu maqolada oliy ta'lim muassasalari talabalarining tarmoq texnologiyalariga oid kompetentligini rivojlantirishda virtual ta'lim texnologiyalarining imkoniyatlari bayon etilgan. Shuningdek, virtual ta'lim texnologiyalarining nazariy va amaliy masalalari yuzasidan olib borilgan tadqiqot ishlari tahlil qilingan. Shu bilan birga, tahlil natijalari asosida talabalarining tarmoq texnologiyalariga oid kompetentligini rivojlantirishda virtual ta'lim texnologiyalaridan

foydalanish imkoniyatlari aniqlanib, undan foydalanish bo'icha taklif va tavsiyalar berilgan.

Tayanch so'zlar: Tarmoq texnologiyalari, virtual ta'lim texnologiyalari, virtual stend, modulyatsiya, demodulyatsiya, tarmoq topologiyasi.

Аннотация. В данной статье описаны возможности виртуальных образовательных технологий в развитии компетентности студентов высших учебных заведений в по сетевым технологиям. А также были проанализированы исследовательские работы по теоретическим и практическим вопросам виртуальных образовательных технологий. При этом на основе результатов анализа были определены возможности использования виртуальных образовательных технологий в развитии компетентности студентов в области сетевых технологий, даны предложении и рекомендации по их использованию.

Ключевые слова: Сетевые технологии, технологии виртуального образования, виртуальный стенд, модуляция, демодуляция, топология сети.

Annotation. This article describes the possibilities of virtual educational technologies in developing the competence of students of higher educational institutions in relation to network technologies. Also, research work carried out on theoretical and practical issues of virtual education technologies was analyzed. At the same time, based on the results of the analysis, the possibilities of using virtual educational technologies in the development of students' competence in relation to network technologies were determined, conclusions and recommendations were given.

Key words: Network technologies, virtual training technologies, virtual stand, modulation, demodulation, network topology.

Introduction. Today, due to the improvement of digital educational technologies and the increase in the capabilities of the global network, the problems of developing students' competence in network technologies are emerging. One of the ways to solve these problems requires the development of modern approaches to the introduction of didactic digital technologies, including virtual educational technologies, into the educational process.

For this, it is necessary to improve the forms, methods and means of developing competence of future specialists, including future informatics specialists in relation to network technologies.

Literature review. The theory and practice of creating virtual educational technologies, the possibilities of virtual educational technologies in improving the effectiveness of teaching subjects, research on the problems of application M.H. Lutfillayev, S.A. Panjiyev, E.R. Akhmedov, U.B. Bakhodirova, A.YE.Ibraymov, Sh.A Researched by such scientists as Miraliyeva, R.K.Atamuratov, U.M.Lutfillayev, O.A.Medvedeva, D.P.Chagip. They say that virtual educational technologies, including virtual stents, virtual reality, and virtual laboratories, serve as an important pedagogical tool in increasing the effectiveness of teaching subjects and developing professional competence.

In particular, according to M.H. Lutfillayev, virtual stands serve as modern pedagogical and informational technologies in increasing the effectiveness of teaching natural sciences and performing laboratory work. Also, virtual stands provide an opportunity to perform work that cannot be carried out in laboratory conditions (toxic

substances, rare substances) and perform the work carried out using them in an ecologically clean environment. He noted that the use of virtual stands in performing practical and laboratory work leads to revealing the content of educational materials and increasing the mastery rate. In this case, students will have the opportunity to use, repeat, and discuss the laboratory work created on the computer at their own convenience and at the right time. At the same time, modern educational technology serves as a way for them to have a broader understanding of laboratory work and to form their imagination [5, 7].

According to S.A. Panjiyev, "Virtual reality is an interactive virtual environment that uses computer technology, a set of tools and methods for creating and implementing virtual images, which are its products, and has a high level of reliability." He stated that the use of virtual reality technologies allows to implement pedagogical effects that provide visual-image, visual-motion, intuitive, creative, theoretical thinking, create abstract images, and educate the learner. provides opportunities for building modeling skills of objects, events and surrounding realities [9; p. 10]. In addition, it provides unique opportunities for increasing the level of technical training of students and for independent critical thinking and intellectual development of the individual.

According to E.R.Akhmedov, the use of virtual educational technologies is effective in demonstrating complex technical processes and events in the teaching of general professional subjects [2; p. 12]. He said that the use of virtual educational technologies has its own advantages, it teaches them to think logically, to have a scientific and creative approach to science, it simplifies the mastering of the materials of educational subjects, it is important in the development of general professional competences, a leader serves as a factor, contributes to solid assimilation of knowledge, creates a positive attitude towards science and profession.

According to U.B. Bakhodirova, virtual educational technologies are used to present the material in a visual form, to create a virtual image of processes and events, to organize complex experimental processes in a virtual form, to expand the didactic possibilities of independent education, to increase motivation in relation to educational activities, science and technology. encourages students to acquire basic knowledge, systematize them, and provide methodical assistance in mastering educational materials in their independent work. [3].

Similar opinions are also presented in the researches of A.YE.Ibraymov [4], Sh.A.Miraliyeva [8], R.K.Atamuratov [1], who claim that the use of virtual educational technologies in improving the effectiveness of teaching subjects is a modern serves as a pedagogical software tool. According to these scientists, the use of the virtual educational museum, storage and protection of exhibits in museums, and wide, fast and convenient visualization of the subjects of "Informatics and information technologies" will create opportunities.

Research Methodology. Thus, virtual educational technologies serve as a tool that describes real objects and makes it possible to use them [5]. At the same time, virtual educational technologies, including virtual information-educational laboratories, are related to computer modeling of physical objects and events, reflecting

the functioning of real objects and the essence of events, visual, simulation and comprehensive reflection of the progress of the process. allows to continue.

Therefore, it is necessary to use virtual education technology in the development of students' competence in network technologies. It provides the following opportunities:

- presenting the process of modulation and demodulation to students;
- demonstration of movement of signals in different network cables;
- presentation of the working principle of e-mail in a virtual form;
- demonstration of the working mechanism of search systems in a virtual form;
- comparison of local computer network topology capabilities;
- explanation of the global network and its structure;
- aimed at highlighting the virtual process of contacting the server through browsers.

Taking into account the possibilities of virtual education technology aimed at solving the above-mentioned issues, it can be concluded that it is appropriate to use network technology to increase the effectiveness of teaching and to develop the competence of students.

With the help of virtual educational technologies, the digital signals from the computer are converted into electrical signals in the modem device (amplitude, phase, frequency of the digital signal is transmitted according to the telephone device), transmitted using network cables, and the reverse of this process is shown and explained. It also graphically shows the process of data transmission through existing computer hardware and software tools (Fig. 1).
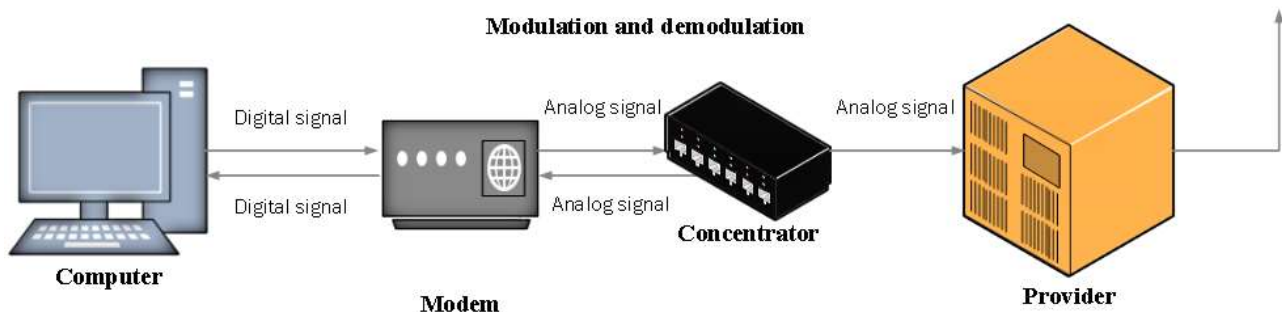

Figure 1. The process of data transmission in the network.

The use of virtual educational technologies, including 3D educational tools, is effective in fully conveying such processes to the minds of students. The training organized with the help of 3D educational tools helps students learn about the processes related to information exchange over the network (modulation and demodulation, information flow in network cables, Internet propagation in a Wi-Fi router, network attacks, the spread of viruses over the network, etc.), serves as a modern pedagogical software tool in forming ideas about the interaction of software with devices and increasing creative ability in network technologies, developing professional competence.

Analysis and results. Based on the analytical data presented above, it can be said that virtual educational technologies serve as a modern pedagogical technology in the development of students' competence in network technologies. Network cables, local computer network topology, global network structure, Internet distribution

methods, Internet connection methods, browsers, Internet protocols, search engines, Web server, network security, virtual network offers a number of possibilities in lighting. In particular:

- concepts related to network cables and their characteristics, i.e. its internal structure, colors and corresponding functions, advantages and disadvantages, how signals are transmitted according to the type of cable (for example: coaxial, twisted pair, fiber optic) to be visible, to see the speed of information flow in a virtual form;

- modulation and demodulation processes, including the modulator, a device that converts analog signals into a discrete signal, and the opposite processes, i.e., the processes that occur in demodulator devices, which convert discrete signals into an analog form, in a virtual view reflection;

- in explaining the working mechanism of local computer network topology (bus, star, ring), i.e. in which direction the information sent from one subscriber to another moves, spreads to other subscribers, security, delivery speed and quality, network topology comparative comparison of advantages and disadvantages;

- coverage of the global network structure, components, technical, software and information support, their tasks and capabilities;

- Disclosure of Internet distribution methods (wired, wireless, satellite) and their capabilities and advantages from the point of view of security;

- permanent connection to the Internet through a communication channel (optical fiber, satellite connection, radio channel, dedicated non-switching telephone line), as well as switching, that is, temporary connection (Dial-ur access, Dial-ur) explain the views;

- the function, types, capabilities of browsers, the procedure for contacting the server through them, the process of sending a request to the Web server;

- Explanation of concepts about the processing of requests sent by the web server and the procedure for responding, the cost of traffic spent in this process;

- Illumination of concepts related to the types and capabilities of Internet protocols, information encoding in the network;

- the mechanism of operation of search engines, providing algorithms related to the process of identifying URL addresses, scanning and processing them, indexing, that is, adding and sorting to a database called the search index, presenting results;

- implementation of attacks on network technologies, virtual representation of information acquisition by means of attacks in the process of information transmission, hearing and changing them, checking ports;

- the algorithm of the unauthorized access detection system, highlighting the capabilities of network attack protection tools;

- to reveal the concept of virtual private network and its working principle, capabilities and security;

- to express in a figurative way the processes of the mechanism of operation of viruses, their spread through the global network, the effect on the efficiency of computer hardware and software, and the order of virus reproduction.

Conclusion/Recommendations. In short, in the development of students' competence in network technologies, virtual educational technologies provide an opportunity to study in detail the internal and external characteristics of objects related

to the field, the processes that take place in them. It also saves time spent explaining complex networking concepts to students. It serves as a modern educational tool for increasing the motivation of students, developing their creative, cognitive thinking, and information technology competencies, and makes the educational process more visual and effective.

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ACTUAL PROBLEMS IN MODERN ART AND ARCHITECTURE

UDC: 316.7

PECULIARITIES OF THE DASTAN OF THE "GOROGHLI" SERIES

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Annotatsiya: Xorazm xalq baxshilarining epik repertuarini o'rganish, ularga xos xususiyatlarni yoritish, hozirgi paytga qadar o'zbek follorshunosligi tadqiq doirasida yetarli darajada o'rin olmay kelayotgan g'oyat muhim muammo hisoblanadi. Chunki O'zbekistondagi fan-madaniyat va san'atning qadimiy o'choqlaridan biri bo'lgan Xorazmda xalq og'zaki ijodiga munosabat masalasi uzoq tarixiy davrlarga borib taqalishi, bu vohada hozirga qadar yashab kelayotgan dostonchilik an'analaridan ham bilish mumkin.

Tayanch so'zlar: Folklor, musiqa, pedagogik texnologiya, doston, mumtoz.

Аннотация: изучение эпического репертуара хорезмских народных сказаний, выявление характерных для них особенностей является чрезвычайно важной проблемой, которая до сих пор не получила достаточного места в рамках узбекского фольклористического исследования. Так как в Хорезме, одном из древнейших очагов науки, культуры и искусства Узбекистана, вопрос отношения к устному народному творчеству уходит корнями в далекие исторические периоды, об этом можно судить и по традициям эпоса, которые до сих пор живут в этом оазисе.

Ключевые слова: фольклор, музыка, педагогическая технология, эпос, классика.

Annotation. The study of the dastan repertoire of Khorezm folk bakhshis, the elucidation of their peculiarities is considered as a very important problem, which still has not taken a sufficient role in the study of Uzbek folklore. Because in Khorezm, one of the ancient centers of science, culture and art in Uzbekistan, the issue of attitude to folklore dates back to ancient times, as can be seen from the dastan traditions that are still alive in this oasis.

Key words: folklore, music, pedagogical technology, dastan (epic poem), classic.

Introduction. In Uzbekistan, dastans and the art of dastan are studied in two languages. The first one is the traditions of Khorezm dastan school and the second one is dastan schools of other regions of the republic. The Khorezm school of dastans, which is included in the first language, is the peak of professionalism. This school is important in folklore studies on the originality of epic works in terms of content, form, ideological-thematic types according to literary-musical classification, the close relations of melody and words in them, that is, a number of features that are mainly different by the creation of a literary-musical composition as a result of complementing each other[1. 58-60.].

Khorezm folk singers are devotees who have been delivering dastans, compositions and exemplary songs, which are the cultural heritage of past generations,

with their own tradition and style. Dastans as "Ashiq Gharib and Shahsanam", "Sayadkhan and Hamro", "Bazirgon", "Avazkhan" in the Goroghli series of in their repertoire, imbued with the spiritual and domestic life of the people, worldview, play a worthy role in the development of civil culture.

Literature review. The romantic and social-household dastans belonging to the repertoire of Khorezm dastan school's bakhshis and halfas as "Ashiq Gharib and Shahsanam", "Ashiq Makhmud", "Ashiq Aydin", "Ashiq Alvand", "Sayadkhan and Hamro", "Hurliqo and Hamro", "Tahir and Zuhra", "Layli and Majnun", "Farhad and Shirin", "Sanobar", "Qumri", "Duropsha", "Yusuf and Akhmad", "Tolimbiy", "Asil and Karam", can be the examples in determining the specific features of the epic repertoires of the Khorezm dastan singing, Because almost all of these dastans do not exist in other regions of our republic.

Especially, the fact that romantic dastans play a great role in the repertoire of bakhshis and the use of the word "Asiq (Lover)" in the title of these dastans is of particular importance in revealing the theme of the dastans.

It is not a simple fact that dastans on romantic-lovely, romantic-adventure themes are sung with love in the song of bakhshi and khalfas and they make up the majority of their repertoire, but also in the fact that the antiquity of the romantic theme in folklore is connected with the legends about the appearance of the ancient Khorezmian people.

Dastans from the "Goroghli" series, which are considered monumental folklore works of Uzbek, Turkmen, Azerbaijan, Kazakh, Karakalpak and other Turkic peoples, is listened with love in Khorezm either. This series is the main part of the repertoire of baxshis and khalfas. Dastans of the Khorezm "Goroghli" series are distinguished by their unique features, unlike the dastans of the "Goroghli" series in the repertoire of other folk dastan schools in Uzbekistan.

The above-mentioned issue in Uzbek folklore studies has not yet been scientifically resolved. For example, until now, our researchers have put forward the opinion that the structure, plot and theme of this series of dastans are similar to the dastans of the "Goroghli" series in the other parts of Uzbekistan. In fact, not counting some auxiliary motifs and images, they are different phenomena in terms of the characteristics of the series, the structure of the plot and the number of dastans, and the interpretation of the images.

The dastans of Khorezm, which in terms of content and plot structure are not similar to the "Goroghli" series in other parts of Uzbekistan, include "Birth of Goroghli", "Bazirgon", "Arab Raikhan", "Arab Tanga", "Qirq minglar", "Kampir", "Khirmandali", "Gulrukhpari", "Avaz keltirgan", "Avaz uylantirgan", "Avaz arazlan", "The release of Avaz", "Eroghli" and others are included.

As mentioned above, the main difference between Khorezm's dastans is their musicality, the attitude of the Bakhshis to the dastan plot, and their skill in performing them. In particular, the abundance and variety of melodies of the musical dastan, as well as the inherent complexity, confirm this uniqueness. In addition to these, the heroes of Khorezm dastans are a fearless, brave general, a skilled rider, and a sharp-eyed hunter. He is always represented as a singer of pure love and affection, a devoted lover and beloved, who looks out for the interests of the poor people and shares their sorrows and joys, as well as an unparalleled performance poet and musician.

In the dastan "Ashiq Gharib and Shahsanam", Gharib attains his Shahsanam with his gifting art and poetry skills, as well as his accompanying voice. Therefore, Shahsanam's desire for her own soul, her pure love and tenderness, her poetic words and romantic melodies are expressed.

For example: Gharib and Shahsanam's meeting at the slave market and at this place, at Shahsanam's request, Gharib took his dutar[6] in his hands and adjusted the strings and sung the following gazelle looking at Shahsanam:

Yuzi guldek, shamshod bo'yli nigorim,
Bu so'zning fahmiga yetsang na bo'ldi?
Barcha zolim bizga dushman, dildorim,
Raqiblardan hazar etsang na bo'ldi?
G'arib-oshiq aytur: bu yo'lga kirdim,
Seni ko'rib xayolimni yitirdim,
Ozod elim, bandi bo'lib sotildim,
Xaridorsan sotib olsang na bo'ldi?

We refer to the following examples from the dastan "Ashiq Gharib and Shahsanam"[7. 5]:

Aqcha said that if Shahsanam enters the garden, she can see her beloved. Hearing this, Gharib hides among the flower bushes and sings this gazelle:

Bog' egasi bog'in etmish qatog'on,
Maning yorim bog' sayrina galadi.
Gullarning shohiga qo'nmish bulbullar,
Shohsanam qiz bog' sayrina galadi.

Shahsanam is walking in the garden and sees Gharib and then loses sight of him again and sung the following looking for the place where he has gone:

Uchirdim shunqor qushimni,
Hech bir yerda qarori yo'q.
Vo hasrato, mahvashimning,
To yetguncha qarori yo'q.
Shohsanam der: -Aqcha, kelgin,
Yurakdagi dardim bilgin,
Bir bor tutsam yorning qo'lin,
Dilda boshqa qarorim yo'q.

Gharib's gazelle, describing Shahsanam's walk with Aqcha:

Ko'rdim ajab ikki pari,
Galar solona, solona.
Oshiqni o'ldirib biri,
Galar solona, solona.
Biri guldir biri g'uncha,
Hech pari yo'qdir Sanamcha,
Tomoshaga kelur barcha,
Galar solona, solona.

When Gharib saw Shahsanam return to the tree where he was sitting, he took his dutar in his hands and said the following words in a loud voice:

Bog'ing ichra bog'bon bo'lsam,

Tersam toza gullaringni.
Tinglasam xoʻp soʻzlaringni,
Quchsam nozik bellaringni.

"Gʻaribjon qoʻlini sozi doʻzik qazmasini olib zebon duzib, azarbayjon nomalarinnan, dogʻ sarbardarinnan, boboqiyosiy nomalardan, chapandozi nolalardan, Onasini qoptalinda chertib-chertib, dutorni band holda suyab qoʻyaveradi".

(From the dastan "Gharib and Shahsanam").

The use of the word "qazma" in the dastan, that is, in the Bakhshi phrase, is to pay attention to the quality of the dutar musical instrument, i.e. "qazma" is one of the highest qualified and most expensive type of musical instruments. By the word "Qazmsini (dutorini) zebon duzib", it is taken into account that Bakhshi can tune the dutar in different ways (that is, the "lad" is intended here). Depending on the content and form of the song, the main point of the dutar, i.e. the open strings, can be made into a high or low fret (lad), and it is stated that this can be peculiar to only a professional musician. The use of the phrases "Azarbayjon nomalarinnan, dogʻ sarbardarinnan, boboqiyosiy nomalardan, chapandozi nolalardan", shows the diversity of Bakhshi's repertoire, they are composed of Azerbaijani folk songs, songs of mountain peoples (mountainous Badakhshan, Ossetian, Lezgin peoples) and the attitude of Bakhshi to these, on the other hand, in the Khorezm Bakhsh tunes, it shows that the tunes of the above brotherly peoples are embodied in mutual relations.

Conclusion. In the dastans of the series "Goroghli", which is widely included in the Khorezm Bakhshi repertory, the image of the main character Goroghli as a fearless, brave fighter and an experienced commander is bright and broad, and at the same time, he is also expressed as an unparalleled bakhshi in the singing dastans.

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THE ROLE OF THE FOLK POET ESON LUTFULLAEV CREATIVITY IN THE CULTURE OF UZBEK MUSIC

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Anotatsiya: Mazkur maqolaning yangiligi shundaki, unda xalq hofizi Eson Lutfullayev faoliyati va uning bilimi, ijodi, ijodkorligi, kasbiy mahorati, o'zbek musiqa madaniyatida qayd etilgan omillarning o'rni aks ettirilgan.

Tayanch so'zlar: ijodkorlik, ijodiy qobiliyat, mustaqil fikrlash, musiqa madaniyati, o'qituvchi, ijodkorlik, ta'lim tizimi, Sharq mumtoz musiqasi, maqom san'ati, Hofiz dostoni.

Аннотация: Новизна данной статьи заключается в том, что в ней рассказывается о деятельности Народного Главы Эсона Лутфуллаева и его творчестве, творчестве и профессиональном мастерстве в результате его знаний, а также его роли в культуре узбекской музыки.обсуждаются факторы.

Ключевые слова: творчество, творческая способность, самостоятельное мышление, музыкальная культура, педагог, творчество, система образования, восточная классическая музыка, статусное искусство, эпос Хафиз.

Annotation: The novelty of this article is that it describes the activities of People's Chief Eson Lutfullayev and his creativity, creativity and professional skills as a result of his knowledge, as well as his role in the culture of Uzbek music factors are discussed.

Key words: creativity, creative ability, independent thinking, music culture, pedagogue, creativity, educational system, oriental classical music, status art, epic Hafiz.

Introduction. If the great musical culture of our people is absorbed into the spiritual consciousness and national musical culture of the young generation, classical and maqam music, compositional creativity, and the songs of Hafiz singers will be of great importance in bringing them to adulthood in this spirit[1]. One of the main tasks of education and training in the general and special schools of the educational system should be to inculcate in young people the songs that have become classics of our people over the centuries, the lyrical songs sung in the paths of status, and their singing styles. Because young people who are closely familiar with national singing styles, traditions and the works of famous singers-hafiz develop the feelings of appreciating, learning, preserving and inheriting this art with true love[2].

Literature review. Eastern classical and maqam art is mainly the works of our classical poets Lutfi, Fuzuli, Alisher Navoi, Abdurrahman Jami, Hazini, Sakkoki, Durbek, Atoi, Haidar Khorazmi, Ogahi, Mashrab, later Muqumi, Furqat, Munis, Zavqi, Habibi, Chusti, Sabir Abdullah. ghazals written in weight such as aruz, muhammas, and songs were performed based on rubai[3].

The fact that the songs with philosophical teachings, as well as romantic-lyrical songs expressing pain, separation and sorrow, and with some admonitional content, have taken a deep place in the hearts of our people and have maintained their position until now, are the true nationalism of these works. , is in the truthful expression of people's pains, hopes and dreams[4].

At the beginning of the 20th century, many artists, instrumentalists, composers, and at the same time musicologists came to the development of this unique art. Among them are the great figures of Uzbek music culture, Yunus Rajabi, Tokhtasin Jalilov, Matyakub Kharratov, Sherozi, Domla Halim Ibodov, Haji Abdulaziz Abdurasulov, and their worthy followers, such as Jorakhan Sultanov, Ma'murjon Uzokov, Kamiljon Otaniyozov. are considered famous artists who created in the way of Uzbek classical singing and traditional singing[5]. Tavakkal Kadirov, Fakhriddin Umarov, Almakhan Khayitova, Komuna Ismailova, Arif Alimaksumov, Fattokhon Mamadaliyev, Ochilkhan Otakhanov, Berta Davidova, Rasulqori Mamadaliyev, Murodjon Akhmedov, Nazira Yusupova, Gulomjon Hajikulov, whose names have been mentioned, followed the footsteps of the mentioned folk hafiz, composers and singers. , Izro Malakhov and other khafiz, who grew up in the village of Garasha, Forish district, Jizzakh region, who has a unique voice, who won the love of the people by performing classic and status songs, and who won the love of the people, children's music and art schools, we tried to teach young students, introduce them to the life and work of Eson Lutfullayev, and thereby apply pedagogical and methodological recommendations to develop their musical performance and talents.

Research Methodology. Eson Lutfullaev was born on November 25, 1935 in the village of Greh Kusho (now Garasha), Forish District, Samarkand Region (now Jizzakh Region) in the family of an artist. His father, Abilov Lutfillo, was an artist, and his mother, Abilova Fatima, was a housewife. In 1952, he graduated from high school and joined the army. After returning from the army in 1955, he studied at the "Zooveterinary" technical school in Samarkand.

Lutfullaev worked at the Samarkand Drama Theater named after Hamid Olimjon in 1956-1957. In 1957, he came to Tashkent and got a job as a soloist of "Estrada Theater". In 1957-1960, he worked at the Uzbek State Philharmonic. In 1960, he was employed in the "Maqomchilar Dastasi" named after Yu.Rajabiy. From 1960 to 2000, he worked in the "Maqom" ensemble[6].

Hafiz has been fond of singing since he was young. This passion led him to great art - status. Eson Lutfullaev's life in giving to art brought him respect and earned him the honor of the people. His father, Abilov Lutfulla, was a famous hafiz among the people[7]. His brothers Zikrillo and Amrillo also sang. Eson Lutfullaev heard a new interpretation of the tunes and songs he heard from his father from teachers Jorakhan Sultanov and Ma'murjon Uzokov. These teachers invited him to the art school.

Eson Lutfullaev's repertoire of status and classic songs ("Navruzi sabo", "Feruz I", "Feruz II", "Mogulchai navo", "Chapandozi bayot", "Chorgoh I", "Bukhara Iroghi" ", "Suvora" and others) and big songs ("I miss you", "Oh who" and others)" songs composed by him about 100 tunes ("Ozygye razedy", "Heart be clean", "Don't force yourself", "Dastingdan", "Flirty sleep", "Asfana seb" and others) took place[8]. During his singing career, he performed about 500 songs. The first song he recorded was "My eyes fell on Shahlo". After this song, he wrote the song "You come, or I go".

Eson Lutfullaev became a "Veteran of Labor" in 1984 and a member of the "Association of Theater Artists" in 1975. In 1980, he was awarded the title of "Honored Artist of the Uzbek SSR", and in 1997, "People's Court of Uzbekistan"[9].

Eson Lutfullaev was also awarded several honorary degrees by the State Committee of Television and Radio Broadcasting of the Republic of Uzbekistan. In 1970, he was awarded the honorary title "For his great achievements", in 1989 he was awarded the honorary title "For high creative and performing skills, his activities in promoting the art of music among the people of Uzbekistan", in 1999 " "For many years of work, providing knowledge and training to young people, teaching professional skills, and for their services in educating them in the spirit of loyalty to our values" honorary label, in 1997 "For many years of effective work and with the Independence Day of the Republic of Uzbekistan" awarded with the ry label.

Analysis and results. Eson Lutfullayev toured in a number of Azerbaijan, Belarus, Ukraine, Kazakhstan, Turkmenistan, Kyrgyzstan and other republics as part of the Makom Ensemble and took part in the wide promotion of the Uzbek national Makom art. It would not be wrong to say that it was a period of creative growth for Eson Lutfullayev during his time working in the Maqom ensemble. zi performance began to please the people. His songs: "Onajan kabam uzing", "Song of the mornings", "Sultans sleep", "Remembering my father", "Let your heart be clean", "Don't burn your heart", "Hafiz", "Faithful of the Motherland" ", "Dastingdin", "Turfa Dunya", "If not", "I miss you", "Mother", "Don't force", "Know if you don't know", "Remember", "My eyes fell on a picture", "Bormikan", "Subhidam", "Davo sam kam", "If you want it to be bright", "Ohu", "Waiting for a reason", "Ketmagil", "For a friend", "I said the world", " "Jonim Samarkand", "Yairab bu kun", "Kam Bolmagay", "Song of the Composer", "Not Darkor", "Muhabbat Gulshan", "Bildim", "Odobbilan", "Oraz" , "Navo qiladur", "Erka dildor", "Tell Yor", "With a friend", "From the image of Nargisi", "Shodu bahramand aylab", "Humorman", "From your eyes", "To your friends", "To the kind ", "Sharbati", and several other songs created by himself and won the love of listeners[10]. He strove to sing them paying attention to the national character of the songs he created, introducing new tones and laments. That is why the songs he composed and performed were combined with folk songs, and the listeners did not know exactly who created them, they recognized those songs as works performed by Eson Lutfullayev.

Eson Lutfullayev's contribution to Uzbek status singing and performance is significant. Hafiz's style of singing and the diversity of his work have a great influence on his formation as a folk hafiz, and on the ideological and artistic education of people with the characteristic of aesthetic education along with taste.

Conclusion. Uzbek classical and status performers prioritize the following principles based on generalization of traditional and modern performance styles of national singing:

- mastering the rules of traditional performance perfectly, combining them in modern styles through improvisation when necessary.

- to acquire musical knowledge and performance skills, to have the ability to apply the musical-pedagogical methods of master artists, classical and status performers, hafiz.

For example, the teachers should be perfect in the traditions of folk performance and study musical works, apply them according to the requirements of the teachers, and secondly, understand and feel the musical aesthetic requirements of the listeners-spectators, be able to use musical language (pronunciation), national in the performance of folk tunes. be careful with decorations, climaxes[11].

Eson Lutfullayev, who has a worthy place in Uzbek maqom culture and performance, matured in the process of working with the maqom ensemble. His moral-aesthetic basis is the observance of high moral-aesthetic criteria of his interaction with his colleagues and students, and the creative interaction consists of attentiveness and politeness. Pupils-pupils to be able to use their opportunities widely, themselves it is important to be able to show, to have a culture of self-control, to acquire a culture of communication, speech-movement, and dressing.

The study of these aspects of educational, educational and pedagogic importance requires a thorough and deeper study of the maskur research work.

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ACTUAL PROBLEMS OF HISTORY, PHILOSOPHY AND SOCIOLOGY

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THE TREATISE "AWARIF UL-MAARIF" IMMORTALIZING THE NAME OF SHIHAB AL-DIN SUHRAWARDI AND THE IDEAS PRESENTED IN IT

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Annotatsiya: Mazkur maqolada tasavvuf ta'limoti va Sharq falsafasining yirik vakillaridan biri, "Suhravardiylik" tariqatining asoschisi Abu Hafs Umar Suhravardiyning falsafiy qarashlari "Avorif ul-maorif" (Ma'rifat tuhfalari) asari asosida tahlil qilingan. Shuningdek, asarda mutasavvifning nafs, ruh, ilm,aqltushunchalarining tavsiflanishi, axloqiy g'oyalarining inson kamolotidagi o'rni yoritilgan.

Kalit so'zlar: Suhravard, "Avorif ul-maorif", axloq masalasi,odob, sayr, safar, insoniy nafs, ruh, naql va aql, istidlol, tavhid ahli, mukoshafa, ilmu ladun,ilmul yaqin, 'aynul yaqin, haqqul yaqun, dunyoviy aql, dunyoviy ruh , moddiy dunyo, hayvoniy ruh, tasavvuf.

Аннотация: В статье анализируются философские взгляды Абу Хафса Умара Сухраварди, одного из крупнейших представителей учения мистицизма и восточной философии, основателя тариката "Сухравардийа", на основе трактата "Авориф уль-маориф" (Учение о просвещении). Работа также охватывает описание суфийским ученым нафса, науки, разума, роли его моральных идей в совершенствовании человека.

Ключевые слова: Сухравард, "Авориф уль-маариф", вопрос морали, этикет, прогулка, путешествие, человеческий нафс, дух, нарратив и разум, истидлал, люди таухида, мукошафа, ильму ладун, ильмул якийн, айнул якийн, хаккул якийн, светский разум, светский дух, материальный мир, душа животное, суфизм.

Abstract: The article analyzes the philosophical views of Abu Hafs Umar Suhrawardi, one of the major representatives of the doctrine of mysticism and Eastern philosophy, founder of the tarikat "Suhrawardiyya", on the basis of the treatise "Awarif ul-maarif" (Teachings of Enlightenment). The work also covers the description of the lust, souls, sciences, reason, ingenuity of the sufi scholar, the role of his moral ideas in human perfection.

Keywords: Suhraward, "Awarif ul-maarif", matter of morality, decency, travel, journey, Human Ego, Spirit, narration and reason, istidlal, ahli Tawhid, mukoshafa, ilmu ladun, ilmul yaqiyn, aynul yaqiyn, haqqqul yaqiyn, worldly mind , worldly soul, material world, animal spirit, sufism.

Introduction. Philosophical thinking of the peoples of the East occupies a special place in the formation of the spiritual and moral image of the peoples of the world. The anthropological teachings of Eastern thinkers, especially Suhrawardi, in which the deep analysis of human existence is of great educational importance in the spiritual and

moral development of citizens, especially young people. In the fight against evils such as "mass culture"and "moral nihilism" in the process of globalization taking place in the world, Suhrawardi's scientific legacy is significant from a theoretical-methodological, ideological-ideological, religious-enlightenment point of view. Shihab al-din Abu Hafs Umar ibn Muhammad al-Suhrawardi, the founder of one of the famous tarikats of Sufism, the Suhrawardiya tarikat, was born in the year 539 Hijri, on the first day of the month of Sha'ban, in the village of Suhravard, Zanjan District, Jibal Province, Iran. This date corresponds to January 27, 1145 AD. After receiving his primary education in his country, he went to Baghdad with his uncle and murshid (follower) of the tarikat, Abu Najib al-Suhrawardi, and continued his studies there. Later, he became famous as a result of teaching students and preaching to the people. His contemporaries honored him with the titles of "Shaykh ush-shuyukh", "Shaykh ul-Islam", "Shaykh ul-Iraq"[1].

Literature Review. Suhrawardi was a scholar who lived and created in the most conflicting period of history, rose to the level of a bright representative of Sufism, a form of social thought of this conflicting period, and created his deep philosophical science of thought. Today, this science can serve humanity to avoid going astray or to find its own way. From this point of view, the work of the scholar "Awarif ul-maarif" ("Gifts of Enlightenment") is important, and this work has not yet been studied in our country [2;304]. Suhrawardi's work "Awarif ul-maarif" sealed his name forever. The work "Awarif ul-ma'rif" is considered to be one of the first sources dedicated to Sufism, written in the early period of the emergence and formation of Sufism tariqats. Before this book, there are also a number of works dedicated to Sufism, such as Kalabadi's work entitled "At-Ta'arruf li-mazhab ahl al-Tasawwuf" ("Introducing the Way of Sufism"), one of the earliest and earliest works on Sufism by Abu Talib al-Makki's works such as "Qut al-Qulub" ("Food of the Hearts"), Qushayri's "Ar-risala", Ghazali's "Ihya ulumi-d-din" ("Reviving the Sciences of Religion") [3:25] organized the concepts of Sunni Sufism and written in order to systematize it. Abu Hamid Ghazali's work "Ihya ulumi-d-din" is similar in terms of style and themes, but it is not as extensive as "Awarif ul-maarif". In "Awarif ul-ma'rif" Umar Suhrawardi was more interested in Sufism from the aspect of thinking than from the aspect of deeds and Sharia, in this book the scholar aims to explain the Sufi thought [4;103] The work is a book about Sufi etiquette norms.

Research Methodology. The work "Awarif ul-maarif" was read by Sufis who chose the path of tariqat of different madhhabs, it was one of the most favorite books in madrasas and households where they study together [5;398]. Suhrawardi Sayri leech (Problem of Sufi personality) occupies an important place in the teachings of the Sufi path (tariqat) and the way to pass through this path (sayri leech) of medieval sufism. In Suhrawardi's Sufi teachings, the study of this issue plays an important role in defining his worldview. Suhrawardi justifies the reason for writing "Awarif ul-maarif" as follows: the glory of the Sufi class, adherence to the principles of Sunnah, ensures the stability of the state.

Umar Suhrawardi said: By the grace of Allah, he began to write this work. It is to reveal the beauty, behavior and morals of the Sufis to the general public. Because I believe that what the Sufis have done is true, they have always acted according to clear

knowledge, and I have revealed this to everyone through this work.As can be seen from the above, when Suhrawardi stated that he wrote his work to protect the Sufis from false things, he cited the demand for the path of Sufism as the second reason, and through this work "Awarif ul-maarif" ("Those Who Realize Enlightenment") emphasizes the increase of representatives of this category.

The work "Awarif ul-maarif" consists of 63 chapters;

The work is mainly devoted to the practice of Sufism epistemology, ethics, psychology;

The work contains valuable information on the history, theory and practice of Sufism;

According to its structure and content, the work is dedicated to the theory of Sufism.

When the work is scientifically analyzed, it becomes clear from the number of chapters and their names that Umar Suhrawardi is based on the Qur'an and Islamic law in his spiritual heritage. Based on this, it can be said that the fact that the number of chapters is 63 is a reference to the age of the Prophet, because Shihobuddin Suhravardi's loyalty and devotion to the Prophet (PBUH) was very high. (emphasis is ours - M.Sh).

Chapter 63 of the work can be divided into five general parts, which consist of the following sections [6; 5a]:

1. 1-9. In its chapters, it includes revealing the essence of such concepts as Sufi, Sufism, mysticism, mutashabbeh, blamelessness.

2. 10-28. In its chapters, it tells about the special places, addresses and practices where Sufism gathers: Mashayikh, Khadim (Murid), Rabat Adobi, Safar, Mutasabbib (connected to the cause), Fath (revelation of secrets), Simoni (trance with sound). get into a state), chilla v.h.

3. 29-30. Chapters are related to morality: humility, honesty, ... and so on.

4. 31-55. Chapters are the largest part, in which Sufi ethics (ethics-aesthetics) are simo', chilla, qurb (approaching Allah), ablution, prayer, fasting, eating, prayer, sleeping manners, murid, shaykh, conversation and fraternal manners are discussed.

5. 56-57. In the chapters, understanding the human being is about understanding the thoughts and thoughts of the Sufis.

6. 58-63. In the chapters, the situation and status, pointing, heresy and the final ones are discussed.

According to the work, the creation of man, his essence, soul and spirit, intellectual skills and, as a very important aspect, the heart given to him, are among the topics discussed by the people of Sufism under the title of man. The word "insan" is an Arabic word meaning "eyeball". It is also mentioned in the sources that it is formed from the word to forget [7;119,120]. Suhrawardi also said that from the meaning of the word human in the meaning of the pupil of the eye, in the context of the creation and dignity of the human being, Allah Almighty created the human being due to his subtle wisdom, made him honorable and noble, his vision was divine and his vision was heavenly, and in this form he was also created. explains what the eyeballs of the heavens and the earth have done, both spiritually and physically.

Suhrawardi says that man is the essence and conclusion of the heavens and the earth. In this sense, Suhrawardi has the same opinion as the Sufis who described the world of man as sugra. Suhrawardi expresses the fact that a person is a being made up of soul and lust, and says that the lower part of the body is the center and region of the lust, and the upper part of the body is the region of the soul and the treasure of heavenly secrets. When Suhrawardi analyzes a person, he thinks in parallel with the classical sufi view. As a person is in contact with the supernatural world through his soul, he is a part of the great world with his soul. As a result of combining these two characteristics, it differs from animals and angels.In this sense, the spiritual side of animals consists only of the soul and does not exist in the sense of the divine spirit, and angels are completely deprived of the soul as spiritual beings. Human beings have these two aspects with all their attributes. These two aspects are in a state of constant struggle in man.

According to Suhrawardi, the reason for man's creation is the management of two worlds (this world and the hereafter). The human soul is the highest heavenly, it is from the realm of commandment. And the animal human spirit is from the world of people. The animal human soul is the abode of the higher celestial soul.

"Allah, the Most High, created Adam to manage the hereafter (world and the hereafter). Allah wanted him to manage the world just as He wanted him to manage Paradise" [6-68b]. explains his opinion on this topic.

In Sufi terminology, the concept of ilmi ladun is used in the sense of occult science, the science of understanding divine secrets. The mystics understand the science of ladun as a private knowledge taught to a servant by Allah. Laduni knowledge is the knowledge that God has blessed his guardians by way of inspiration.

Analysis And Results. The philosopher approaches the question of knowledge and self as follows. Sufis believe that all knowledge comes from Allah. But Shari'ah and Zahiri knowledge comes through the angel and the messenger. Inspiration comes directly from the Truth. That is why inspiration is called ilmi ladun. This knowledge is a private knowledge specific to a certain person [8; 393].

Suhrawardi's science shows that a person's victory over his ego and good behavior against his ego is a condition for the acquisition of wealth. "The value of a dervish is measured by his struggle against his ego. The dervish achieves "ilmi ladun" through his victory over the ego and his good behavior in his fight against it. In the shadow of this, he attains virtue and finds the easiest way by gaining the ability to use his mind [6;53a]".

As you can see, Suhrawardi believes that by purifying a person's ego and winning over him, he will open the doors of Laduni knowledge to him. Treating the soul well is to ensure that it stays away from the deeds that will be punished on the Day of Judgment and directs it to good deeds.

Suhrawardi explains the ways of becoming a ruler of the soul and again puts the topic of science and ladun on the agenda. It is known that a tax collector who has entered the Khilwat and engages in dhikr and thoughts without eating on an empty stomach for forty days is an important factor in controlling the ego and through this, the gates of knowledge of ladun are opened to the tax collector.

Suhrawardi expresses in a serious way that Laduni knowledge depends on practice and does not appear without some donations. "If a murid (disciple) always reads the Qur'an and keeps his heart and tongue together, he will prevent the objections of his soul, and he will easily start reciting the Qur'an and praying. This suhulat in recitation and prayer enlightens the soul. The recitation of the Qur'an is at the level of the dhikr of the Divine, since the light of the Divine Word is in the heart as a jewel. The light of God's word gathers in the heart by observing the great quality of Allah's word. Without such divine levels, the doors of ladun science will not be opened for a servant [6;71b]". So, the science of ladun is not a science that can be easily acquired. All the information we know about Laduni science consists of various signs of this science, primarily in the prophets and in small quantities in the gifted guardians. Since the absolute truth of this knowledge is in the presence of Allah Almighty, being able to understand it literally is a mentality that is at the limits of our perception.

In Sufism, it is said that there are three types of closeness [9;137b] when the concept of closeness [9;137b] is approached from the point of view of its connection with knowledge in a different way from closeness as status. These types are concepts mentioned in the Qur'an as ilmul yakiyn, 'aynul yakiyn and Haqqul yakiyn. Suhrawardi agrees with the idea that the close is divided into three in the classical sense. He explains the method of study of these types of knowledge by saying that ilmul yakin is obtained through direct observation and evidence, 'aynul yakiyn through discovery and inspiration, and haqqul yakiyn is achieved by the loss of human qualities and those who seek greatness reach this level.

Suhrawardi defines the mind as "As for the mind, it is the language of the soul and the interpreter of the intellect". For the soul, understanding is its heart, and reason is its tongue" [6; 147a]. Here again, Suhrawardi gave a different definition, saying that the human identity is the mind saying "Everything has its own identity. The essence of man is intelligence, and the essence of intelligence is patience [6; 159a]. As you can see, Suhrawardi is a supporter of explaining the mind not in a philosophical sense, but in terms of human responsibility. Reason is the attribute that holds a person accountable and accountable. In this sense, the aspect that distinguishes a person from other creatures is being responsible.

Being human is related to having the potential to be responsible. This potential is intelligence. Suhrawardi also interprets the definition of mind in a philosophical sense and defines the mind as a polishing material.

Kharis al-Muhasibi (d. 243/857), one of the greatest Sufis, says: "The mind is a nature that is perceived by the knowledge itself" [6; 147b].After expressing these, Suhrawardi explains his view in the following way: "Mind is the essence of the human soul, which is supreme, its language and guide" [6; 147a]. "The mind is the language of the soul. Because the soul is from Allah's command. The light of the mind benefits from the soul. Sciences can also be learned with the light of reason. According to knowledge, the mind is in the judgment of the writing board" [6; 147b].As you can see, Suhrawardi defines the mind as the language of the soul. The soul is under the command of Allah and has taken on the task of protecting its trust. Suhrawardi, who mentioned that the mind receives benefit from the soul, expresses the study of sciences only with the light of the soul.

The mind attains being and personality together with the soul. He can bring a document on the item. If there was no soul, reason would not pass and could not provide evidence against or alongside anything. In conclusion, intelligence is a skill that exists only with the existence of the soul. If there was no soul, the mind would not pass, and judgment and documents could not be brought about anything. Just as reason cannot show right and wrong to a person without a soul, it cannot provide an argument for opposing or taking sides.

Conclusion. Instead of conclusions, it should be noted that there is a single substance between the Truth and man, and it is emphasized that man knows Allah by learning his identity. In his works, Suhrawardi studied man, his outer and inner world, observed his nature and aspirations, developed solutions to the problems related to them in simple, fluent and popular ways based on people's religious beliefs and way of thinking. The gem of faith of a person is equal to his greatness, he analyzed the bad vices caused by the defects - ego and greed, and showed the ways to get rid of them. There are different and sometimes biased views on the scientific and spiritual heritage of Shihab al-din Suhrawardi, and it is necessary to approach them from the point of view of the methodology of the dialectical relationship of nationalism and humanity. His teachings were expressed in artistic symbols based on historical events, daily life realities, masterpieces of folklore, and sharia was considered not as a shackle for a person, but as an important basis and tool for educating a perfect person. Suhrawardi's conceptual approach to the issue of human spiritual maturity is a highly processed synthesis of the concepts that existed before him and is the fundamental source of the teachings that emerged after him.

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SOCIAL-PHILOSOPHICAL CHARACTERISTICS OF HUMAN CAPITAL DEVELOPMENT PROCESSES

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Annotasiya: Maqolada «Inson kapitali» fenomenining mazmun-mohiyati, tushuncha va qonuniyatlarni ijtimoiy hodisa sifatida anglash hamda tadqiq etishning konseptual falsafiy tahlillari, milliy va etnomadaniy nuqtai nazardan tadqiq etish, metodologik jihatlarining oʻzgarib borishi, rivojlanish dinamikasi, davriy transformasiyalashuvning ijtimoiy-falsafiy tendensiyalari, falsafiy jihatlarini zamonaviy sivilizatsiya rivojlanishining eng muhim sharti sifatida tadqiq etish va shu orqali ijtimoiy-madaniy, milliy xususiyatlari monitoringi va ijtimoiy jihatdan yoritish hamda asoslash lozimligi xususida soʻz boradi.

Kalit soʻzlar: Jahon, urbanizatsiya, migratsiya, milliy, madaniy, falsafiy, ijtimoiy, etnik, Oʻzbekiston, Yangi Oʻzbekiston, «Inson kapitali», rivojlanish, taraqqiyot, tendensiya, qonun, xalq, sabab, mohiyat, Ismoil al-Buxoriy.

Аннотация: В статье раскрывается сущность феномена «Человеческий капитал», концептуально-философские анализы понимания и исследования понятий и законов как социального феномена, исследование с национальной и этнокультурной точки зрения, изменения в методологических аспектах, динамика развития, социально-философские тенденции периодической трансформации, философские аспекты как важнейшее условие развития современной цивилизации, а значит, мониторинг социокультурных, национальных особенностей, необходимость их освещения и обоснования с социальной точки зрения. вид.

Ключевые слова: Мир, урбанизация, миграция, национальный, культурный, философский, социальный, этнический, Узбекистан, Новый Узбекистан, «Человеческий капитал», развитие, прогресс, тенденция, закон, народ, причина, сущность, Исмаил ал-Бухари.

Abstract: In the article, the essence of the phenomenon of "Human capital", conceptual philosophical analyzes of the understanding and research of concepts and laws as a social phenomenon, research from a national and ethnocultural point of view, changes in methodological aspects, dynamics of development, socio-philosophical trends of periodic transformation , philosophical aspects as the most important condition for the development of modern civilization, and thus the monitoring of socio-cultural, national characteristics, and the need to illuminate and justify them from a social point of view.

Key words: World, urbanization, migration, national, cultural, philosophical, social, ethnic, Uzbekistan, New Uzbekistan, "Human capital", development, progress, trend, law, people, reason, essence, Ismail al-Bukhari.

Introduction. Today, when the processes of globalization are taking place in the world, attention to the human factor is interpreted as more urgent problems than ever before the world community. In the world, due to the increase of urbanization and migration processes, the assimilation of peoples, and the acceleration of demographic marginalization, new problems related to the human factor appear. In such a situation, it is necessary to research the essence of human capital, its development trends and issues of life stability based on national and social ethnic characteristics.

In the world's leading scientific research institutes and centers, the problem of "human capital" is becoming an important object of scientific research to study and determine the characteristics of social, ethnic and national identity.

In addition, the social mechanism of the organization of the labor force in the comprehensive development of human capital, the establishment of demographic and ethnic relations to the urbanization of the population, researches on the geographical-ecological characteristics, the issue of social and legal equality of the ethnic group, ethnographic and religious confessional relations; the research problem of human factor, ethnic, national and other forms of social thinking is the key to learning.

Literature review. In Uzbekistan, the field of scientific scope for researching the problem of human capital is expanding with different concepts and factors. "Ensuring the new Uzbekistan to become a democratic state, recognized by the world, with socio-economic development and high human capital, is the content and essence of our development strategy". The scientific approach to the "human factor", "human capital", "social person" and "human relations", which is the basis of this phenomenon, which is the basis of social relations, has acquired a new meaning, and the positive tpansfopmization of national and ethno-cultural characteristics, in turn, in a certain area.

It is explained by the difference in the quality of life of the living population. That is why the need for human capital is a factor influencing the development of the country based on the state policy and the interest of the society, and the research of its ethno-social characteristics is becoming increasingly important.

Degree of the President of the Republic of Uzbekistan on January 28, 2022 No. PD-60 "On the development strategy of New Uzbekistan for 2022-2026", report No. PD-5623 of January 10, 2019 "On the program of radical improvement of the urbanization plan", PD-4210 of February 25, 2019 "On the program of improving the population of the Republic of Uzbekistan in the national map and index", 2020 26 on the map PQ-4653 No. "The duty of the Republic of Uzbekistan to reduce economic development and poverty and to organize its system organization activities" and other non-legal documents on the subject, the work of the this dissection serves at a certain level.

Analysis. Today, revealing the socio-philosophical characteristics of the development of human capital is one of the most urgent issues. In this regard, the following tasks should be emphasized:

To study the essence, concept and legitimacy of the phenomenon of "human capital";

understanding of human capital as a social phenomenon and revealing the conceptual philosophical analysis of research;

closing the interdependence characteristic of the methodological aspect of the research of human capital from the national and ethnocultural point of view;

researching the dynamics of human capital development and socio-philosophical trends of periodic tpansfopmization;

researching the philosophical aspects of the formation of human capital as the most important condition for the development of modern civilization;

philosophical study of the dialectical relationship between the concepts of human capital and social community;

philosophical study of the socio-economic and demographic situation of the population in New Uzbekistan and its role in the formation of human capital;

to study the degree of development of human capital and the relative importance of ethno-social development in the new Uzbekistan;

researching the issue of human capital, monitoring socio-cultural, national characteristics and revealing social trends;

study of human capital and its features in ethno-social context, the role of education and health system in socio-economic integration;

development of a practical proposal and recommendation on the identification analysis of the multiplier of human capital, social dynamics and its specific features.

Since time immemorial, knowledge has been considered the greatest treasure. It cannot be compared with any wealth. It was not for nothing that our great ancestor Ismail al-Bukhari said, "There is no salvation in the world except knowledge and there will be no salvation."

Discussion. Intellectual potential is becoming more and more important in world development. The demand for the power of a person with knowledge, skills and competences is increasing more and more. Today in the world high scientific and technological discoveries are created by such high-potential personnel. In today's globalization process, innovation is one of the most important strategic resources of any country. Successful solution of socio-economic problems, increase of intellectual potential, production of exportable products is connected with innovative activity.

Innovative development cannot be achieved without the development of human capital. It is important that every member of the society has acquired knowledge, can fulfill the tasks or goals set before him with sufficient skills and qualifications, and has unlimited loyalty to his country and people. Every investment in support of civil society in Uzbekistan ensures people's creativity and compliance with laws.

An atmosphere of optimism is created in the society, a constructive and rational outlook is formed. Non-governmental institutions that improve the quality of life will appear. People learn to live a healthy lifestyle. All this creates confidence in the future in our people and improves the quality of life.

Conclusion. Investing in human capital increases the country's competitiveness. Educating talented people is important for the development of the country. Rapid use of information technologies is a characteristic factor of today's development. The analyzes show that the intellectual-spiritual factor is an important indicator of development and a determining factor of the level of development of society as a decisive condition of national wealth. Human capital is an important force and potential that will allow Uzbekistan to rise to the ranks of developed countries.

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THE IMPORTANCE OF AL-FARABI IN THE DEVELOPMENT OF MUSICOLOGY

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Annotasiya: Ushbu maqolada musulmon dunyosining uygʻonish davri buyuk allomasi Abu Nasr Forobiyning ilmiy merosini oʻrganilgan. Maqolada al-Farobiy ijodini mahalliy va xorijiy olimlar tomonidan oʻrganilgan taxlillari taqdim etilgan boʻlib, u al-Farobiy falsafasining oʻziga xos xususiyatlarini, qadimgi mutafakkirlar va uning zamondoshlaridan farqlarini koʻrsatadi.

Kalit soʻzlar: musiqa, "Musulmon uygʻonishi", musiqashunoslik, cholgʻu asboblari, musiqa madaniyati, musiqa nazariyasi, sheʼriyat.

Аннотация: В данной статье автор рассматривает научное наследие Второго учителя и великого учёного эпохи Мусульманского Ренессанса Абу Насра аль-Фараби. В работе представлена панорама исследований творчества аль-Фараби как отечественными, так и зарубежными учёными, указываются специфические особенности философии аль-Фараби, отличия, как от античных мыслителей, так и его современников.

Ключевые слова: музыка, «мусульманский ренессанс», музыкознание, музыкальные инструменты, музыкальная культура, теория музыки, поэзия.

Annotation: In this article, the author examines the scientific heritage of the Second teacher and the great scholar of the Muslim Renaissance, Abu Nasr al-Farabi. The paper presents a panorama of studies of al-Farabi's work by both domestic and foreign scientists, indicates the specific features of al-Farabi's philosophy, differences, both from ancient thinkers and his contemporaries.

Key words: music, "Muslim renaissance", musicology, musical instruments, musical culture, music theory, poetry.

Introduction. The significance of al-Farabi in the development of musicology is not limited to his special historical position - at the origins of the formation of the science of music in the East, the breadth and encyclopedic nature of his musical and theoretical views seem truly unique against the background of contemporary Western European and Arab-Muslim musical science (9th-10th centuries).

Information about the life of Farabi is scarce and contradictory in various scientific literature. Researchers refer mainly to three Arab historiographers who cite the biography of Farabi - Ibn Khallikan (1282), Ibn al-Kifti (1248) and Ibn abi Usaybia (1270).

The scientist who glorified Arabic-speaking science was a native of Central Asia. Arab medieval sources call Turkestan the birthplace of al-Farabi: the Farab area on the Syr Darya. Date of birth - 258 hijra (870-872). The full name of the scientist also points to the origin - Abu Nasr Muhammad ibn Muhammad ibn Tarkhan ibn Uzlag al-Farabi at-Türki, in which "Tarkhan", according to researchers, is the name of a privileged Turkic class. Characterizing al-Farabi as one of the famous medieval music theorists,

the well-known researcher of Arabic music G.J. Farmer writes: "Al-Farabi was probably the greatest author of music theory during the Middle Ages. His consideration of theoretical science (music) not only advanced what was done by the Greeks, but in Western Europe there was no independent thinker equal to him until the appearance of Ramos de Pareja (1440-1521), and he, like another great theorist - Salinas (1513-90), came from Spain, a land that was under the significant influence of the Arab sciences" [1, p.562-563]. Comparing the outstanding works on music by Farabi and Ibn Sina with the works of their European contemporaries, Farmer calls them "oases in the desert" [2, p.10-11].

The significance of the musical and theoretical heritage is distinguished by al-Farabi among other Arab-Muslim scholars of his time: the author of several works on music, including "The Book of Rhythms", "The Book on the Classification of Rhythms", "The Book on the Classification of Sciences", "On the Origin of Sciences", etc., he entered the history of musicology" – "Kitab al-musika al-kabir" .

Literature review . The relevance of this work is the musical-theoretical concept of musical science of the outstanding Arab-Muslim philosopher, scientist and musical theorist Abu Nasr Muhammad al-Farabi (870-950) in the treatise "The Big Book of Music" – "Kitab al-musika al-kabir".

The greatest monument of the era of the "Muslim Renaissance" (X century), scientific interest in which arose already in the Middle Ages (XI-XIII centuries) and, with the development of musicology, grew and specialized, up to the research of recent decades, is considered in the work in a new , previously unilluminated perspective - as a unique historical experience of the philosophical interpretation of the scientist's musical science, which is one of such brilliant and turning points in the development of musicology.

The "Big Book of Music" is a source of the era of the Arab-Muslim "Renaissance" that is unique in its significance. Even in its scale (about two thousand pages), the "Book" surpasses many works on music written before and after it, and can be put on a par with the most monumental creations of medieval culture - Ibn Sina's "Canon of Medicine" and "Keys of Sciences" al-Kharizmi (X-XI centuries). It summarizes and deeply explores the issues of musical science, mainly representing previously the themes of individual compositions.

Analysis and Results. Encyclopedic knowledge and aspirations of Farabi determine the originality of the consideration of these issues. Remaining within the tradition, the scientist reaches a higher level of comprehension of music and creates a holistic musical-theoretical concept. At the same time, Farabi's treatise describes in detail the musical practice of the Middle Ages, common instruments, modal systems, rhythms, etc.

The Big Book of Music is one of the rare medieval treatises that have come down to our time in many manuscripts. The various versions of the original are mostly incomplete. Together, however, they form a consolidated text reflecting the original structure of the treatise described by Farabi in the introduction; The "book" consists of an "Introduction to the Art of Music" and the main part ("The Art of Music as such"), which includes three sections ("On the Elements of the Art of Music", "On Common

Instruments and Sounds Perceived on them", "On the Composition of the Types of Single Melodies"), each of the sections and the introduction contain two chapters.

In the general development of musicology (in the 9th - 10th centuries), the "Big Book of Music" occupies an extremely significant place as a musical-theoretical treatise, recognized (both in medieval historiography and in studies of modern times, up to the present) as a fundamental encyclopedic work on music in the East.

The teachings of al-Farabi, in turn, are considered as a kind of starting point for the "ilm al-musik" direction, which served as an authoritative source for subsequent Arab-Muslim scholars [3].

Considering the scientific concept of al-Farabi against the historical background of musical culture and musicology of the 9th-11th centuries, it can be noted as its universal features, due to the influence of ancient music theory, reliance on the structure of medieval scientific knowledge, worldview principles coming from Arab-Muslim philosophy and spiritually -intellectual culture, and unique, innovative.

There is an obvious contrast between Farabi's treatise and the traditional literature on music, syncretically associated with genres, themes, which have become the poetics of Arabic literature. The largest number of sources of this type, devoted mainly to the issues of musical practice and performance, belonged to the adab literature, the main artistic principle of which was the use of diverse, often inconsistent, bizarrely mixed material.

The "Big Book of Music" clearly stands out when compared with the musical-theoretical works of his predecessors and contemporaries in the direction of the "science of music" (al-Kindi, Ikhvan as-Safa, al-Khwarizmi). In contrast to the existing tradition of considering music in the encyclopedia of sciences (one of the first in a series of which was his own "Classification of Sciences"), Farabi creates a monographic work on music, adequate to them in terms of volume and scope of topics, in terms of the systematic and accurate theoretical analysis – "encyclopedia" musical science.

In the "Big Book of Music" al-Farabi gives a detailed definition of music, reveals its categories, describes the elements that form a piece of music. Al-Farabi grouped all the musical instruments known at that time according to the method of extracting sound.

Thus, he laid the foundation for the science of musical instruments, which later developed in the East and Europe. Scientists suggest that it is Farabi who is the inventor of the nine-string or four-string dombra "Ut".

A special quality of Farabi's theory is that, inverted by different with its facets to the traditions of ancient and Arab-Muslim scientific knowledge and musical culture, it bears such a vivid imprint of the originality of Farabi's scientific thought that the various features of continuity in their combination not only do not contradict each other, but reveal consonance and internal unity that unites them into an integral scientific and philosophical concept. In his work, al-Farabi considers issues of musical theory from the characteristics of the structure of musical sound to the connection between music and poetry.

The well-known scientist Zh. Altaev wrote about the applied aspect of the work "The Big Book of Music": "Abu Nasr al-Farabi designated sounds as a given, which

should be systematized by genre in order to reproduce from them those that are useful for people. The author of the "Big Book of Music" draws attention to the fact that a person can compose, create music thanks to "natural, innate mental properties."

The well-known scientist, researcher of the history of Arabic music G. Farmer spoke highly of the scientific work of al-Farabi, calling him the main king in the field of music.

The purpose of the study is the author's desire to trace the origins of the musical and theoretical teachings of al-Farabi and outline the spiritual and intellectual trends and problems of medieval Arab culture, which were directly reflected in this teaching.

The time of the creation of the BKM (the first half of the 10th century) refers to the period of the "Sunset" of the era of the Abbasid dynasty (847-945). Chronicle of the historical events of this period, marked by the loss of the religious and political authority of the central government, the further disintegration of the empire into a number of provinces (Egypt and Syria, North Africa, Andalusia, Iran, Central Asia, Afghanistan), rebellions and uprisings within the country (Zanj uprisings - 869- 83 years), the ideological struggle of religious movements and sects (the Karmatian movement - the 90s of the 9th-10th centuries), testifies to the crisis of statehood, which marked the beginning of the fall of the Arab caliphate. The "decline" of the Abbasid empire was accompanied at the same time by an unprecedented flourishing of the Arab medieval culture. It seems to highlight the internal potential accumulated by Muslim civilization over several centuries of its existence (VII-X centuries). The era, which received the definition of "Muslim Renaissance" in Eastern historiography, is characterized by the rapid growth of sciences, the fruitful assimilation of the "foreign" cultural heritage, the spread of literature and musical art. According to the famous Arab historian of the turn of the XIV-XV centuries. Ibn Khaldun, "the art of music among the Arabs continues to develop, and under the Abbasids it reaches perfection" [ibid, p. 90].

The musical art of the caliphate, which arose on the basis of a synthesis of different cultures - Arabic, Persian, Turkic (and the heritage of ancient civilizations - Byzantium, Sasanian Iran, Sogd and Maverannahr), was a variety of traditions that were in continuous interaction.

The originality of national features in music was clearly recognized among scientists and practicing musicians. It is this musical culture, many-sided in its origins, that is reflected in the Big Book of Music. The instruments described by Farabi include not only the original Arabic ones, such as oud, rubab, Baghdad tanbur, but also Central Asian and Iranian instruments (Khorasan tanbur, shahrud). Thus, the scientist describes the invention of the Sogdian stringed instrument shahrud, which, according to him, "is capable of reproducing the greatest number of sounds imitating the natural sound of the human voice." Farabi notes the excellent qualities of shahrud, saying that "all the ancient and new melodies of the peoples of these countries (Egypt, Mesopotamia, Syria, etc.) were reproduced on it, everyone was satisfied with the performance and no one disputed the merits of this instrument."

In Europe already in the XII-XIII centuries. al-Farabi's works began to be translated into Latin and Hebrew. In 1930-1932. in Paris, a translation into French of the first part of the "Big Book of Music" was published, carried out by the French scientist Rudolf

d'Erlanger. In the comments on the translation of the BKM, R. d'Erlange explores the connection between Farabi's theory and the ancient theory of music (for example, when considering the modal system, the types of tetrachords of various ancient Greek theorists are given in numerical terms).

More in-depth individual aspects of the Farabi theory are developed by E. Neubauer, M. Liberty, O. Wright, J. D. Sawa. It should be noted that Western European Oriental studies are correct in covering historical information and accurate in conveying theory through original terms and concepts.

In Russian-language literature, the musical-theoretical views of Farabi studied by T.S.Vyzgo, I.O.Radzhabov, O.Matyakubov, A.B.Dzhumaev, A.F.Nazarov, etc. mode, rhythm, musical instruments, in the works of the listed authors, the content of the theory was considered in the context of general theoretical and aesthetic issues. One of the most discussed problems of Russian-language works is: BKM as a source of information about the musical system, instrumentation and existence of art in Central Asia in the Middle Ages, parallels with later and modern art in this region.

Variety of questions that are raised in research on Farabi directly reflects the quality of the source itself: the versatility theoretical system in BKM is of research interest in various directions - mode and pitch (R. d'Erlange, G. J. Farmer, M. Barkeshli, H.A.Mahfuz, O.Matyakubov), rhythm (J.D.Sava, I.O.Radjabov), description of musical instruments (A.Malkeeva), connections with the ancient Greek theory of music (G.J.Farmer, R.d.'Erlange), questions of musical aesthetics (I.O. Radjabov, A.V. Sagadeev, A.B. Dzhumaev), etc. As a review of the literature that makes up the field of musical Farabian studies, the topic "al-Farabi and his musical-theoretical system" is quite widely developed and is still relevant for modern oriental studies.

Conclusion. Thus, the name of al-Farabi has firmly entered the history of world music. His writings formed the basis of medieval philosophy of the Renaissance. His great merit was the Europeanization of the science of the Arab world and the systematization of scientific knowledge. Renaissance, have become a connecting bridge for the convergence of cultures and philosophies of the West and East.

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PHILOSOPHICAL ANALYSIS OF THE TEACHINGS OF MUHYIDDIN IBN ARABI

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Annotatsiya : Ushbu maqolada XII-XIII asrlarda yashab o'tgan mashhur so'fiy va tasavvuf olimi Muhyiddin ibn Arabiyning tasavvufiy qarashlarining o'ziga xos ilmiy-falsafiy jihatlari tahlil qilingan.

Tayanch so`zlar: tasavvuf, fiqh, tasavvuf, tariqat, tasavvuf, tasavvuf, fiqh, shariat, tashqi, botiniy, falsafa, faylasuf.

Аннотация: В данной статье анализируются уникальные аспекты философические взгляды Мухиддина ибн Араби, известного мыслителя суфизма и мышления в XII-XIII вв.

Ключевые слова: мистицизм, юриспруденция, мистицизм, секта, суфизм, мистицизм, правовед, шариат, внешнее, внутреннее, философия, философ.

Abstract : In this article, the unique aspects of the mystical views of Muhyiddin ibn Arabi, a famous Sufi and mystic of the 12th - 13th centuries, are scientifically and philosophically analyzed.

Key words: mysticism, jurisprudence, mysticism, sect, Sufism, mysticism, jurist, Shariat, external, internal, philosophy, philosopher.

Introduction. There are many great ones who have their own place and path in the world of Sufism. The spiritual and moral heritage left by them is valued as the spiritual property of mankind. One of such greats is Muhyiddin Abu Abdullah Muhammad Ali ibn Muhammad ibn al - Arabi al - Hatami al -Taiy al - Andalusi (1165-1240), known as Ibn Arabi, who was born in the Andalusian town of Murcia, known as "Shaykhul Akbar" ("The Great Sheikh"), the founder of the "Akbariya" sect, who mastered Islamic and mystical sciences and wrote more than five hundred works..

In his mystical teachings, Ibn Arabi tried to reveal the unique aspects of Sufism, his attitude towards himself and others, the place of the concepts of sharia, tariqat and truth in his theory and practice.

In his information about the development of the mystic's enlightenment, he analyzes the essence of Sufism, the concepts of truth, being and man based on various wisdoms. Ibn Arabi said, "Judgment is the result of wisdom. Knowledge is the result of enlightenment. He who does not have wisdom does not have judgment, and he who does not have enlightenment does not have knowledge."

The mystic sometimes approached the solution of religious-mystical and philosophical problems based on his personal system of views. In such a theory, the mystic carried out the analytical solution in two ways:

- by religious-mystical analysis of the heritage of previous jurists, philosophers, mystics and Sufis and reacting to the problem;
- by making personal-emotional and current conclusions.

Analysis and results . Ibn Arabi analyzes his attitude to the science of jurisprudence as follows: "In order for the people of religion to know the basis of what they believe in, the explanation of religious methods is carried out by means of reasoning and narration. [1]"

Farobi was the first to talk about the issue of "active and potential (powerful) Mind", as well as the division of human mind into practical (experimental) and theoretical mind. As a result, Abu Ali Ibn Sina developed the theory of "the emanation of minds from the First Mind". In Ibn Arabi's teachings , special attention is paid to jurist and scholars (ulama ud din علما٬ الدين). The main task of religious scholars is to explain and teach religious rules and obligations to the people, and he analyzed that there should be a large number of them, and that it is necessary to understand the essence of Shariah actions in the unity of knowledge and action. "People need more Shariah leaders. Because if a person dies without knowing the intellectual sciences such as body and soul, prayer and fasting, Allah will not ask him about them, but what he did through them [2].

Ibn Arabi evaluates the level of jurists and calls their high level ijtihad. The jurists who have reached this level judge any religious issue that has no solution by themselves without the help of others. Judgment is made by the science of inner inspiration, not by external knowledge. Sufis are also engaged in this science. For this reason, the mystic calls upon the mujtahids and jurists not to object that their method of judgment is different from that of the Sufis [3].

Ijtihad (Arab. - zeal, aspiration) - a jurist uses all his knowledge and patience to form a Shariah judgment. Ijtihad is done to determine the Shari'a ruling of a case that does not have a Shari'a ruling using special rules. During the lifetime of the Prophet (pbuh), no one except him performed ijtihad. It was not even possible. Ijtihad came into existence at the end of the 7th century. By this time, there was a discrepancy in the reports of the Companions about the activities and words of Muhammad (pbuh). In addition, many legal problems have arisen due to the changing way of life in the Muslim community. Therefore, the main purpose of ijtihad was to find new or unsolved issues by the predecessors, to solve them based on and supported by Islam.

Ibn Arabi understands "ijtihad" as "accepting the process of divine favor that is characteristic of prophets through the development of inner abilities." After all, in the eyes of Ibn al-Arabi, God Almighty has given high ranks to the scholars of the Sharia of Muhammadiyah: "The scholars of the ummah whose Sharia are the protectors and guardians of the Muhammadiyah will not be among the ummahs on the Day of Judgement, but among the prophets."

Ibn Arabi explained to the Sufis how the jurists and their judgments should be treated, emphasizing that most of them have the right worldview. The mystic says the following about how the saalik in the tariqat should interact with the representatives of the traditional schools of jurisprudence: "Do not follow their rulings, do not go beyond the limits of Sharia. Do not follow and do not resist when the other permits what the one forbids. Do what you are commanded to do (i.e. Sufi practices A. B.) and you will

remain healthy. Be busy with yourself, try to be with the people of "Ahl al-Ijma'" ("ijma' ahli ",Jma' '), if you don't find them-ahl al be with "Ahlul-Ahadis" (" -Ahl al .Ahadith ") and listen to themSubmit your unanswered questions to these categories[4]."

If we pay attention to the essence of Ibn Arabi's teachings, it is to protect the Sufis from the attack of fake, ignorant Sharia leaders and jurists. The mystic made a correct conclusion about the fate of Mansur Halloj. The members of the state and the government were well aware that they were under the influence of Sharia leaders and that in any case they would start a sharp struggle against the Sufis. Therefore, "Shaykhul Akbar" encourages its followers to act in cooperation with the times.

The mystic freely writes that some jurists think that religion is their own, that they choose this path considering their worldly interests, and that such jurists are severely oppressing "ibn al-waqt" ("children of time" i.e. Sufis A. B.[5].) . Therefore, the relations between the people of Sharia and Tariqat, both outward and inward, continued.

Ibn Arabi rejects Qiyas, recognizing the three main branches of jurisprudence, "Quran", "Sunnah" and "Ijma'". As a basis for this, the mystic says that the science of "Qiyas" relies on the mind, and the mind does not have enough opportunities to make comparative judgments [6].

In the science of jurisprudence, the Sufis highly appreciate the activities of mujtahids. They do not make the mistakes that ordinary jurists can make. He concludes that a person who has reached the level of ijtihad should be followed by jurists and Sufis.

Ibn Arabi also analyzes philosophical sciences. "Philosophy is a special science, to whom it is given, he is wise - intelligent. This science is detailed (comprehensive) and practical. A wise man accepts all situations and all things in his own state . It is found only in the caste of malamatites [7] .

Ibn Arabi responds to philosophical knowledge from the perspective of Sufism, emphasizing that it can be found literally in the Sufis of the teaching of malomatia.

Philosophy is one of the earliest sciences in human history . Philosophical reflection , thinking is characteristic of human nature, therefore, it is as ancient as itself . It is a science that discusses many problems , such as the universe and its existence, development and growth , life and man, the essence of life , existence and inexistence.

In most textbooks on the basics of philosophy, it is emphasized that this term is derived from the ancient Greek word "philosophy" and it means "love of wisdom" ("philo" - love, "sophia" - wisdom). This is the dictionary meaning of this word, term.

Over the centuries, there have been different views on the meaning of the word philosophy, its place in society, man and the system of sciences, and the meaning of this term has also changed.

Ibn Arabi divides philosophy into two parts - theoretical and practical philosophy. According to him, theoretical philosophy draws its conclusions in a rational way, that is, in an intellectual way. The results of the practical application of these methods can be positive or negative. Practical philosophy was formed on the basis of the Sufi skills of these Sufis, the main of which is "ilmi tajalliyot" ("the glimmering of God's light in man"). According to the mystic, "Man cannot achieve this by his actions. It is the grace

of the Lord to the servant, and in Sufism it is called "ulukhi".The source of all his actions and words is Allah. He is an infallible prophet or guardian. Prophets and saints are true sages and philosophers are mere sages. However, they are close to true sages and know God better than others [8].

According to the Greek philosopher Socrates, true knowledge is not available to everyone, but to some people, that is, to the wise. But they also do not know the truth. A person cannot be smart and wise in everything, so what he knows, he is smart and wise in this field. The wisdom and intelligence of man is not equal to the wisdom of God, he is not capable of understanding it. Therefore philosophy is the love of wisdom. Only God is the possessor of true knowledge, the true sage. God reveals himself not to the sharp-minded, but to the open-hearted; for they shall see God.

Ibn Arabi puts philosophy above the science of words. As a result, it shows that philosophy includes religious, natural sciences, mathematics and logic. Sufism: "Mutakallim does not know these sciences. He is just a mutakallim. A philosopher is a person who embodies religious, natural, mathematical and logical sciences. There is no other science except these four sciences [9].

Although Ibn Arabi glorifies philosophy and shows it as a science that incorporates theoretical and mental sciences, he also criticizes it. Ibn Arabi's critical attitude towards philosophy and philosophers is evident in his disagreement on ontological and epistemological issues such as "Ru'yatullah" ("Seeing Allah" روية الله) and "Zatullah" ("God's essence" داىئ الله). Ibn Arabi bases his theory of "Ruyatullah" on the basis that existence is self-visible through which God can be seen: "Existence is an illusion. All that you see and the differences between them are the product of the senses ("mahsusot" المحسوست) and the imagination ("تخاير يولوت" الخيلات). This is also denied by the philosopher "ashabu adillati-l-uqul" ("those who believe in mental arguments " ashab adla aqwl-al) - rationalists and zahiris. And we call it the Haqq [10]"

Ibn Arabi approaches the evaluation of philosophers in such a critical way that he says that philosophers are incapable of solving certain problems, they are only capable of solving general riddles of existence. The mystic "A wise man is a philosopher." However, his knowledge is bare [11]," he concludes.

Ibn Arabi agreed with the philosophers' opinions on some issues. Philosophers have taken many paths in reaching the truth, and as a result, they have been divided into different streams and schools. According to the mystic, these teachings come to the conclusion that they are looking for the truth in the scales of their knowledge. Ibn Arabi urged the Sufis to use the ideas of the philosophers, but not to claim that these ideas were Sufis'. According to the mystic, "If a philosopher, orator, says a judgment that is derived from the Prophet, he cannot be called a Sufi-philosopher. A philosopher or a rhetorician says what he knows and may not be without flaws. Not all of the philosopher's science is wrong. Their judgments about the prophet and hadiths are correct. If we have not reached the truth, then we should believe the words of the philosophers and consider them to be true.

Ibn Arabi says that humanity follows one of two paths in understanding the Haqq. The first is a philosophical understanding based on the mind, and the second is the path of Sufism, which is a non-intellectual, spiritual-state understanding. Man relies on the mind or spirit to realize his reality. In Sufism, the mind is a creature, that is, created,

and it cannot understand its Creator. The only way to realize the Creator Truth is through self-realization. In this, they consider the soul as an essence that is breathed into a person from the Haqq himself, according to the Qur'anic verse, and the mind cannot understand it. As a result, through this essence, the Haqq can be realized.

Conclusion. Ibn Arabi tries to mitigate the problem, the contradiction, to reconcile. Therefore, the mystic creates the theory of "Wahdatul Vujud" as a way to understand the truth and existence. Each sect or school of philosophy has studied it and interpreted it in its own way. Ibn Arabi responded to the above issues from a mystical point of view and has not lost its importance even today.

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THE MOTIVATION OF EMPLOYEES OF SOCIAL SERVICES IS A FACTOR IN THE QUALITY OF SERVICES PROVIDED.

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Annotatsiya. Ushbu maqolada ijtimoiy xizmatlar sifati va ijtimoiy xizmat mutaxassislarining mehnat motivatsiyasi o'rtasidagi bog'liqlik ko'rib chiqiladi. Motivatsiya hodisasining nazariy asoslari qisqacha tavsiflanadi. Ijtimoiy xodimlarning motivatsiyasini belgilovchi omil bo'lib xizmat qiluvchi motivlar va antimotivlar ham sanab o'tilgan

Kalit so'zlar. Motivatsiya. Motivatsiya nazariyasi. Ijtimoiy ish. Ijtimoiy xizmat. Ijtimoiy xodim. Ehtiyojlar. Motivlar. Antmotivlar. Xizmat sifati

Аннотация. В данной статье изучена взаимосвязь качества социальных услуг с трудовой мотивацией специалистов социальных служб. Коротко описана

теоретическая основа феномена мотивации. Так же перечислены мотивы и антимотивы, служащие фактором определения мотивации социальных работников.

Ключевые слова. Мотивация. Теория мотивации. Социальная работа. Социальная служба. Социальный работник. Потребности. Мотивы. Анитмотивы. Качество услуг.

Abstract. This article examines the relationship between the quality of social services and the labor motivation of social service specialists. The theoretical basis of the phenomenon of motivation is briefly described. The motives and anti-motives that serve as a factor in determining the motivation of social workers are also listed.

Keywords. Motivation. Theory of motivation. Social work. Social service. Social worker. Needs. Motives. Anitmotifs. Service quality.

Introduction. Motivation is one of the main functions of people management. External relative to the "working person" means, which encourage him in the labor process in one way or another, are called incentives. A specific person perceives any stimulus in a certain way "passes through his consciousness" and may or may not encourage him to act. Internal motivators are defined as motives. The process of applying the system of incentives and, accordingly, the emergence of motives that encourage a person to achieve personal or group (collective) goals, and tasks is stimulation and motivation. In modern science and management practice, the concept of "motivation" is more often used, since it is necessary to take into account individual and group (collective) needs of people.

Literature review. Employee motivation has always attracted the attention of scientists. You can give examples of scientists who have studied this phenomenon and offered their beliefs.

In 1954, Abraham Maslow presented to the public his theory called the Pyramid of Needs, in which the model of motivation is based on the analysis of human needs arranged in a hierarchical ladder. [1]

In 1960, Douglas MacGregor proposed "Theory X" where workers are lazy and avoid work, as well as "Theory Y" in which workers are ambitious, take responsibility, and exercise self-management. [2]

In 1964, Victor Vroom described the "Expectancy Theory", which states that the main motivational effect is a thought process in which an individual evaluates the reality of achieving goals and receiving rewards. [3]

In 1968, Friedrich Herzberg founded the Two Factor Theory, which took into account both employee satisfaction and job satisfaction. [4]

In 1972, Clayton Alderfer again drew public attention to the needs of people as the main motivating factor. He argued that there are 3 most important needs: the need to exist, the need to communicate, and the need to grow and develop. [5]

Research Methodology. In this study, methods such as literature review, document review, and comparative analysis were used.

Analysis and results. Managers are forced to consider employees' characteristics, "catching" their motives and anti-motives. Anti-motives are of considerable interest primarily from a practical point of view, since by knowing them, one can determine which needs of a "working person" are not satisfied or are satisfied

to an insignificant extent. In essence, "improving the motivation" of labor comes down to identifying motives and anti-motives; developing measures aimed at reducing the "role" and the number of anti-motivations, and the practical implementation of measures that contribute to overcoming anti-motives, and anti-motivation.

In scientific research, in practice, a methodology is used to identify both individual and generalized (averaged) motives, using which they study the motivation of the head of a particular level of the social protection (assistance) system, a social work specialist, a "field" social worker.

Material motivation. Motives: stable salary and timeliness of its payment; payment of a monthly bonus of 100%; payment of a monthly allowance for work experience; payment of material assistance in the amount of two salaries for vacation and based on the results of work for the year; free travel on public transport; workplace stability. Antimotives: low official salary; remuneration does not take into account personal labor contribution and competence; no additional payment is made for the performance of functions that are not characteristic of the position held; there are no material incentives to improve the level of education. [6]

Organizational motivation. Motives: convenient to get to the place of work; the proximity of the house to the place of work allows you to fully perform the function of motherhood. Antimotives: poor performance of urban transport; severe sanctions for the slightest violation of labor discipline; the need to perform work that is not included in the terms of reference; improper organization of labor, which does not allow fulfilling the standards for the reception of the population; lack of normal provision of the workplace with stationery.

Social motivation. Motives: the sufficiently large social significance of the work performed; often feeling satisfied with the work performed; the possibility of obtaining a second higher education; provision of an additional 12-day vacation for a total work experience of over 15 years; good relationship with individual team members. Antimotives: not very favorable socio-psychological climate in the team; undemocratic, incorrectness of a higher leader; rare use of a collegial form of decision-making; lack of incentives to improve their skills; the impossibility of promotion; conflicts with superiors.

Informational motivation. Motives: availability of necessary information; the ability to provide the right information to people with a corresponding need. Antimotives: search for the necessary documents using personal connections; lack of various literature on the theory and practice of social work with different groups of the population; poor use of computer technology in everyday work.

Human capital, personal and intellectual characteristics of workers, and the system of labor motivation are beginning to play a paramount role in modern economic relations.

In this regard, the problem of studying the characteristics of labor motivation of social workers is of particular relevance. There are several features of the labor motivation of social workers. [7]

1.   Humanistic orientation of activity - social workers play the role of intermediaries between individuals, social groups, and private and public institutions and have a huge impact on the formation of the values of civil society. [8]

2. The creative nature of the work of social workers - when solving many social problems, a social worker needs to be creative in their solution, taking into account changing socio-cultural circumstances, and individual and other characteristics of clients. The creative potential of a social worker is built based on accumulated social experience, psychological, pedagogical, and subject knowledge, new ideas, skills, and abilities that allow finding and applying original solutions and creativity.

3. A high degree of development of the motivational-value sphere of the personality of a social worker. One of the most important requirements for the professional activity of a social worker is the need to comply with ethical principles and norms, justice, tact, tolerance, kindness, and love for people, who are sometimes not always able to evoke such an attitude towards themselves.

4. Increased emotional and psychological stress. In social work, social service personnel have to deal with socially discriminated people and groups (disabled people, families with many children, refugees, the unemployed, the lonely, the elderly, drug addicts, etc.). These categories of clients who have difficulties are age-related (memory loss), and emotional (irritability), which also causes an increased burden on the emotional and psychological sphere of the social worker's personality. [9]

5. Irregularity of the working day, i.e. lack of time frames for the performance of certain types of professional work. This negatively affects the life of the staff of social services and the team as a whole. In addition, as a rule, it causes an overload of social workers, and a lack of free time for their professional growth, which often leads to stress.

6. Predominantly female composition. Women's teams are more emotional, more often subject to mood swings, and more conflict. At the same time, women, by their nature, are more predisposed to this professional activity, and more flexible in the choice of techniques and methods of socio-psychological influence.

7. Inadequacy of socio-economic support for social workers and their professional work. Traditionally, the domestic system of social protection is financed on a residual basis, which significantly reduces its effectiveness, and negatively affects the quality of services and the motivation of workers in this area.

8. Lack of knowledge and necessary skills. An obvious obstacle to the professionalization of domestic social work is the lack of experience in the implementation of this professional activity, which leads to a decrease in the quality of services provided, and the imperfection of social support for the population.

9. Improving the efficiency of management in the institutions of the social protection system determines the need for further study of this problem, the development of the effect of the fault of the personnel policy system, and the system for stimulating labor motivation of social specialists.

Conclusion/Recommendations. In conclusion, we can say that the quality of social services that are provided to the population directly depends on the labor motivation of social work specialists. The following recommendations can be highlighted:

1. Include in the charter of social services a clause on maintaining and increasing the motivation of employees.

2. Develop a system for studying the phenomenon of motivation of social workers.

3. Develop a PR campaign to improve the status and prestige of the social worker profession.

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