



ACTUAL PROBLEMS OF MODERN SCIENCE, EDUCATION AND TRAINING

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**MODERN PROBLEMS OF TOURISM AND ECONOMICS**

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EXPERTISE OF INVESTMENT PROJECTS IN THE CONDITIONS OF INNOVATIVE DEVELOPMENT OF ENTERPRISES

Bekimbetova Gulnora Maratovna
PhD of the Department of “Finance and
Business Analytics”, Tashkent State
University of Economics,
g.bekimbetova.ifm@tsue.uz

Annotasiya. Maqolada korxonalarining innovasion rivojlanishi sharoitida investisiya loyihalarini ekspertizadan o‘tkazish masalasi ko‘rib chiqilgan. Shuni hisobga olish kerakki, har bir investisiya loyihasi odatda ko‘p qirrali muammodir, chunki moliyaviy tahlil masalasi ko‘rib chiqiladi va texnik, ijtimoiy va ekologik omillar ham hisobga olinadi. Iqtisodiyotda bugungi kunda texnologiyalarni modernizatsiya qilishning sekinlashuv tendensiyalari kuzatilmoqda, bu esa ishlab chiqaruvchi kuchlarni takror ishlab chiqarishda zamonaviy ehtiyojlardan ma'lum darajada orqada qolishga olib keladi. Ushbu muammoni hal qilish uchun innovasion faoliyatni o‘zaro bog‘liq darajalar va sohalardagi ierarxik o‘zgarishlar omili va natijasi sifatida ko‘rib chiqish kerak, bu tadqiqotchiga tanlangan sohani chuqurroq o‘rganish va uni tanlangan pozitsiyadan batafsilroq rivojlantirish imkonini beradi.

Kalit so‘zlar: ekspertiza, baholash, investisiya loyihasi, innovatsiya, risk.

Аннотация. В статье рассматривается вопрос экспертизы инвестиционных проектов в условиях инновационного развития предприятий. Необходимо учитывать, что каждый инвестиционный проект, как правило, представляет собой многоаспектную проблему, так как рассматривается вопрос финансового анализа, а также учитываются технические, социальные и экологические факторы. На сегодняшний день в экономике наблюдается замедление тенденций модернизации технологий, что приводит к некоторому отставанию от современных потребностей в воспроизводстве производительных сил. Для решения этой задачи необходимо рассматривать инновационную деятельность как фактор и следствие иерархических изменений смежных уровней и областей, что позволяет исследователю углубиться в выбранную область и разработать ее более детально с выбранной позиции.

Ключевые слова: экспертиза, оценка, инвестиционный проект, инновация, риск.

Abstract. The article deals with the issue of expertise of investment projects in the conditions of innovative development of enterprises. It must be taken into account that each investment project is usually a multidimensional problem, as the issue of financial analysis is considered, and technical, social and environmental factors are taken into account. Today, the economy is experiencing a slowdown in technology modernization trends, which leads to some lagging behind modern needs for the reproduction of productive forces. To solve this problem, it is necessary to consider innovation activity as a factor and a consequence of hierarchical changes in adjacent



levels and areas, which allows the researcher to delve into the chosen area and develop it in more detail from the chosen position.

Key words: expertise, assessment, investment project, innovation, risk.

Innovation is the only way to win.

Steve Jobs

Introduction. Expertise should be understood as checking the investment project for the reliability of the information provided, the correctness of the presentation of the material, the observance of the logical sequence of the implementation of the sections of the project, the competent preparation of financial calculations, to make the validity of the conclusions and assumptions (КВОН, 2015). The presence of innovative activity leads to technological shifts that are carried out using technologies of a different technological order (Kandeeva, 2015). According to the Law of the Republic of Uzbekistan “On Investments and Investment Activities”, investment projects financed by non-centralized investments are subject to state expertise. It is also noted that the authorized state body in the field of state regulation of investments and investment activities or its subordinate organization in the field of attracting foreign investment receives the conclusions of state authorities in terms of legal expertise of the draft investment agreement, financial and economic evaluation of the investment project, provision to foreign investors and (or) an enterprise being created with investments in addition to the guarantees and support measures established by law (benefits and preferences) for subsequent submission to the Government of the Republic of Uzbekistan for consideration. Under such conditions, the innovative activity of enterprises, which serves as a basic prerequisite for the formation and the basis for sustainable development of the economy, is an important component of sustainable economic development. (Piletska, 2018)(Алханова, 2019).

Theoretical aspects of the research. Examination of an investment project is aimed at calculating the effectiveness of investment projects and their riskiness. (USMAN & MIKHAILOVA, 2020). Such an examination is carried out using various mathematical models, in which are analyzed the amount of investment, the return on investment, the profitability index and the payback period of investment projects (С.А.Сироткин, 2009). When forming the methodology, a system for monitoring and evaluating the indicators of the investment project of the enterprise under study should be formed, which makes it possible to conduct an examination of the project being implemented by it (О.Астанакулов, Х.Асатуллаев, 2018). The main principles of the examination are as follows: (КВОН, 2015):

- professionalism and competence of the expert (experts);
- a comprehensive analysis of all aspects of the investment project;
- the presence of certain criteria that can be quantified;
- taking into account in the evaluation criteria all key sections of the business plan;
- a high degree of objectivity of the examination process;
- checking and obtaining information by an expert from several sources;
- assistance of the resident in the examination;



- independence of the participants in the expert process from the investor, and from the initiators of the project;
- objectivity and impartiality of expert assessment;
- confidentiality of the examination at all stages of its implementation.

An important point in the examination is a comprehensive assessment of project performance indicators (Gentry et al., 1982). Methodological recommendations of the UNIDO methodology and other documents are used as methodological tools. A comprehensive assessment provides for taking into account factors for the commercial and industrial feasibility of the project, the compliance of the expected performance indicators for the project with criteria that are satisfactory when making a management decision (G.Bekimbetova, 2019).

At each stage of the examination of investment projects, different approaches can be used depending on the chosen mathematical model, micro- and macroeconomic situation.

Qualitatively conducted expertise allows, on the basis of the calculations made, to choose from several options the safest investment project for its implementation in specific plant, production and economic conditions.

The examination of investment projects is accompanied by a significant number of calculations, drawing up diagrams and graphs. Everything that cannot be expressed using numbers and a graphical representation is formulated in an additional analytical report, which is part of the expert documentation.

Conducting an investment analysis after an investment is important for the examination of investment projects in the future, since it allows you to take into account errors and shortcomings made during the examination.

Methodology aspects of the research.

Methodology and hypotheses

In the research of innovation activity, the method of comparative analysis is used. Identification of the main parameters influencing the formation and development of innovative activity of countries involves the use of tools and methodological approaches focused on monitoring innovative activity in enterprises.

3.2.1- Research hypothesis.

The effectiveness of innovation policy is systemic, and innovation, in turn, depends on several factors. Based on economic theory, it is possible to determine the main factors that form the country's innovation system (Yangirova, 2015). First of all, human capital, which forms the intellectual results of intellectual activity. This factor is an integral part of intellectual capital, which determines the growth of economic indicators (R.Karlibaeva, 2021). National intellectual capital is inseparable from the level of education in the country.

3.2.2- Research hypothesis.

The second factor that forms the country's innovation system is financial capital, that is, the resources allocated to the turnover of production. Innovation requires a careful injection of financial resources. Investments in the results of intellectual work contribute to achieving economic stability in the long term. The innovative potential of the country is formed by investment opportunities, and for the most part it is government injections into innovation.

3.2.3- *Research hypothesis.*

The third component, according to economic theory, is the transparency of the economy, which reflects the level of corruption in the country. Analyzing performance, one can find a linear relationship between the level of investment flows and the degree of corruption. Analyzing the above figures, there is a direct relationship between the level of economic development of the country and the level of innovation activity. Thus, the country, supporting innovation, ensures the stable development of the economic system.

Discussion and analysis of the research.

There are two main approaches to the interpretation of the concept and meaning of the examination of investment projects in the context of the development of innovative activities of enterprises, which involve the use of different criteria in this area.

Table 1

Comparative analysis of approaches (Innovate UK, 2015)

№	Types of analysis	Achievement criteria
	Quantitative Analysis	number of personnel; the amount of profit; the number of implemented innovations; the share of innovative products in the production structure.
	Qualitative Analysis	the level of innovation of products; the level of innovation in the technologies used in production, management and marketing.

As you know, the quantitative approach involves a comparison of the actual quantitative data characterizing the activities of the enterprise, with the given normative values set on the basis of the laws in force or the measurement system used. Thus, the number of personnel is analyzed - it should not exceed a certain threshold. You can also estimate the amount of profit, which should not exceed a certain amount for individual enterprises. The number of innovations introduced by the enterprise should be greater, as well as the share of innovative products in the production structure.

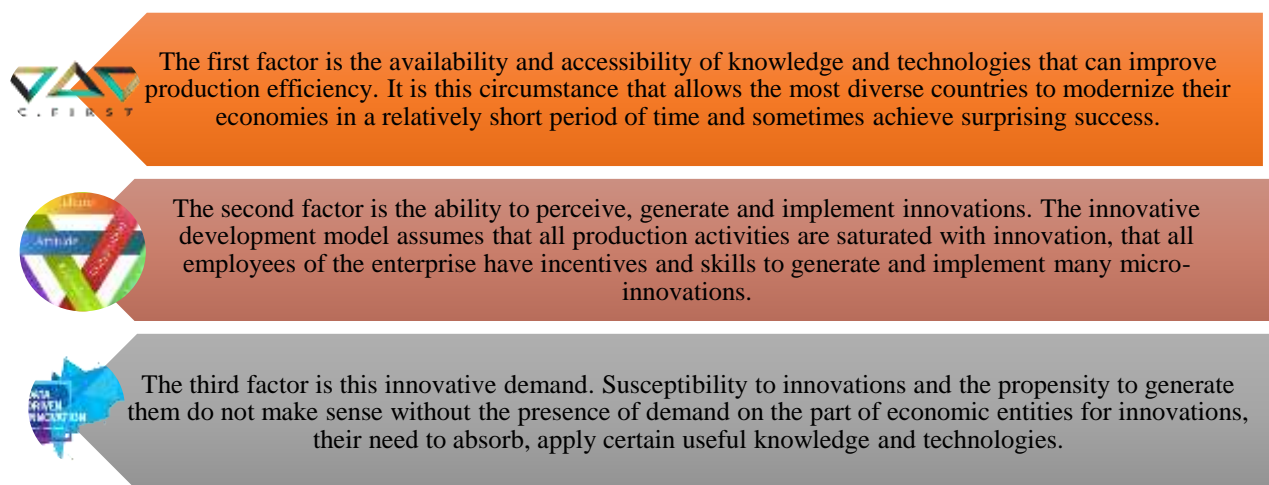
Within the framework of the qualitative approach, the level of innovativeness of the manufactured products and the level of novelty of the production, management and marketing technologies used are determined. Since these data are not reflected in corporate accounting, they are obtained using the peer review method.

In the analysis of the impact of investment and innovation projects on the efficiency of production, financial and investment activities of an enterprise, it is necessary to establish the degree of change in general and particular indicators of the effectiveness of the enterprise's activities due to the total action of all factors and each factor separately. In case of changes, an in-depth analysis of the reasons that influenced the failure to fulfill the business plan to improve the efficiency of the enterprise is carried out. To analyze the impact of investment and innovation projects on changes in the performance indicators of an enterprise, it is necessary that the effectiveness of

scientific and technical measures and the efficiency of the enterprise's activities be calculated using indicators that are homogeneous in their economic content.

International comparisons show that Uzbekistan lags far behind many developing and developed countries of the world in terms of the main indicators characterizing the innovativeness of the economy. Practice shows that incentives to generate and implement innovations are created by market competition, which forces the manufacturer to fight to reduce costs and improve product quality. Accordingly, those entrepreneurs who are able to respond flexibly to market impulses and actively introduce new technologies and methods of organization survive in the market.

The researching process found that innovation is a necessary factor for firms to remain competitive and ensure long-term survival in dynamic global markets. And in Uzbekistan, there are three main factors for increasing innovation in the economy:



Pic. 1. Main factors for increasing innovation in the economy¹

As you know, the innovative activity of the enterprise is aimed primarily at increasing the competitiveness of its products. The competitiveness formula can be represented as follows:

Competitiveness		
Quality	Price	Service

Pic. 2. The process of determining the competitiveness of innovative projects²

In the process of the analysis, we identified trends in the scale of the impact of ongoing investment projects and innovations on the change in general and particular indicators that characterize the efficiency of the production, financial and investment activities of the enterprise as a whole. It is advisable to analyze the impact of

¹<http://ced.uz/wp-content/uploads/2012-Klastery.pdf> - Анализ возможностей развития промышленных кластеров и производственной кооперации в Республике Узбекистан.

² www.econcenters.ru – Централизованная экономика. Роль инноваций в развитии предприятия.



investment projects and innovations on the change in general and particular indicators characterizing the efficiency of the production, financial and investment activities of an enterprise in the following sequence:

1. A diagram of the relationship between the performance indicators of the production, financial and investment activities of the enterprise as a whole with the corresponding performance indicators of investment and innovation projects (EIIP) is being built.
2. Generalizing and particular indicators are calculated of production, financial and investment efficiency of scientific and technical measures.
3. The change in general and partial indicators of production, financial and investment efficiency in the whole enterprise is calculated due to the joint action of the entire set of technical and economic factors.
4. Changes in the generalizing and particular indicators are revealed of the production, financial and investment efficiency of the enterprise as a whole and separately.

Conclusion. According to the authors of this article, there are the following problems:

Firstly, this is the lack of a platform for interaction with investors. At present, it is very difficult for an investor to search for investment projects, as well as to search for investments for small innovative enterprises in attracting investments in the development of small innovative businesses in the context of globalization and integration.

Secondly, the difficulty of evaluating innovative projects. Due to the lack of an electronic platform containing detailed information on investment projects of small innovative enterprises, each investor must independently evaluate all potential projects, which is a long and complicated procedure.

And addition, the factors of influence of innovative activity in the examination of investment projects in the conditions of development of innovative activity of enterprises are substantiated - factors that provide for the operation of an effective mechanism for managing business processes that contribute to the intensification of enterprises' activities. innovative activity. The proposed mechanism of innovation activity by levels of the economy makes it possible to form it, aimed at creating an active innovation space that establishes feedback with the innovation climate, which creates information opportunities for its adaptation to changing environmental conditions in terms of the development and implementation of modern innovative equipment.

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MODERN PROBLEMS OF PEDAGOGY AND PSYCHOLOGY

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ADVANTAGES OF USING 3D TECHNOLOGIES IN TEACHING SPECIALIZED SUBJECTS IN HIGHER EDUCATIONAL INSTITUTIONS

Gofurova Aziza Khidirnazarovna
Assistant, Jizzakh State
Pedagogical University
gofurovasojida@gmail.com

Gofurova Sojida Sayfullaevna
Associate Professor,
Jizzah Polytechnic Institute

Annatasiya: Ushbu maqolada ta'lim sifatini yaxshilashda komyutor texnologiyalaridan foydalanishning o'rni, ta'limning barcha darajalarida dizayn yo'nalish talabalariga ixtisos fanlarini o'qitishda komyutor texnologiyasining 3D maxsus dasturlaridan foydalanishning imkoniyatlari, avzalliklari, 2D va 3D texnologiyasida kiyimlarni dizayn loyixalashga mo'ljallangan maxsus dasturlarini tizimlashtirish bo'yicha ma'lumotlar keltirilgan. Shuningdek maqolada kiyimlarni 3D dasturida dizayn loyixalash jarayonini 2D Corel DRAW dasturida bajarilish jarayoni bilan o'zaro solishtirilib taxlil qilingan.

Kalit so'zlar: 3D dizayn, komp'yuter texnologiyasi, o'qitish usullari, innovasiya, dizayner, modellashtirish, talaba, SAPR, mustaqil ishlash, fikrlash, ijodiy qobiliyat.

Аннотация: В данной статье представлена информация о роли применения компьютерных технологий в повышении качества образования, возможностях и преимуществах использования 3D специальных программ компьютерных технологий в обучении специализированных предметов студентов, обучающихся по направлению дизайна и всех уровней образования, а также приведены данные о систематизации специальных программ для проектирования дизайна одежды в 2D и 3D технологиях.

Также в статье процесс проектирования дизайна одежды в программе 3D сравнивается и анализируется с процессом выполнения в программе 2D Corel DRAW.

Ключевые слова: трехмерное проектирование 3D дизайн, компьютерные технологии, методика обучения, инновации, дизайнер, моделирование, студент, САПР, самостоятельная работа, мышление, творческие способности.

Abstract: This article provides information on the role of the use of computer technology in improving the quality of education, the possibilities and benefits of using 3D special programs of computer technology in teaching specialized subjects to students studying in the direction of design and all levels of education, as well as data on the systematization of special programs for design design clothes in 2D and 3D technologies.

Also in the article, the process of designing clothing design in the 3D program is compared and analyzed with the process of execution in the 2D CorelDRAW program.



Key words: three-dimensional design 3D design, computer technology, teaching methods, innovations, designer, modeling, student, CAD, independent work, thinking, creativity.

Introduction. Socio-economic and cultural changes in modern society require a qualitative study of the problems of developing creative abilities in the preparation of future specialists for professional activities at all levels of education. In modern conditions of reforming the education system, democratization and humanization of education, as well as increased attention to the development of professional training of students in the areas of "Interior Design", "Costume Design", "Industrial Design". and other areas of professional education of various profiles in higher educational institutions deserve special attention. [1,c.2] The changes taking place in the life of society require the development of qualitatively new methodologies and methods of education, the development of pedagogical technologies, and on the basis of this, the formation of creative and universal abilities of a person, the training of personnel capable of solving problems of a professional nature [2, c.43].

At present, it can be seen that the use of physical models in the design industry has noticeably decreased. At the same time, great attention is paid to digital technologies to reduce costs and costs, as well as to maximize time. When implementing these requirements, it is impossible not to use information and computer technology systems.

The introduction of computer design technologies makes it possible to promote the use of fundamentally new approaches to solving a number of problems in the field of clothing design. Also, the modernization of the clothing design process based on the introduction of 3D computer technologies made it possible to solve the problems of engineering-spatial design and spatial-form visualization. Using 3D software packages for object design, clothing modeling techniques take design to the new stage.[3,c.1]

Analysis and results. At the heart of the scientific direction called "three-dimensional geometric modeling of clothing" is a three-dimensional study of the three-dimensional surface of a clothing model created on a monitor screen, which has not yet been prepared.

Including such scientists as E. E. Alexandrovna, conducted research on the use of automatic design systems (CAD) in teaching specialized subjects to students of engineering and pedagogical direction, T. Chemodanova conducted scientific research on the use of CAD in general technical drawings, Professor V. A. Obukhovets . conducted research on the use of 2D programs in order to provide organizational and methodological support for the process of teaching students of a technical university to work with a computer-aided design system. As a result of scientific research, designing clothes in 2D vector programs at one time greatly simplified the process. But the main disadvantage of 2D design is that there are only two options for checking the result: manual calculations and testing real circuits. Undoubtedly, in both cases, time and a significant expenditure of money are required. In 2D models, it is impossible to represent the final product formed during the design process; if it has a complex appearance, then this process becomes more complicated. This situation creates a need for 3D modeling. And in the 3D program, the analysis of virtual circuits is much cheaper and, in addition, allows you to develop many options for the execution of



structures and choose the most optimal solution. Students who know how to create these high quality models expand their visual vocabulary. Will have experience with a visual application that includes elements such as texture, light, color, line, space, and shape.[4,c.36]

The implementation of the development of individual labor, artistic creativity and independent work skills of young people living at a time when the world has turned into an Internet space for communication in the process of obtaining higher education is rising to a new qualitative level. From this point of view, it is necessary to identify specific measures aimed at changing the teaching of modern and professional knowledge, realizing the potential of teachers and students, developing personal activity and initiative activity of students, as well as the ability to work independently.

To date, the use of special programs in education is seen as a relevant and popular direction of the pedagogical process, not only for the transfer of knowledge and skills to students, but also for the implementation of the pedagogical process. 3D design, associated with the trends of the changing modern world, is one of the promising teaching methods for special programs, which is reflected in the use of innovative technologies in education.

Design students avoid 3D modeling because they think it's hard to master. It is not difficult to work with three-dimensional graphics, because modern software allows you to get high-quality models without having extensive knowledge in the field of 3D. But, starting to study 3D modeling, students must have technical knowledge and theoretical knowledge in core subjects along with creativity. A student familiar with 3D panels and 3D software will find it easier to communicate with other signs of the creative process. This makes the workflow a bit easier.

There is no doubt that a good designer needs to communicate their idea through sketches, but using a 3D model has an added advantage. Although it sounds difficult, design students should approach 3D modeling with an open mind because it will unlock their creativity, improve their work efficiency, improve design quality, teach them to work independently and to think and make decisions.

Consider the advantages of creating a design in a 3D program using the example of creating a design project for a transformable women's coat:[5,c.73]

The advantages of creating a design in a 3D program are as follows.

- modern software allows you to create high-quality models without extensive knowledge in the field of 3D;
- the presence of the author (ready-made mannequin) in the 3D design design program;
- Ample opportunity to change the size of the author in the program CLO 3D;
- Availability of sewing clothes directly on the avatar. This feature is ideal for difficult-to-measure custom avatars, providing a perfect fit.
- Then, using the copyright function, you can develop several draft versions of the product on the same basis using constructive modeling methods and change the forms according to copies of the original.
- the ability to create, modify, divide and move an object to another program;

- checking clothes in 3 different planes using animation; in programs to directly try on perfectly tailored clothes and check their fit in motion;
- the possibility of demonstrating clothes;
- availability of the "materials" panel in standard program objects

To solve the tasks set in the work, we use a 3D object modeling program, analyzing the theoretical foundations, structural and system analysis of an automated clothing design system (CAD), the possibility of creating costume design objects.

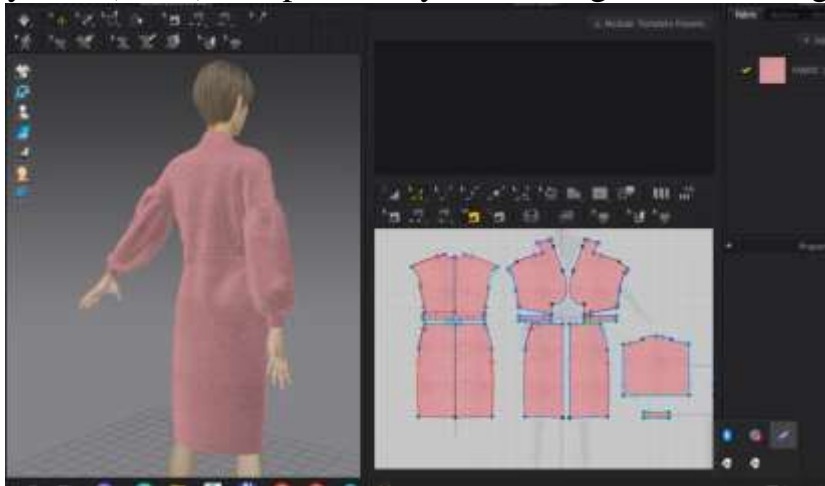


Figure -1. Appearance of a woman's coat, created in the 3D program.

Consider the process of designing a transformable women's coat in a 2D program.

In a 2D program, after drawing the first view of the dress, you must run the process again to draw the view of the dress in the plane.

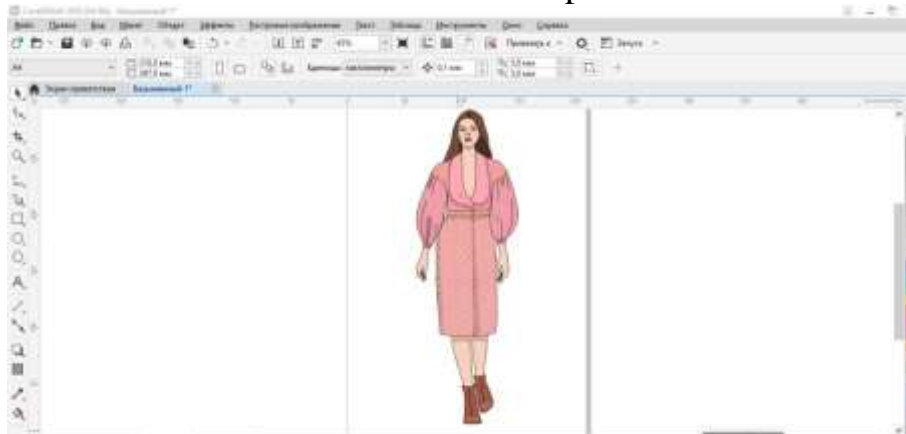


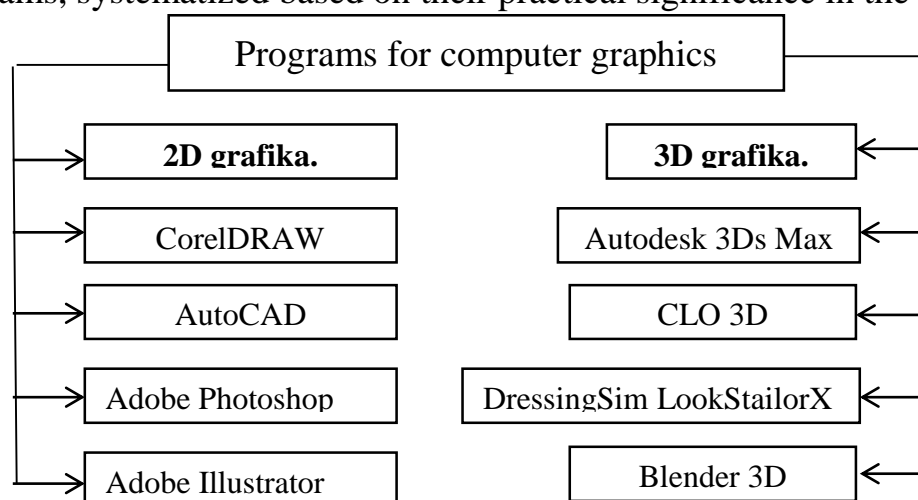
Figure 2. View of a woman's coat drawn in 2D CorelDRAW 2022.

To create a model of clothes in 2D programs, you need to perform two stages of working with graphic programs. The first is to create detailed costume elements in any vector program (CorelDraw, AutoCAD, etc.), then create a 3D model, import these drawings into 3D programs (3DS MAX, ZBrush, Maya, etc.) to improve it. If the second stage is not implemented, it will be impossible to see and work on the construction and construction of clothes, as well as directly try on perfectly tailored clothes and check their fit in action. And special programs of 3D MAX technology have functions that can be used at all stages of the development process of fashion design [6, c.94].

In addition, there is an academic version of the CLO 3D program, which is designed for fashion industry companies, fashion school students, to create clothing designs and tailoring simulations very easily and quickly. As with all 3D programs, the entire process is performed in the 2D window, and the result is immediately visible in the 3D window.

To date, there are very large blocks of computer programs that can be used as visual aids in the educational process to improve the efficiency of studying subjects. After analyzing the capabilities and technical characteristics, we have identified a number of programs that are most used in the educational process of design students, they are presented in scheme 1 [7.c.40].

It should be noted that the entire block of computer modeling programs can be divided into two options - these are editors for working with 2D graphics and 3D programs, systematized based on their practical significance in the design direction.



Scheme 1. Programs for computer graphics

Society and the modern labor market expect a creative approach to solving professional problems from the younger generation. This approach is closely related to the dynamics of the development of society, the rapid flow of information that comes to us, the emergence of new activities in previously unknown areas. [8.c.24]. It can be assumed that the successful development of artistic and creative activity in modern conditions of clothing design becomes a product of 3D programs. This method of product development using 3D technologies allows solving the problems associated with the creation of complex forms of clothing using non-traditional methods. The proposed approach to the design of a clothing model allows us to present various options for the designed product. [9.c.52].

Before making a final decision, the designer can visually determine the shape, silhouette, cut, sleeve, texture, texture, color scheme of the proposed clothing model. The solution of the tasks of the entire process is entrusted to the program algorithm and is carried out without human intervention [10, c.94]. The originality of the result, the final product of creative activity is considered the main evaluation criterion. From experience, it can be assumed that this approach will change the attitude of students to obtaining the necessary information. In addition, in creative activity, not only the result, but also the process itself is of certain importance, which allows developing the imagination. Working in 3D design programs awakens creative activity in the student,



that is, the ability to combine certain information. It also reveals the creative abilities of students, improves work efficiency, improves the quality of design, teaches independent work, thinking and decision-making. A person who is free and creative, able to take responsibility and take initiative, can provide professional growth and self-esteem.

Conclusion. Based on the results obtained in the process of work, an analysis and systematization of existing methods for designing clothes was carried out. As a result of the research, it was determined that 3D design methods should be separated into a separate group based on their current perspective and importance.

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USING GESTURES TO IMPROVE LANGUAGE TEACHING

Elboyeva Madina Botirovna
Senior teacher of
Shahrisabz state Pedagogical
institute

Elboyeva_M@mail.ru

Annotatsiya. Ushbu maqolada ingliz tilini talabalarga o`rgatishda imo-ishoralardan foydalanish haqida ma'lumot beriladi. bundan tashqari, Talabalarning fanni mukammal va samarali o`zlashtirishlarida hamda dars jarayoni qiziqarli va tushunarli bo`lishi uchun o`qituvchilar qanday imo-ishoralardan foydalanishlari kerakligi haqida so`z yuritiladi.

Kalit so`zlar: imo-ishora, imo-ishora tili, o'rganish, ingliz tilini o'rgatish, muloqot harakati, tana tili, "qo'l siqish".

Аннотация. В этой статье представлена информация об использовании жестов при обучении студентов английскому языку. Кроме того, обсуждается, какие жесты должны использовать преподаватели, чтобы учащиеся овладевали наукой в совершенстве и эффективно, а процесс урока был интересным и понятным.

Ключевые слова: жест, язык жестов, обучение, обучение английскому языку, акт общения, язык тела, «рукопожатие».

Abstract. This article provides information about the use of gestures in teaching English to students. In addition, it is discussed what gestures teachers should use in order for students to master science perfectly and effectively, and to make the lesson process interesting and understandable.

Key words: gesture, sign language, learning, teaching English, act of communication, body language, "handshake".

Introduction. Active participation is an important principle of teaching and learning and is important for learning and mastering content and language. There are many ways to engage students in learning, including using a variety of activities and lectures, and teaching content that is relevant and interesting to students.

When teaching English learners, it is important to engage them in learning not only academic content, but also academic language, including general academic and domain-specific vocabulary. By adding movement and gestures to academic language learning, learning becomes more active, interesting and understandable.

Brain research supports the concept of transforming kinesthetic learning into learning. The brain is the largest consumer of oxygen and glucose in the human body. The brain needs blood rich in oxygen and glucose to function more effectively and efficiently.

Literature review. There are three main types of gestures: adaptors, emblems, and illustrators (Andersen, 1999). **Adaptors** are physical actions and motions that signal interior states such as alertness or worry. **Emblems** are gestures that have a predetermined meaning. **Illustrators** are the most common type of gesture and are used to illustrate the verbal message they accompany .



Through movement, the heart sends blood rich in oxygen and glucose to the brain. Even a simple hand gesture can help make this happen.

In addition, many studies in the last decade have shown the connection between movement and learning and how movement can improve memory and information retrieval and increase student motivation and morale. showed (Jensen, 2005). As Albert Einstein said, "Learning is experience. Everything else is just information."

The act of communication includes non-verbal and vocal exchange at the same time. However, non-verbal communication has more impact than verbal communication. It's about everything that goes unsaid. In addition to posture, tone of voice, gestures, and facial expressions, environmental aspects are also included. From one culture to another, all these gestures can be changed and understood in different ways. Knowing what a certain symbol means in another culture, or at least knowing that different people interpret it differently, can help you avoid misinterpretations that can put you in an awkward situation. Do behaviors that may be thought of or considered important in one culture be frowned upon or have no meaning in another culture? Think about nodding your head, pointing, placing your hands on your hips, putting your thumb to your nose, making the two-finger sign, opening your lips quickly or slowly, furrowing your eyebrows, sniffing, yawning, and smiling without opening your mouth. It is recommended that you hold off on using hand signals until you are familiar with their meaning in the context of the culture in which they are used. Other movements, especially those involving the hands, can be culturally significant in different ways. While some gestures are shared by all civilizations, many are culturally specific or universal. Many gestures can have similar meanings in different cultures, although the same gesture can have different meanings in different cultures. General gestures should be included by teachers, especially in elementary level teachings. Culture is reflected in gestures and body language. Sociolinguistic competence has been added as a crucial component of effective language learning in addition to communicative competence.

Analysis and results. In fact, body language has been important to communication since prehistoric times. A very nice gesture in one culture can mean something very different. For example, looking someone in the eye during a conversation is a sign of respect in many nations, such as the United States, Australia, Great Britain, and Western Europe. It means that the listener is interested and involved in what is being said. However, making eye contact is not considered polite and may even be impolite in some Asian cultures. Many meanings can be derived from the word handshake. This greeting or other gesture often has deeper meanings, such as politics. There are different ways to shake hands; they can be short as in France or long as in China or some Arab countries. The level of force used in the gesture is another important consideration. A "handshake" is a standard handshake to show trust; "bone crusher" - an attempt to crush another person's hand; "finger handshake" - when the other person's hand touches only the fingers; and "dead fish" if it lightly touches another person's hand. Depending on where you are from, some hand and finger signs can mean something completely different. Here are some tips for interpreting how symbols change across cultures. Many South American countries, especially Brazil, consider it impolite to raise the hand and make a circle with the thumb and index finger. As a side note, when Richard Nixon visited Rio de Janeiro, he got a standing ovation



from the crowd when he gave the OK sign in front of the crowd. These examples show that non-verbal communication is interpreted differently depending on the culture. The problem with this exercise is that it doesn't apply to all situations; but works on an individual basis. Everyone is unique and perceives signals and gestures differently depending on their culture and past experiences. The best course of action is to continue to be curious and open-minded about other cultures, while remembering that even if something seems "normal" to you, it may not be to others. Using gestures can help make vocabulary and content concepts more understandable for English language learners by making the abstract clearer. Through a simple action that imitates the concept or meaning of a word, students will be able to understand and master the content and vocabulary more easily.

For example, if students are learning about biomes and the organisms in them, adding clues to the words biome and habitat can help students more easily understand the difference between them. By adding a synonym or short phrase while performing a gesture, the concept of a vocabulary word or content is brought to life and the meaning becomes more understandable to the students.

Gestures can develop in different ways. First, consider how the activity helps students understand the word or concept. The created movement does not have to be complicated - a simple movement of the hands or body will be enough. Alternatively, use American Sign Language signs or the sign language used in the part of the world you live in.

Another useful assessment strategy in the classroom is the use of gestures. It turns out that when children are just beginning to understand a concept, appropriate gestures come before words. When the teacher observes that even when the words are wrong, the student's gestures are correct (for example, gesturing how the electrons move in a reaction), the student is closer to "understanding." When using gestures, make sure your children are paying attention to you, you are already doing it. Make it look natural by drawing their attention to how you use your hands to solve problems and encourage them to do the same.

If you use facial expressions and gestures, your English-speaking students will feel more comfortable and engaged in the lesson. By using miming and gestures, you can give the impression that you are a more engaging teacher. You don't have to act like a Hollywood star or go all out; only a small amount helps. By pointing, you can encourage your students to use certain vocabulary and idioms without translating. This reduces errors and increases adaptability.

Finally, consider having students develop the gestures themselves. This can be done in pairs or small groups. Each group can set out to develop gestures for a particular set of words, or each team can develop a gesture for a set of words and students then use specific words and phrases. can vote on which gesture or symbol to use for. This helps to increase students' interest while developing higher order thinking skills as they determine which gesture will be most effective and understandable.

Review the following vocabulary words and suggested gestures to accompany them. The vocabulary words listed are organized by grade level and subject area, providing sample or potential language arts, math, science, and social studies vocabulary.



Neither words, nor synonyms, nor phrases, nor gestures should be absolute. In other words, the selected vocabulary is representative of the group at the grade level, and the verbal synonyms or expressions and gestures are samples developed by the author.

Grades K-2

Syllable:

- Say – Word pieces
- Gesture – make a cutting motion with your hands

Fraction:

- Say – A fraction of a whole number
- Gesture – keep your index finger and thumb an inch or more apart

Habitat:

- Say - Home
- Gesture – put the and together and make a triangular shape with your hands as if you were building a roof

Chronological:

- Tell – In the order in which something happened
- Gesture – moving the arm from left to right in front of the body (imitating a timeline)

Grades 3-5

Narrative:

- Tell – A Story
- Gesture – raise your arms out from the center of your body, palms up

Equivalent:

- Say – Equal
- Gesture – put one hand on top of the other, imitating the equal sign

Rotation:

- Say – moves around and around
- Gesture – Hand movement is a circular pattern

Latitude:

- Say – Horizontal lines on the map
- Gesture – sweep your arm in front of your body to make a line, lower your arm and make another line

Grades 6-8

Debate:

- Tell – Defend one side against another
- Gesture – make two fists and collide them

Enverse:

- Say – Opposite
- Gesture - hold one hand face up and one hand face down

Velocity:

- Say – Speed
- Gesture – move your hand in front of your body (quickly or slowly)

Scarcity:

- Say – few resources
- Gesture – Make a small circle with both hands



Grades 9-12

Juxtaposition

- Say – Spatial relation
- Gesture - put hands together

Volume:

- Tell – Internal capabilities
- Gesture – place one hand on top of the other and move your hands up and down to mimic a cylinder

Catalyst:

- Tell – Facilitates change
- Gesture – move the arms in a circle, one hand on top of the other

Indigenous:

- Say – It comes from somewhere
- Gesture – point down with both hands

Although this list consists of terminology that students will encounter in the topic, other words (such as propositions) can be taught using gestures. Words like over, under, during, and around can also be easily taught and understood by English learners using simple gestures and actions.

To use gestures with students, it is important not only for the teacher to use gestures and demonstrate actions, but also for the students themselves to practice using gestures. Allow students to use gestures at specific times; introducing words with gestures as well as definitions helps students better understand the meaning of a vocabulary word. Next, when students encounter the word in speech or text, have them use a gesture to show the meaning of the word in the context of the speech or text. Gestures can also be used as a way to review content vocabulary or common academic terms.

Students can play a game where they ask each other questions using gestures. The teacher can also participate in this game, showing a gesture and telling the students which word to write or say. Gestures can be an effective way to manage behavior in the classroom. For example, gestures can be used to calm a noisy classroom. For example, a silent countdown can be used to indicate that an activity should end soon. Signals can be given to students to clean up materials, line up, or be dismissed from class or to start an activity.

Conclusion. Similarly, signals can indicate that students are misbehaving or that their behavior needs to be changed. Teachers have long used the "look" to indicate that something a student is saying or doing is wrong. By adding a gesture, the use of facial expression is enhanced because it makes it clearer and clearer what the teacher is expecting. As with all management techniques, it is important that these gestures and signals are consistent for students, so students are clear about the teacher's expectations. Using gestures and actions in the classroom is a helpful tool to engage students more deeply and make content and vocabulary more understandable. Using a short phrase or synonym and having students say the vocabulary word and do the gestures helps them to integrate the word deeper into their receptive and productive language base.

Students can also develop these gestures. Remember that gesture and synonym do not have to be perfect; the simple act of adding movement will be beneficial to students.



You can certainly get their feedback on which gestures help you understand the word more fully and then adjust the gestures as needed.

In conclusion, using role plays and dialogues is a great way to learn new English grammar and vocabulary. In many languages and cultures, gestures are highly valued. You should emphasize the importance of gestures in your speech using hand gestures to imitate.

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DIAGNOSIS OF PROFESSIONAL STRESS IN TEACHERS

Jumabayeva Mahliyo
Khudaibergan daughter
“Mamun-University” NTM
teacher of the department of
“History and Psychology”
Jumaboeva_m@gmail.com

Annotatsiya: Maqolada Oliy ta`lim muassasasi pedagoglarining kasbiy stress xususiyatlari ko`rib chiqilgan. Mazkur xususiyatlarni aniqlash orqali ulardagi kasbiy stressni oldini olish qanchalik ahamiyatli ekanligi e`tirof etilgan

Kalit so`zlar: OTM pedagoglarining kasbiy xususiyatlari, emotsional zo`riqish kasbiy zo`riqish, stress, diagnostika, korreksiya, profilaktika

Аннотация: В статье исследуются особенности профессионального стресса педагогов вуза. Признано, насколько важно предотвращать профессиональный стресс путем выявления этих характеристик.

Ключевые слова: профессиональные характеристики педагогов ВО, эмоциональный стресс, профессиональный стресс, стресс, диагностика, коррекция, профилактика

Annotation: The article examines the characteristics of professional stress of pedagogues of a higher educational institution. It is recognized how important it is to prevent occupational stress by identifying these characteristics

Keywords: professional characteristics of HE teachers, emotional stress, professional stress, stress, diagnosis, correction, prevention

Introduction. Today, in most developed countries and in our country as well, a number of purposeful and targeted activities are being carried out to develop professional competence and knowledge, skills and abilities of each profession, and to



ensure resistance to stressful factors that occur in professional activities. The experts of the international organization concerned with this issue, i.e. the International Stress Management Association, have discussed the psychological characteristics of negative mental stress that occurs during the work process, professional fatigue, chronic fatigue, disorders in emotional-volitional processes, psychoprophylaxis of occupational stress and its manifestation. systematic work on complex clarification is being carried out. At the same time, we can see that special attention is being paid to scientific research aimed at increasing the effectiveness of psychoprophylactic and psychocorrective methods, and clarifying the psychological characteristics of occupational stress in a pedagogue.[1]

In particular, to ensure the psychological health of pedagogues as defined in the decision of the Cabinet of Ministers of the Republic of Uzbekistan dated June 7, 2019 No. 472 "On further improvement of the system of training personnel in the field of psychology and measures to prevent crime in society", that is, methodical manuals of psychological service at all stages of education have been developed for purposeful and targeted psychoprophylaxis measures aimed at preventing stressogenic factors.[2]

Literature Review. Stress is the body's response to extreme conditions. So, stress is a specific neurohormonal state that develops in the body in response to various influences. Canadian pathologist G. Seele defined the term stress and introduced it to medicine (1936). Factors that cause stress are called stressors. The body develops adaptive biochemical and physiological changes aimed at overcoming the effects of these factors, and it depends on the strength of the stressor, the duration of exposure, the physiological system and mental state of the person or animal.

Professional stress is a psychological condition that occurs as a result of various objective and subjective reasons that have a negative impact on the work of a teacher.

Symptoms of stress

What is stress in practical terms? To understand this, let's look at the main symptoms of stress:

-Constant anxiety, walking in a depressed state, sometimes these situations can occur without any reason.

-Bad, restless sleep.

-Depression, physical weakness, headache, fatigue, unwillingness to do something.

-Decreased attention, which makes it difficult to study or work, and problems with memory and slow thinking.

- Not being able to put aside rest, work and problems.

-Lack of interest in others, even best friends, family and loved ones, and in activities.

-Constant crying, shedding tears, sadness, despair, self-pity.

-Decreased appetite - sometimes vice versa: overeating.

- Nervous habits often develop: a person bites his lip, bites his nails, etc.

- A person develops indifference and mistrust of people.

- If you are in a state of stress, it means one thing: your body has reacted to some external influence.

It should be noted that there is no professional activity without stress." The health and quality of life of teachers, as in many other professional fields, largely depends on working conditions, work organization, content and other characteristics of the activity.



"We can see that. Experts say that stress is a constant state of a teacher. Professional activity makes high demands on a modern teacher, which requires constant and maximum mobilization of his psychological resources. Many scientists (L.M. Abolin, 1987; G.F. Zaremba, 1982; L.M. Mitina, 1992; S.V. Subbotin, 1992) noted that the professional activity of teachers is one of the most stressful types of social activity, and belongs to the group of professions with many stress factors. The teaching profession is usually one of the most intellectually and emotionally intensive types of professional activity recognized as such. [Gorelova 2002, Mitina 1998, Klimov 1996, Podymov 1998, Cooper 1996, etc.] [3]. In his professional activity, the teacher is exposed to many stress factors, including large educational loads, daily and long-term difficult situations and frequent emotional reactions, inability to respond to stress in time. constant communication with different categories of people, requires intensive reflection.[4]

The effects of stress can have long-lasting properties. The reasons for the intensity of professional activity of teachers are related to objective and subjective factors.

-Objective factors include working conditions, such as the burden of workload, short periods of activity, decrease in labor results, unsatisfactory living conditions and insufficient wages. In addition, many social burdens are placed on the shoulders of the teacher.

-Subjective factors that have a negative impact on the work of a teacher include individual characteristics of a person that prevent communication with students and colleagues, lack of work experience, dissatisfaction with professional growth, uncertainty or lack of responsibility, and other personal virtues are included.

Researchers A. K. Markova, L. M. Mitina, M. M. Rybakova distinguish the following classification of stressful situations of pedagogical activity:

- 1) the state of interaction between the teacher and students (criminal behavior, conflict situations, ignoring the teacher's requirements);
- 2) situations arising in relations with colleagues and the administration (overloading of tasks, conflicts in the distribution of workload, excessive control of educational work, etc.);
- 3) cases of interaction between teachers and students' parents, etc. [2].

Occupational stress begins where work ceases to be enjoyable. The length of the working day, its duration and the uncertainty of administrative requirements increase anxiety and prevent the recovery of the nervous system. Professional stress forces the pedagogue to move away from his comfort zone, and if he does not get out of it, it begins to harm his physical health[3]

Research Methodology. The term "psychodiagnostics" means making a psychological diagnosis, making a complete conclusion about a person's mental state, a particular characteristic, where the "diagnosis" consists of conclusions about the condition and characteristics of the subject based on a joint analysis of the individual's progress indicator and descriptions. [5]. The following methods can be used to diagnose stress.

"Diagnosis of the state of stress" (methodology of K. Schreiner). Purpose-Methodology is aimed at determining the level of stress and can be used in self-diagnosis. Mark the questions to which you gave a positive answer.



1. I always try to finish what I start, but I often fail and have to make up for what I have lost.
2. When I look at my reflection in the mirror, I see traces of fatigue and stress on my face.
3. There are only disappointments both at work and at home.
4. I struggle with my habits, but I can't stop them.
5. I am worried about my future.
6. I often use alcohol, cigarettes or sleeping pills to relax after a hard day's work.
7. Such changes are taking place around me that I am dizzy from them.
8. I love my family and friends, but I often feel bored and lonely with them.
9. I have not achieved anything in life and I often feel hopeless.

Processing and interpretation of results. 1 point is counted for each "yes" answer.

0-4 points. You keep yourself calm in stressful situations and know how to control your emotions.

5-7 points. You always behave differently in stressful situations. Sometimes you can control yourself, but sometimes you get angry over trivial things and regret it later. You need to develop individual ways of controlling yourself in stressful situations.

8-9 points. You are very tired and exhausted. You often lose yourself in stressful situations and lose control of yourself. As a result of such actions, you will suffer yourself and those around you. Developing self-management skills is your most important life task right now.

Several other diagnostic exercises are used to diagnose the state of stress. The exercise "Stress in my life". The goal is to identify situations that are stressful for pedagogues, to understand the subjectivity in assessing the level of stress of different situations. Prepare cards with different life situations that are considered stressful:

Dismissal.

Getting into a fight with a loved one.

Illness.

Disappointments at home.

Sudden breakdown of the car.

"Traffic jam" on the road.

"You're welcome" from the leadership.

Unexpected monetary incentives.

Loss.

Your child is two quarters.

News about the betrayal of the spouse.

Speaking at an international conference.

Unfair criticism.

Dismissal

Divorce

Price increase

Inspection

Housework

Being late for work

Your child has spoken back



In this, each person forms a sequence of stressors according to their importance. They discuss the reason for the change in the order of stressors. That is, why some participants consider a particular situation to be a severe stressor, while others consider it to be neutral or not at all stressful. Generally, the participants come to the conclusion that any person should understand stressful situations not only based on his personal experience, but also from the perspective of the person he is communicating with..[1]

Analyzes and Results. The psychodiagnostic report includes the following issues: what are the main and dominant symptoms associated with "Stress";

- "Stress" (if it is detected) is a professional included in the symptoms of "Stress".

Can it be explained by functional factors or subjective factors? which symptom (symptoms) mainly aggravates the emotional state of a person;

- how to the situation in a professional team to reduce nervous tension directions should be influenced;

- emotional "Stress" does not harm him, his professional activities and partners for what signs and aspects of personal behavior should be corrected [6]

All methods used in psychological research can be divided into four groups: 1) organizational methods; 2) empirical methods of obtaining scientific data; 3) data processing methods; 4) interpretation methods.

Psychosocial problems and psychological interventions for these problems are summarized below.

- At the diagnostic stage, mental and social problems of teachers with occupational stress are identified.

- Learning that occupational stress is a psychosocial condition and threatens all areas of life.

Conclusion. So, in conclusion, work on the formation of stress resistance as the most important professional importance of the teacher is of particular importance. The role of psychological factors in the prevention and diagnosis of occupational stress is significant, and correctly conducted psychological diagnosis is effective in the prevention and treatment of occupational stress. Being able to correctly apply the methods of studying the mental state of teachers and conducting psychodiagnostics is considered important for the work of a psychologist in working with teachers who have professional stress. Psychodiagnostics also means the field of psychological practice, the work of a psychologist to determine various qualities, mental and psychophysiological characteristics, personal characteristics.

If psychodiagnostic activities are carried out on the shortcomings identified by studying the mental state of teachers and studying their psychological characteristics, the probability of having a positive effect on their professional efficiency is high.

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**MODERN PROBLEMS OF PHILOLOGY AND LINGUISTICS**

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RELATION OF BIBLIONYM AND THE TEXT

Aqmanova Shahnoza Alimboyevna
Senior Teacher, Department of Uzbek
Linguistics, Faculty of Philology,
Urgench State University.

shahnoza.aqmanova.90@mail.ru

Annotatsiya: Ushbu maqolada bibliyonim va matn orasidagi alohida munosabatning mavjudligi, matnda bibliyonimning takrorlanish hodisasi, shuningdek, mazmunan murakkab bibliyonimlarning matn tarkibida anglashilishi kabi masalalar tahlil qilingan.

Kalit soʻzlar: bibliyonim, matn, paratekstuallik, metamatn, metonimiya.

Аннотация: В данной статье показано наличие особого отношения между библионимом и текстом, повторение библионима в тексте, а также связность библионимов со сложным содержанием в тексте.

Ключевые слова: библионим, текст, паратекстуальность, метатекст, метонимия.

Abstract: This article illustrates the existence of a special relation between the biblionym and the text, the repetition of the biblionym in the text, as well as the coherence of biblionyms with complex content in the text.

Key words: biblionym, text, paratextuality, metatext, metonymy.

Introduction. Each creative writer achieves clarity, fluency and coherence of the text through his or her own style of word choice. In order to achieve a clear goal, the creative writer must work on himself, practice, be diligent and have knowledge of grammar [1]. Different forms of the art work are determined by extralinguistic factors. The aim, content of expression, and original mental outlook of the writer are represented in this process. Therefore, we can admit that biblionym³ is a half work.

The ability of the writer to work on the text, especially the artistic work, is also important because it is a practical expression of the movement towards the language development and the expansion of thinking. The idea of the text is overtly or covertly expressed [2]. The title of the work of art is based on this idea. Choosing a biblionym requires the author to master the art of choosing words. A biblionym is always a means of revealing the essence of an idea, an event. Working on this tool requires special responsibility from writers. The writer Erkin Azam said about the process of choosing a biblionym for the story “Ta’ziya” (“Condolence”): “The original name of this story was “Doppi” (it is a national headwear of Uzbek people). I wanted to dedicate it to Muhammad Yusuf, as he is the author of so-called poem. When the title of the work was changed to “Ta’ziya” (“Condolence”), the case, which the poet’s name and the title stands side by side, seemed strange together, so I changed my mind” [3].

³ Bibliyonim (yunoncha *bibliov* – *kitob* + *onoma* – *atoqli ot*) – har qanday badiiy, ilmiy, diniy, siyosiy asarga berilgan nom (sarlavha). Ideonim turi. Ushbu tadqiqotda badiiy asar nomlari tahlil qilingan.

The direct connection of the biblionym with the material text is clearly seen in its context, when it is repeated in a certain sentence or a complex syntactic entity, or when the structure of the biblionym is used somewhere in the text with a slight change, sometimes close to it in terms of content. In most cases, the biblionym is implicitly given in the text without being explicitly revealed in the text.

Literature Review. A biblionym can also be called a metatext, that is, a text about a text. The French researcher J. Jeanette puts forward the concept of paratextuality and emphasizes that the interaction of segments within one text (biblionym, preface, epigraph, picture, etc.) is of great importance for the benefit of the author and the reader [4]. Such important biblionyms should be mentioned on the example of Abdulla Qahhor's works. The writer said about the biblionym of the narrative book "*Utmishdan ertaklar*" ("Tales from the Past"): "One of our critics, who read some parts of the book published in newspapers and magazines, said: "It's so dark, won't it leave a heavy impression on the reader of the book?"... I wanted to call the book "*Utmishdan lavhalar*" ("Views from the Past"), well, let them be satisfied, let's call the book "*Utmishdan ertaklar*" ("Tales from the Past") [5]. It seems that the biblionym is of great importance in clarifying many issues and making the work agreeable to the reader.

Research Methodology. Abdulla Qahhor was extremely meticulous in naming his works, he took this issue seriously. In almost all of his works, the biblionym is given in the text, which helps the reader to create a more clear impression. This can be seen in the example of the story "Ming bir jon" ("A thousand lives": "- This woman's life is not one, but a thousand and one! - he said, - even if her life, which is now burning like an exhausted candle, goes out, it will go out after burning the remaining thousand." In this story, the character of Mastura, who has an priceless will and determination, is created. "The story narrated by the first person relies on the principle of providing life material, first of all, subjectively, on deep self-analysis, not only on describing the facts, but also on reacting to them" [6]. The story based on the story "Ming bir jon" ("A thousand lives") is rare in life. A young woman is seriously ill, her husband has been in pain for ten years, she overcomes the disease with endless endurance and perseverance and returns to life.

Analysis and Results. In the works of other creators, we often observe that biblionym and text compatibility and repetition of biblionym in the text is one of the important issues.

The biblionym of Shukur Kholmirezayev's story "Kongil" ("Soul") was chosen from a word close to the human heart. It can be seen that it is extremely suitable for the theme and content of the story and that it is embedded in the text:

– Narzi... Yur, – dedim. U bosh qimirlatdi.

– Bugun otganimning hammasi seniki, – dedim. Nazrulla boshini sekin ko'tardi.

– Nima keragi bor! Zor emasman! – Gap... Gap ko'ngilda, tushundingmi? – dedi u va kurakni qorga zarb bilan sanchib uyiga kirib ketdi".

Translation:

– Narzi... come with me, – I said. He nodded.

– Everything I shot today is yours, – I said. Nazrullah raised his head slowly.



– What's the point! I don't need this!– My soul... It is my soul that hurt, do you understand? – he said and stuck his shovel into the snow and entered his house”.

It can be seen through biblionyms that the content of nationality is strongly expressed in the stories of the writer. The reader is influenced by the biblionym inviting him to read the story “O‘zbekning soddasi” (“The Simplest of Uzbeks”) and after getting acquainted with the text, he is sure that he has received rich spiritual enrichment:

“Men – endi o‘zgarib ketgan, savodim ham rostakamiga chiqib, “Alpomish”ni ham o‘zim o‘qiydigan hamda otamning mardlik va arz qilish to‘g‘risidagi aqidalariga allaqachon qo‘shilmay qolgan esam-da, bu keksayib qolgan otam – “O‘zbekning soddasi”ga havasim kelib ketdi”.

Translation: “ Even though I had changed, my literacy had improved, I could read “Alpomish” myself, and I had already stopped to follow my father's beliefs about courage and dedication, I fell in love with my old father – “The simplest of Uzbeks”.

In the example of Erkin Vahidov’s dastan “Nido” (“Moan”), where the pain of the homeland and the people is mixed with warm feelings between father and son, we can observe the repetition of the biblionym in the text:

Hayqiraman tog‘lar bag‘ridan,
Gumburlagan sado keladi.
Ona yerning otash bag‘ridan,
“O‘g‘lim!”, degan *nido* keladi.

Translation:

I will exclaim in the depth of mountains,
A rumbling sound will be heard,
From the fiery bosom of Mother Earth,
The moan comes: “My son!”

In the dastan, the moans of those who died fighting for peace, the moans of the children and mothers left behind are generalized and become the moan of the era - the moan of the struggle for peace.

The unity of the country, the people, the attitude of people to the events around them, the faith in the future are glorified by writers in their artistic works. The authors skillfully used the method of using the lexical unit, which embodies the main idea of the text, as a biblionym to impress it on the reader's mind with clear evidence. Below we will analyze such biblionyms in connection with the text.

Shuhrat's novel “Oltin zanglamas” (“Gold doesn’t rust”): “People of faith are golden people. And gold does not rust.” The story “Tabgachlar” by Isajon Sultan: “Tabgachlar lost their land and water and spread to the world, no one could destroy them. Experts say that they are a very hard-hearted, immortal people.” The writer's story “Tuman” (“Fog”): “On that day, valleys and oases were covered with thick fog.” The word “tuman” is used in 21 times in the story. The impact of the war on people's lives is a symbolic expression of the fact that it is difficult for the fog to disappear.

Asqad Mukhtar's novel “Amu”: “... the dark ravines, mysterious gorges carved, washed, illuminated for thousands of years, the rocks that channeled the stream and created mighty waterfalls, and the charm of life in the lowlands that entices the heart are related to Amu...” .

Luqman Burikhon's story "Quyosh hali botmagan" ("The sun has not yet set"): "I didn't take the captain's place by accident. As if waiting for the same, the children kept shouting: The sun hasn't set yet! This was our fighting slogan. This "battle slogan" is the basis of the biblionym, and used 13 times in the work.

Togay Murad's narrative "Yulduzlar mangu yonadi" ("Stars shine forever"): No, you know, no! My star still shines! My cycles are still going on! My grandchildren are in circles: - Oh, my grandfather's old man! - he shouts! My star will shine forever!"

Abdulla Orazbayev's poem "Jorullah" ("The neighbour of Allah"):

...Xayol sahrosida Jorulloh

Ohista-ohista olislar.

Taqlid qilib Oqsoq Boboga

Nechun oqsamoqda vorislar?!

Translation:

... In the desert of imagination,
Jorullah is slowly moving away.

Imitating Oksok Bobo,
why are the heirs are tottering?!

The author dedicated this poem to Professor Z. Dosimov. "Jorullah" is actually the title "Neighbor of Allah". In the status of Jorullah, the writer says, "How many Hajjs have been meritorious", that the students should follow in the footsteps of the teacher. The reader can get an initial idea of the poem by seeing the biblionym of the poem and the explanation of who it is addressed to.

Khurshid Dostmuhammad, a well-known artist, has a unique style in choosing a biblionym. Let's focus on his unique biblionyms that attract the reader's attention, but with a little analysis:

The narrative story "Kuza..." ("Observ..."). This biblionym is somewhat controversial. This biblionym, which consists of four meaningless sounds and is represented by many dots denoting continuity, can be learned after familiarizing with the text:

"Aziz do'sti uqdirmoqchi bo'layotganidek, hech narsaga chalg'imaslikka, o'zini shu maqsadga bag'ishlamoqchi va odamlardan **kuzatuvchimisiz** yo **kuzatiluvchimisiz** deya so'ramoqchi, shu birgina savolni "Ust-boshingizga qarab qo'ying degandek juda oddiy, jo'n va kundalik savolga aylantirmoqchi, nasib etsa odamlarni hamisha ushbu savolga javobi tayyor bo'lmoqlikka undamoqchi, odatlantirmoqchi edi... Opasiga vasiylik, ya'ni poyloqchilik, ya'ni **kuzatuvchilik** burchi haqida... unday desa, chuqurroq o'ylab ko'rsa, u opasini emas, opasi uni ko'proq, sinchkovroq **kuzatishini** sezib qoldi, buyoqda onasi, Ustozi, qolaversa, jonajon do'sti Farhod ham uni holi-joniga qo'ymay **kuzatishi**, Umid ular uchun **kuzatiluvchi** ekanligi".

Translation:

"As my dear friend is trying to urge, I want to devote myself to this goal and ask people if they are an **observer** or the **observed**, and turn this one question into a very simple, lively and everyday question like "Look at your head", and hopefully people will always be ready to answer this question... About the duty of guardianship, that is, the care of her sister, that is, the duty of **observation**... then, when she thought



about it more deeply, she noticed that her sister was **observing** him more and more carefully, not he, but his mother, his teacher, and besides, his best friend Farhad all will **observe** him wholeheartedly, that Umid is the **observed** for them.”

The author chooses a very rare way of choosing a biblionym, as he writes about the fact that the hero of the work is in constant observation and control, and in general, life consists of observations.

The story “Ma, osh” (Take, osh):

“– Maosh o‘g‘riga osh-non bo‘larmidi. Maosh ro‘zg‘orga, qora qozonga mo‘ljallangani uchun ham ma-osh, men esa hardamxayollik qilib, kissavurga *ma, osh* qip kepman...”

Translation:

“Would the salary be food and bread for a thief? The salary (maosh) is a salary (ma-osh⁴) because it is intended for living, for the family budget, and I am always desperate, and I have my salary robbed..”

It can also be observed that the use of the biblionym in the text is sometimes expressed by the synonyms of the words in the name. In Abduqayum Yoldosh's narrative “Osman ogushi” (The Cuddle of the Sky) the word “ogush” (cuddle) is represented by the word “bagir” (hug) in the text:

“Shu kuni Erali bir erkalik qildi: qism komandirining ruxsati bilan onasi, opasi, pochchasi, jiyanchasi va ustoz, o‘zi atay chaqirtirgan Qo‘ldosh akani samolyotga olib chiqib, ularni osmon bag‘rida rosa sayr qildirdi”.

Translation:

On this day, Erali did a gentleness: with the permission of the commander of the unit, he took his mother, sister, nephew, niece and teacher, brother Koldosh, whom he had called on purpose, to the plane and took them to the hug of the sky.

The fact that the word “bag‘ir” in the text has turned into the word “ogush” in the biblionym can be explained that the author created a biblionym based on phonetically harmonious words using the repetition of vowel sounds at the beginning of the word.

The method of researching the speech style of a writer or creator from the point of view of his ability to use words or form a sentence does not meet today's requirements [7]. Authors are choosing a biblionym based on different approaches and methods. That is why among the names of art works, we also observe biblionyms that are incomprehensible to the reader at first glance. They are created on the basis of abbreviations, foreign words, imitations or words expressing emotions. The content of such biblionyms can be understood after reading the work in its entirety. It is noteworthy that works whose titles are based on vague words attract the reader. Omon Mukhtar's novel “Ffu” is a notable work in this regard. The word “Ffu” expresses the content of emotions and is used in the composition of the work as follows:

“...U nimadandir mamnun bo‘lsa, “Oh-oh!” der, ajablansa, “Iy-y!” deb qo‘yar, norozilansa, “*Ffu!*” der edi... O‘g‘li bilan suhbatdan odamdek bahra ololmagani – Mulla Toshpo‘latni, ayniqsa, qiynar edi...”

⁴ The author is using word-play here, by building homonymic relation between the word “maosh” (salary) and “ma-osh” (take the food osh).

**Translation:**

“...When he is pleased with something, he says, “Oh-oh!”, if he is surprised, “Iy-y!”, if he is dissatisfied, he used to say “Ffu!”... The fact that he could not enjoy the conversation with his son as a human being was especially difficult for Mulla Tashpolat...”

“Ffu” also means the artist's attitude towards the period and environment in which the events of the work are covered. The novel describes some events that took place in a province in one of the countries of the Muslim East with a royal system.

The biblionym of Isajon Sultan’s story “Todd” is an extremely obscure biblionym. The meaning of the word “todd” and why it became the work’s biblionym is given in the text of the story:

“Orasida “Todd” degan tanish so‘z bo‘lgan “Der Todd immer gewinnt” kalimasining mazmuni nima ekan, deb nemischaga qiziqib yuradigan bir og‘aynimdan so‘radim. Javobdan esa tong qoldim: “Todd”ning ma’nosi “O‘lim” bo‘lib, bu kalimaning mazmuni, ne ajabki, “O‘lim haqdir” degani ekan”.

Translation:

“I asked one of my brothers, who is interested in German, what is the meaning of the sentence “Der Todd immer gewinnt” containing the familiar word “Todd”. I was surprised by the answer: “Todd” means “Death”, and the meaning of this sentence, surprisingly, is “Death is right”.

According to the famous Russian director Stanislavsky, the audience who comes to the theater sees an opportunity to relax, cheer up, and forget about problems in the name of the play. But when he enters the hall, when the performance begins, when the doors are closed, the actor must take responsibility for educating him. He should educate the audience unconsciously [8]. In this sense, when choosing biblionyms, it is necessary to have a high level of skill and knowledge of the creator. Mukhtarali Nasirov’s story “*F.I.Sh. nima?*” (What is F.I.Sh.⁵?) has a very topical and controversial content. The hero’s explanation to “F.I.Sh.” is noteworthy: “*Отчество*” is derived from the word “*omey*” and really means the father. But the word “sharif” does not mean the father, the grandfather, the great-grandfather, or the lineage in general. This word means “honorable”, “glorious”. In the past, our grandfathers were so civilized that they asked each other politely “What's your honorable name?”, instead of saying “What is your name?”. Now read “F.I.Sh.”: “Last name. First Name. Honorable.” Where is the coherence?”

Conclusion. The biblionym of Hojiakbar Shaikhov’s story “Mutamax” is expressed not only in the lexicon of the Uzbek language, but also by a lexical unit that is not found in any other language. After reading the story, you can find out why such a biblionym was given:

“ – Balki u chindanam sun’iy yo‘l bilan tasodifan yaratilgan mutamax, ya’ni **mutant**lashgan **maxluqdir**”⁶.

“- Maybe he really is a **mutacrea**, that is, a **mutated creature**, created by chance in an artificial way.”

⁵ F.I.Sh. in Uzbek language stands for initials, that is, the F for last name, I for first name and Sh for middle name.

⁶ The author is playing with words, by creating a new word from the first syllables of two words.



It is necessary to dwell on the principle of metonymy when expressing the relationship between the biblionym and the text. In literary conversations, sentences like “ “Langar” came out very meaningful, in this work, our history, our identity is fictionalized”, naturally, there speech goes not about the biblionym, but about the plot of the novel. It can be said that Kumush’s sentence “Fuzuli is a good book, even when I was alone, I couldn't take my head from this book” in the work “Bygone Days” refers to Fuzuli’s divan and expresses an opinion about the content of the entire divan.

In general, the names of art works complement each other in harmony with the text and serve to attract the reader. By its position, the biblionym is a means of connecting the text with the outside world, in particular, the reader. If the reader sometimes does not understand the general idea of the artistic work, which is observant and complex in content, a relationship is formed based on the biblionym.

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ANALYSIS OF THE SHORT STORY “SHORT TERM HAPPINESS OF FRANCIS MACKOMBER”

**Durnazarova Mahliyo,
2-course master student,
Literature (English) specialization,
Bukhara State University**

**Akhmedova Mehrinigor Bahodirovna,
PhD, associate professor,
English literature department,
Bukhara State University
m.b.axmedova@buxdu.uz**

Abstrakt. Ushbu maqolada biz Ernest Xemingueyning "Frensis Makkomberning qisqa muddatli baxti" qissasining kompozitsiyasini muhokama qildik. Unda Ernest Xeminguey asar qahramonlari uchun tabiat va muhit yaratishga qanday harakat qilgani muhokama qilinadi. Tahlil qilingan personajlarning dialoglari boshqalarga munosabatini va ularning turmush darajasini ko'rsatadi.



Kalit so'zlar. Tarkibi, tabiati, xarakteri, muhiti, turmush darajasi, syujet.

Абстракт. В этой статье мы рассмотрели сочинение рассказа Эрнеста Хемингуэя «Кратковременное счастье Фрэнсиса Маккомбера». В ней обсуждается, как Эрнест Хемингуэй пытался создать природу и среду для героев произведения. Проанализированные диалоги персонажей показывают отношение к окружающим и уровень их жизни.

Ключевые слова. Композиция, природа, персонаж, окружающая среда, уровень жизни, сюжет.

Abstract. In this article we discussed the composition of the short story "Short term happiness of Francis Mackomber" by Ernest Hemingway. It discusses how Ernest Hemingway tried to create nature and environment for the characters of the work. Characters' dialogues analyzed shows the attitude to others and their living standards.

Key words. Composition, nature, character, environment, living standards, plot.

Introduction. The story "The Short Happy Life of Francis Macomber" is distinct and clear, and not normally subjected to detailed study. "The main theme of the story - the birth of a man of courage, which makes him real man in the eyes of Hemingway " But here, as in the works discussed above, a direct appeal to the people's folklore and mythological thinking is revealed, which is dissolved in a number of archaic ideas and images.

Human life is always decorated, and it is always designed with rituals. This ritual can draw artistic image "story plot is very simple and straightforward. Classic theme-killing for money, wealth, may seem trivial, but to explain it from a different context is challenging. Folk tune is always on the depth, while the ordinariness is in the outer shell. With event-hand plot of the story is real, filled with household items. But on the other side of the story simulates conditions ceremony, leaving the roots in the institutions and ideas of the world and man, life and death of primitive hunters.

Analysis. It is a known initiation rite. Neophyte interprets it as a death and resurrection. Plot scheme is exactly the same story with this rite, no wonder the action takes place in Africa, which hosted the ceremony itself, as recorded ethnographers. Professional Hunter Wilson, who is a mentor, a magician, a teacher repeats during the dedication of the American Macomber a phrase "man-boys", which proves that the infantilism Macomber here is not accidental.

After passing the test, to make amends for the cowardly act while hunting buffalo, Francis changed dramatically, which scares his wife Margaret Wilson and surprises. A neophyte no more fear.

In Macomber slacker, worthless man, dwindling hollow existence died. Thus, the death alternates with the birth – the man is dead, the active substance is born. But the writer does not find a future for the hero. For Macomber adulthood came too late. He is a new man, blind in this world, and weak, and poor, Margaret fires a husband. She was frightened of change, felt the lack of a power over him. Fibula story "The Snows of Kilimanjaro" is as simple as "The Short Happy Life of Francis Macomber." And turning to folk and mythological thinking, researchers find deeper implications. Epigraph works quite unusual, and it is not just encyclopedic reference. Epigraph can be understood if ritual action associated with the opposition to life – death is comprehended.



The ancient hunter's death was thought of as going through a totemic animal or a reincarnation of him. It is with this custom was connected wrap Masai deceased skin totem animal (at a later stage, cattle, - the skin of the pet.) It was thought that the huge bird flew in captures skin with the human body and carries a high, often a crystal mountain, home to ancestors - to the primitive Olympus.

Dying writer sees the plane, an analogue of birds, blowing it to the top of the "Olympus" - Kilimanjaro. If we draw a parallel between the epigraph, rites, and near-death visions of Harry, the human soul is cleansed of filth, a man who understood the wretched existence, not to die. In all these stories, the hero is tested people's consciousness. It is folklore, mythological consciousness helps man and artist to rise above the petty bourgeois, deadlock and emptiness.

The story of Francis Macomber in Ernest Hemingway's "The Short Happy Life of Francis Macomber" is ultimately a tale of courage. When faced with the challenge of being hunted by a charging buffalo, he finds a newfound strength within himself to confront fear and emerge triumphant, endowing him with a brief moment of happiness. However, as biographer Carlos Baker observes, the loss of fear which comes with this short-lived victory leads Macomber into an identity that his wife Margot kills just moments later. His life may have been short but having the courage to face nature and his own shortcomings make the transformation from cowardice to manhood essential for understanding the lasting legacy of Macomber. Despite his untimely death, his courage and bravery remain indelible in our collective memory both serving as an inspiring example of handling change and embracing peril with open arms.

Discussion. Robert Wilson symbolizes the ideal of a man who is free from domination by women or fear in Ernest Hemingway's short story, The Short Happy Life Of Francis Macomber. Wilson understands that Margot Macomber, personally and perhaps symbolically representing womanhood, needs to be dominated, and he shows this by shooting the lion dead. The presence of an ominous presence of death pervading the story is made most evident as Jeffrey Meyers has suggested by the character of Margot Macomber, who is perceived to be a villainous figure: she is predatory rather than passive; being both a betrayer and murderer. By Wilson's victory we are presented with a vision of dominance allowing man to demonstrate he can re-grasp control--a freedom from female domination or fear--casting shadows on this ultimate triumph when one considers its relationship to shootings and sex.

Francis Macomber has been under his wife Margot's controlling grasp since the start of their marriage and he has yet to take charge or confront her about it. The text implies that this affair with Wilson is not the first time Margot has been unfaithful, but Macomber has still done nothing to stop her. He seems powerless and cowardly against her, even when running away from a lion; he is feeble when compared to Wilson, a veteran hunter who remains poised in the face of danger. Macomber's cowardice and submissiveness make the contrast between himself and Wilson even more remarkable.

The loss of Macomber's confidence in himself and his capabilities appears to have been triggered when Margot blatantly cheated on him. This was the straw that broke the camel's back and caused Macomber to embark upon an intense hunting expedition, which would hopefully be a way for him to reclaim his manhood, something he may never have had in the first place. During the hunt, Macomber experiences a surge of



confidence and bravery as he relentlessly seeks to prove that he isn't powerless or incapable - two emotions he felt when Margot had betrayed him. In this sense, the hunt is symbolic of Macomber attempting to take back his self-respect through proving to himself that he has what it takes to survive such an endeavor.

At the beginning of the story, Francis Macomber offers his companions lime juice or lemon squash. This small gesture presents a degree of transformation, highlighting his own personal journey which is reflected through various symbols. As the story progresses and culminates in a successful buffalo hunt, Macomber has transmogrified from a meekly sipping citrus refreshment to an emboldened individual raising a generous toast with whiskey. Through this trajectory of growth, we can distinguish how far he has come in fulfilling the masculine ideal that he prevails for himself throughout the narrative.

Margot's reaction to Macomber's display of manhood was one of great disturbance, as it threatened her own position of dominance. The thrill he experienced after the buffalo hunt only served to add to her uneasiness. With Macomber's transition from a boy into a man however, came his eventual death. Hemingway chose to see the silver lining in Macomber's situation, conveying through his text that even if it may be short-lived, experiencing a moment of joyful confidence is enough to justify one's life.

Margot shooting Macomber is no coincidence and there is still much debate as to whether or not it was intentional. If she purposely killed him, her authority in the relationship was preserved due to his wealth; but if it was an accident, it almost becomes tender—at that moment she saw him become a man and finally unite with her. She grabbed the gun out of instinct to protect him from danger, yet ironically ended up killing him anyway. The events that transpired had bitter sweetness as they were both on the same side, unified by a common cause however short-lived their connection lasted. In the end, Margot gained something valuable but only for a fleeting moment.

Margot's shot could be interpreted to represent an attempt of regaining control and supremacy over her husband. It could be seen as a desperate act to win back the power, but ironically, it has the opposite effect. The bullet does precisely what she was trying to dodge in the first place - destruction of the thing she wants to have command of. The end result is a catastrophic outcome that just reinforces her weakness.

Conclusion. In Ernest Hemingway's *The Short Happy Life of Francis Macomber*, animals are used to carry the work's symbolism, as Macomber is referenced as a rabbit several times. Moreover, his kills are described as "cozy things that jump like hares", which can be interpreted in direct contrast with his wife Margot, who is said to be "predatory" like a lion. As Macomber musters courage during the hunt scene involving a buffalo, there is an interesting comparison between him and a lion -- the emotion of hot rage being synonymous with both animals. At the end of the story, Macomber lies dead, mirroring the posture of the same buffalo whose death he had previously precipitated. To conclude then Wilson remarks: "hell of a good bull" implying that it was only after conquering this beast could Macomber receive respect.

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THE USE OF PHRASEOLOGICAL UNITS IN ORAL AND WRITTEN LANGUAGES

(ON THE BASE OF MATERIALS OF THE ART WORKS)

Rakhmatova Parizoda
student of russian language
and literature department
faculty of Russian and Kazakh Philology
Navoi State Pedagogical Institute

Annotatsiya: Ushbu maqolada badiiy asarlarda frazeologik birliklarning qo‘llanilishi bo‘yicha tadqiqot natijalari keltirilgan. Maqolada frazeologik birliklarning turli guruhlari ma‘nolari bo‘yicha ko‘rib chiqiladi, frazeologik birliklar, frazeologik birikmalar va frazeologik birikmalar kabi tushunchalar ham ko‘rib chiqiladi.

Kalit so'zlar: frazeologik birlik, iboralar, idiomalar, umumiy slavyan, sharqiy-slavyan va to'g'ri rus tili, frazeologik birliklar, frazeologik birikmalar, frazeologik birikmalar.

Аннотация: В данной статье даны исследования использования фразеологизмов в художественной речи. Рассматриваются группы фразеологизмов по значению. Кроме того, рассматриваются такие понятия как фразеологические единства, фразеологические сращения и фразеологические сочетания.

Ключевые слова: фразеологизм, фразесы, идиома, общеславянские, восточнославянские и собственно русские, фразеологические единства, фразеологические сочетания, фразеологические сращения.

Abstract: The hereby article presents the research results on the usage of phraseological units in the works of art. The article examines different groups of phraseological units by their meanings and it also discusses such notions as phraseological unities, phraseological fusions and phraseological combinations.



Key words: phraseological unit, phrases, idioms, Common Slavonic, Eastern-Slavic and proper Russian language, phraseological unities, phraseological combinations, phraseological fusions.

Introduction. Phraseological units have existed throughout the history of the language. In the middle of the 20th century, the scientists studying the Russian language identified that, in addition to the great number of words that make up the language, there is also a special layer that is more than ten thousands of stable combinations of words that like other words help us create a figurative, vivid and capacious speech. People knew about the existence of such expressions before. M. Lomonosov in his time claimed that these expressions must be included in dictionaries. He called them as “*Russian posloviya*”, “*phrases*” and “*idiomatisms*”. The last used term is derived from the Greek word *idioma* (idiom) and has the meaning “originality or singularity”.

Literature Review. From the point of view of historical formation, all phraseological units can be divided into four groups:

- Originally Russian (*сматывать удочки*);
- Old Slavonic (*как зеницу ока*) (like the apple of one’s eye);
- Derived from mythology (*нить Ариадны*) (Ariadne’s thread);
- Derived from professions (*сгущать краски*) (laid it on thick);
- Popular expressions (*счастливые часов не наблюдают*) (Time flies when you are having fun).

The bulk of the presently used phraseological locutions consist of stable combinations of words of native Russian origin (*ищу ветра в поле, водой не разольёшь*). They originated in Russian or were inherited from a classic language. Phraseological units of Russian origin are divided into three groups depending on the time of their appearance: Common Slavonic, Eastern Slavic and proper Russian ones.

A special group of phraseological units characterizes a person in certain state, at certain moments of their life: *из рук всё валится, опускаются руки, рука не поднимается, быть связанным по рукам и ногам, руки чешутся*.

Words denoting organs of senses (*ухо, глаз, нос*) are quite widespread in Russian phraseology. The phraseology of the Russian language has more than 50 phraseological units connected with the word *ухо* (ear). The following phraseological units are about listening attentively: *слушать своими ушами*, the phraseological units such as *держат ухо в остро, насторожить уши, держать уши на макушке* reflect the image of an alert animal.

Research Methodology. A spectrum of Russian phraseological units relate to everyday life, customs, traditions and beliefs of the ancient Slavs. To this category we can include the following phraseological units:

- 1) *Superstitious ideas of our ancestors: черная кошка дорогу перебежала (произошла ссора, размолвка между кем-либо)* (a black cat ran across the road (there was a quarrel, a tiff between someone); *ни пуха ни пера (пожелание кому-либо удачи, успеха в каком-либо деле)* (*Good luck!*) (*a wish for success, luck in something*) – *primarily:*



wish good luck to a hunter who goes hunting, expressed in a negative form, so as not to “hoodoo”, if you wish directly good luck;

2) *Games and entertainment*, for instance: *жив, курилка* (кто-либо существует, действует, проявляет себя) taken from an old-time folk game in which people exclaim: “**Жив, жив, курилка!**” and pass a burning torch to each other until it goes out; *играть в бирюльки* (deal with trifles, do nothing, waste time); *ни в зуб ногой* (to know absolutely nothing, not to understand);

3) *Ancient customs of punishing criminals*, for example: *укоротить язык* (to make someone talk less, be less insolent); *на лбу написано* (noticeably enough);

4) *Details of Russian life*, for example: *выносить сор из избы* (divulge quarrels, squabbles occurring between close people); *легок на помине* (appearing at the moment when one thinks or speaks about him/her/it)

5) *Historical events in the life of the Russian people*, for example: *кричать во всю Ивановскую* (very loudly); *долгий ящик* (for an indefinitely long time); *как Мамай прошел* (complete disorder, mess) – taken from a historical event - the devastating invasion of Russia (in the 14th century) by the Tatars under the leadership of Khan Mamai.

The professional language used by the handicraftsmen is also the most important source of Russian phraseology. Almost every craft in Russia left its trace in Russian phraseology. For instance: from shoemakers - *два сапога пара* – “same”; from hunters and fishermen - *сматывать удочки* - “leave hastily”; *закидывать удочку* - “carefully find out something”; *заметать следы* - “hide something”; from musicians - *играть первую скрипку* - “to take priority over someone”; from sailors - *бросить якорь* – “anchor, на всех парусах – “sail quickly”, *сесть на мель* – “get into an extremely difficult situation or condition”.

Oral folk art is a rich source for Russian phraseology. The following phraseological units came from folk fairy tales: *сказка про белого бычка* - “endless repetition of the same thing”, *при царе Горохе* - “very long time ago”, *Лиса Патрикеевна* – “a very cunning / sly person”, *Кощей бессмертный* – “a very thin and scary person”.

A well-known Russian linguist and academician V.V. Vinogradov sorted out three main types of phraseological units: phraseological fusions, phraseological unities and phraseological combinations.

Phraseological fusions are lexically impartible phrases; their meanings are not determined by the meaning of the individual words that they comprise. For example, “*бить баклуши*” (to laze), “*с бухты-барахты*” (unadvisedly), “*спустя рукава*” (carelessly), “*как пить дать*” (immediately). When literal translation of phraseological fusions is usually impossible for a foreigner to understand their general or real meaning, because none of the words hints at the meaning of the whole phrase.

Phraseological fusions for the most part correspond to the words – synonyms e.g., “*шиворот-навыворот*” (vice versa), “*из рук вон*” (bad), “*положа руку на сердце*” (frankly, open heartedly).

In some phraseological fusions, the grammatical forms of words no longer match the norms of the modern Russian language and in most cases they are considered as grammatical archaisms. For instance, “*среди бела дня*”, “*шутка сказать*”, “*себе на уме*”, “*на босу ногу*”.



In sentences, phraseological fusions act as a single integral unit. For example, in the sentence “**своею речью он ставит вас в тупик**”, the fusion “**ставит в тупик**” is a predicate. In the sentence “**он ругал нас за то, что мы работаем спустя рукава**” the phraseological fusion “**спустя рукава**” is an adverbial modifier of manner. The phraseological fusions in other words are called as idioms (from Greek *idioma* - an indivisible phrase peculiar only to a particular language, from Greek *idios* - peculiar).

Phraseological unities are lexically indivisible phrases, and their general meaning is associated with the perception of the figurative meaning of words that constitute a phrase. For example: “**держат камень за пазухой**” (conceal anger in soul), “**уйти в свою скорлупу**” (to isolate from the world), “**стреляный воробей**” (experienced, proficient). In comparison to phraseological fusions and free phrases, phraseological unities possess more figurativeness. Each word of such a phrase has its own individual meaning, but in the aggregate they express a figurative meaning. However, with the help of literary translation one can guess the meaning of a phraseological unit. Phraseological unities can have homonyms that are free phrases. For instance, “**закидывать удочку**” – with the meaning of hinting at something and “**закидывать удочку**” that expresses the direct meaning. The lexical composition of phraseological unities is indivisible. However, unlike the phraseological fusions we can insert new words in their structure e.g., “**лить воду на (свою, мою, твою, чужую) мельницу**”.

Phraseological combinations are stable phrases, the general meaning of which depends entirely on the meaning of their constituent words. The words in such combinations preserve their independence, but they already are not free and show their importance only along with certain, vicious circle of words, for example: the word “**слёзно**” is conjoined only with the words **просить, умолять**. We can say: *страх берет, тоска берет*, but we can't say: *радость берет*. One of the members of the phraseological combinations is considered stable and constant, but the other is variable. The presence of permanent and variable members in combinations distinguishes them from fusions and unities. For instance, in the combination “**сгорать от стыда**”, the word “**сгорать**” is constant because this word is the main one in other phraseological combinations: “**сгорать от стыда**”, “**сгорать от любви**”, “**сгорать от нетерпения**”, “**сгорать от зависти**”. Phraseological combinations are not lexically indivisible and that is their main side that differs them from phraseological unities and fusions. Their components can be substituted by synonyms. For example, **потупить голову - опустить голову; сесть в лужу - сесть в калошу; насупить брови - нахмурить брови**. Phraseological combinations are quite numerous in composition and very common in use.

The writers address the phraseological phrases of their native language as an inexhaustive source of expression. In artistic and journalistic speech phraseological units are often used in their usual linguistic form with their peculiar meaning. However, the possibilities of application of phraseological units are much wider than their simple usage in speech. Phraseological wealth of the language revives with the help of the pen of talented writers, publicists and become a fruitful source for new artistic images, jokes and unexpected puns.

The artists of the word can use phraseological units as raw materials that are liable to creative processing. Original verbal images arise as a result of the



phraseological innovation of writers and publicists that based on beaten set expressions. Creative processing of phraseological units gives them an original expressive coloring, intensifying their expressiveness. Most often, writers alter phraseological units that have a high degree of lexical stability and perform an expressive function in speech. In addition, the modified phraseological units preserve the artistic qualities of the common ones e.g., figurativeness, aphoristic nature, rhythmic-melodic ordering. Phraseological units are widely used in the works of art to characterize the speech of characters or the author himself/herself. The role of phraseological units is most noticeable in the case when they talk about the manner and type of speech of a given character that is peculiar only to him/her alone. Without phraseological units, fairy tales would not be so interesting as well. For instance, in P.P. Yershov's fairy tale “*Конёк – Горбунок*” (“Humpbacked Horse”) we can see the samples of the use of phraseological units in the speeches of the tsar, Ivan, the sleeping bag, humpbacked horse and princess that serve to illustrate a direct or traditional use in which the phraseological unit is applied in the structure and in the meaning that are well-known to everyone. “«...Делать нечего, придётся, Во дворце тебе служить. *Будешь в золоте ходить*, В красно платье наряжаться, *Словно в масле сыр кататься...*». «Дай-ка я подкараулю, А нешто, так я и пулю, Не смигнув, умею слить *Лишь бы дурня уходит.*» «Что, Иванушка, невесел? *Что головушку повесил?* – Говорит ему конёк.

Conclusion. Phraseological units have an enormous role in the Russian language. In many cases they express people’s wise sayings that have become stable phrases. Each phraseological unit is a short expression of a deep human thought. It is easier to say “*Без труда не вытащишь и рыбку из пруда*” rather than express it with several other sentences. It can also be noted that phraseology is an element of our antecedents’ life, because they were the initiators of their use, so it means that they are a part of our history, to a greater extent, certainly, in the history of the Russian language. A beautiful and correct speech is, undoubtedly, an advantage, both for adults and children. Accurate figurative expressions, such as phraseological units serve to enrich the language.

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**ANALYSIS OF THE QUALITATIVE INDICATORS OF SPINNING YARNS
FROM DIFFERENT GRADES OF COTTON**

Kazakova Dilafruz Erkinovna
Associate Professor of
"Processing of textile productst"
of the Jizzakh Polytechnic Institute
kazakova1976.uz@gmail.com

Baratova Kumish Mashrab qizi
4th year student of
"Natural fiber and fabric processing"
Jizzakh Polytechnic Institute
ilhom.abbazov.86@mail.ru

Mutalova Yulduz Abduraxmon qizi
3rd year student of
"Processing of textile products"
of the Jizzakh Polytechnic Institute

Аннотация: Ushbu maqolada турли пахта навларидан йигирилган ипларнинг сифат кўрсаткичлари тахлил қилинди. Ушбу тадқиқот натижалари асосида кейинги тадқиқот йўналишини танлаш бўйича дастлабки натижалари келтирилган.

Калит сўзлар: LOT, aralashma, uzilish kuchi, variatsiya koeffitsienti, chiziqli zichligi, solishtirma uzilish kuchi, uzilishdagi uzayishi, нав, tola.

Аннотация: В данной статье проанализированы качественные показатели нитей, вытканых из разных сортов хлопка. По результатам данного исследования представлены предварительные итоги для выбора направления дальнейших исследований.

Ключевые слова: ЛОТ, смесь, предел прочности, коэффициент вариации, линейная плотность, удельная прочность, относительное удлинение при разрыве, марка, волокно

Abstract: This article analyzes the quality indicators of yarns from different varieties of cotton. Based on the results of this study, preliminary results are presented for choosing the direction of further research.

Keywords: LOT, mixture, tensile strength, coefficient of variation, linear density, specific strength, elongation at break, grade, fiber

Introduction. The main raw material of the textile industry is cotton fiber, which is the largest and most renewable source of natural fiber. It has several advantages over artificial fibers, such as its elegance and air permeability, as well as being an environmentally friendly product. Since cotton fiber has such positive properties, the need for products made of this fiber is very high in the countries of the world.



The share of the textile industry in ensuring the stability of the national economy is large. Cotton fiber is the main raw material in the production of textile products and has high positive properties. As the demand for fiber quality increases, the competitiveness of products made from it also increases. Effective and rational use of local raw materials helps to reduce production costs and achieve economic efficiency.

In the development strategy of New Uzbekistan for 2022-2026, by ensuring stable high growth rates in economic sectors, by 2030, the per capita income should be increased from 4 thousand US dollars and "the income of it is necessary to create the ground for entering the ranks of "above average countries"[1].

In our country, large-scale reforms are being carried out on the deep processing of cotton fiber and the expansion of the range of products. For example, in the Decree of the President of the Republic of Uzbekistan dated 05.05.2020 No. PF-5989 "On urgent measures to support the textile and sewing-knitting industry" "... the task of developing and implementing measures to reduce the cost of manufactured textile and sewing-knitting products and increase their competitiveness..." [2].

In fulfilling this task, deep processing of cotton fiber, which is the main raw material, is considered an important task. In order to improve the quality of yarn, it is necessary to maintain and update technological processes and mechanisms in spinning enterprises. In addition, constant monitoring is one of the key elements in the development of quality yarn.

Analysis of literature on the subject. The properties and assortment of sewing yarns are constantly improved and changed depending on the type of materials and products made from them. Ensuring high and stable growth rates in the republic's textile and sewing-knitting industry, attracting and absorbing foreign direct investments, producing and exporting competitive products, systematic work on further deepening of structural reorganization aimed at the implementation of strategically important modernization projects, creation of new high-tech jobs, technical and technological updating of enterprises, introduction of an advanced "cluster model" is being implemented [3,4].

Scientists of Uzbekistan have made great progress in cotton cultivation. Fundamental scientific-research works have been carried out in this field [5,6].

Varieties are changed in the cotton sector, until today, varieties have been changed seven times. In 1990, disease-resistant varieties of the "Tashkent" group were cultivated [7].

Gossypium hirsutum and *Gossypium barbadense* types of cotton were mainly used in the change of variety. In addition, scientists conducted scientific work on *Gossypium herbaceum*, i.e. the variety called by the local name "cotton", and they cultivated varieties with high characteristics. This variety is distinguished by its high resistance to drought, saline soil and cold, quick drying, and the physical and mechanical properties of its fibers are similar to wool. S-7055, S-7085 varieties of "wool" cotton were created as a result of research [8].

Since cotton growing is the most important branch of production in our country, the characteristics of newly created varieties are of great importance in the development of the textile industry. Newly created varieties are characterized by high



yield of fiber, fast ripening, length of fiber and resistance to various diseases. All useful features of these varieties can be found in the collection, which has been studied and preserved for many years [9].

Our republic has such a unique collection of cotton, which is an important technical crop, and such a collection ensures the preservation of cotton types and varieties, as well as their use in the field of applied sciences.

About 13,000 samples are available from the USA, Mexico, India, China, Australia, Turkmenistan, Tajikistan, Egypt, Brazil, Israel, Peru, Pakistan, Iran, and these samples are Uzbekistan cotton selection. And in this cotton collection at the scientific research institute of seed production, it consists of wild, semi-wild forms and varieties collected from more than 110 countries of the world.

Cross-breeding between the wild polyploid *G. tomentosum* Nutt.ex Seem and *G. hirsutum*, representative of the Hawaiian Islands, was carried out, and the direction of the above-mentioned relationship was analyzed [10].

In the hybrids obtained with the presence of *G. tomentosum* species, it was found that fiber maturity, the amount and sizes of crystallites are superior to those of *G. hirsutum* L. species. Based on these results, it can be concluded that the use of the hydrolysis method provides an opportunity to create a rapid method that determines the maturity of cotton fiber before the end of the cotton vegetation period and for the first time [11].

Uzbek scientists have also created intermediate varieties of cotton. This variety is Aqqorgon-2, a new cotton variety, with an average yield of 36.0 to 45.0 s per hectare under different climatic and soil conditions [8].

A new promising variety S-6770 is being cultivated in Tashkent, Fergana and Namangan regions. This variety was recommended for planting in regional areas due to its quick ripening (109 days) [9].

The Omad variety was created by the scientists of the Scientific Research Institute of Cotton Breeding and Seed Production of Uzbekistan. A zoning plan for this variety was established in Samarkand, Andijan, and Fergana regions [6].

It is very important to create varieties with high fiber quality in cotton selection. They crossed *G. tricuspidatum* x *G. hirsutum* ssp. *yucatanense* interspecies hybrids with 149-F, S-4519, L-06, L-623 varieties for 3 years and managed to obtain varieties with high yield, fiber output and length [10].

The new cotton varieties of Uzbek scientists from the Porloq series are coming into harvest in 90-100 days instead of 270 days. The scientists of the Genomics and Bioinformatics Center are carrying out planting work on an area of 25 hectares at the Shoyzak Ota farm in the Boyovut district of the Syrdarya region. Observational studies are currently underway and high yields are expected in the future.

In order to produce high-quality gauze from cotton fiber in textile industrial enterprises, it is necessary to produce high-quality yarn. In addition, well-organized and constantly functioning control of the spinning enterprises operating in our republic can be the basis for the production of high-quality yarn.

After the independence of our country, the industrial enterprises of our republic are working on programs and activities aimed at the production of yarns and fabrics that can meet the requirements of the times, that is, the requirements of world standards. In



accordance with a number of measures used in the republic, measures are being taken to introduce new methods of economic management of economic enterprises and to increase their independence in full economic management. The goal of these activities is to meet the demands of the national economy for light industrial products and to improve the quality of manufactured products.

After the independence of the Republic of Uzbekistan, the number of joint enterprises in the field of yarn production in cooperation with foreign countries is increasing year by year and is being equipped with equipment and technologies that meet the requirements of the new era. In addition, a lot of modern equipment was installed in the laboratories established in joint enterprises to control the quality of rough products and yarn.

The main finished products produced in the textile industry are obtained from yarns. Therefore, textile yarns are one of the main raw materials in the production of woven, knitted and non-woven fabrics.

Yarns produced in spinning enterprises are used for various purposes, i.e. in clothes, economy, technology and medicine.

The yarns produced at the spinning enterprise are divided into carding, combing, melange and hardware systems. The yarn spun in the carding system is strong, smooth, and of good quality, and chit, surp, satin and other fabrics are produced from it. The majority of yarns produced are produced on the basis of this system. The yarn obtained by the carding system is much stronger, straighter, smoother and more elastic than the yarn obtained by the carding system [7].

In order for the technological process at the spinning plant to work at the same rate, a separate spinning plan is developed for spinning yarn of each thickness. As a result, the economic performance of the enterprise will improve and the possibility of producing high-quality yarn will be created [9].

The higher the unevenness of the yarns, the more the strength of the fibers in the yarn and the strength of the single yarns in the bundle yarns is reduced, as a result, the mechanical properties of the yarns deteriorate, and the amount of breakage during the weaving and spinning process increases dramatically [10].

The quality of products produced at spinning enterprises depends primarily on the correct selection of technological processes and the correct organization of sorting

In the following years, the share of low grades of cotton fiber in the total size is decreasing year by year. In modern spinning mills, the practice of not adding unmixed low-grade cotton fibers and waste fibers gives good results. It should be noted that the traditional rules for the use and classification of raw materials are not fully followed in enterprises where new technologies have been introduced. The main reason for this is explained by the production of products based on the customer's requirements in the conditions of market relations [12].

Research methodology One of the main factors determining the quality of yarn is the composition of raw materials.

The yarn obtained from cotton and chemical staple fibers has high physical and mechanical properties, from which it is possible to obtain a finished product with a specified index, and it ensures the smooth operation of technological processes



The fiber mix plays a big role in getting the yarn in every look for the intended purpose [13].

Analysis and results. LOT-1 consists of Porloq-4, LOT-2 An-bayaut-2, LOT-3 Sultan varieties.

Research work was carried out to determine the mechanical properties of yarns and the test results are presented in Table 2.4.

2.4- table

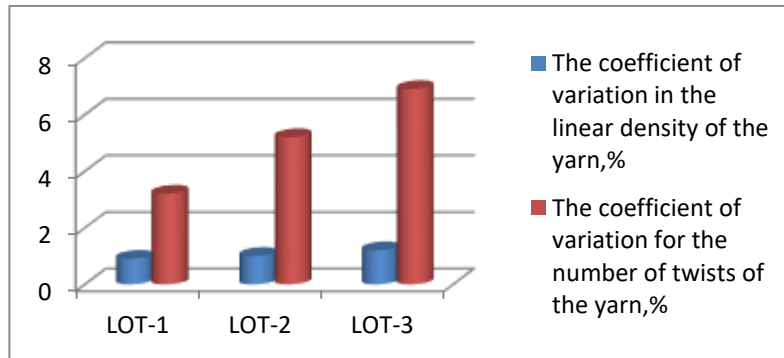
**Fiber mixture on the physical and mechanical properties of yarns
effect of composition**

№	Indicators	A mixture of fibers of different composition, %		
		LOT-1	LOT-2	LOT-3
1	The actual linear density of the yarn, tex	21,7	21,7	21,7
2	The coefficient of variation in the linear density of the yarn,%	0,9	1	1,2
3	The number of twists of the yarn, b/m	900	900	900
4	The coefficient of variation for the number of twists of the yarn,%	3.2	5,2	6,9
5	Tensile strength of yarn, sN	380,60	377,86	365,95
6	Coefficient of variation in the tensile strength of the yarn,%	6,87	7,95	7,99
7	Elongation of yarn at break, %	6,0	5,56	5,72
8	Coefficient of variation in elongation at break, %	6,30	8,24	7,44
9	The relative tensile strength of the yarn, sN/tex	16,8	15,7	14,5
10	Coefficient of variation in relative breaking strength, %	4,87	5,45	7,29

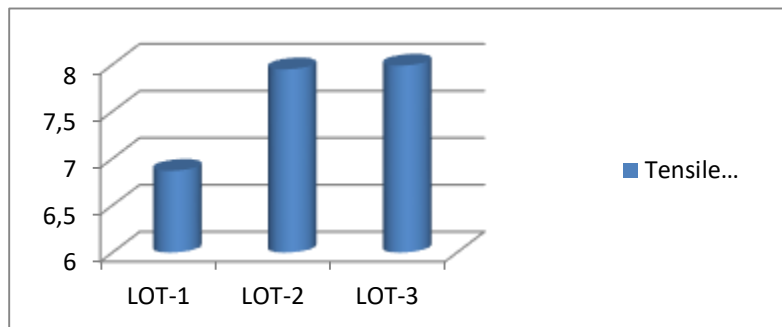
Based on the results of the research, Figures 2.8 - 2.12 show the coefficient of variation in linear density of yarns with different fiber content, coefficient of variation in the number of twists, breaking strength, variation coefficient in breaking strength, elongation at break, elongation at break the coefficient of variation, specific breaking strength and the variation graphs of the coefficient of variation according to the specific breaking strength are presented.

If we compare the results of the effect of the composition of the fiber mixture on the physical and mechanical properties of the yarns with the parameters of the yarns obtained from the LOT-1 mixture, the coefficient of variation in the linear density of the yarn obtained from the LOT-2 mixture is from 1.2% to 0.9%, the twists of the yarn the coefficient of variation for the number decreased from 5.2% to 3.2%, yarn breaking strength increased from 365.95 sN to 380.60 sN, yarn breaking strength coefficient of variation decreased from 7.95% to 6.87%, yarn elongation at break increased from 5.56% to 6.0% increased, the coefficient of variation of yarn elongation at break decreased from 8.24% to 6.30%, the specific tensile strength of yarn increased from 15.7 sN/tex to 16.8 sN/tex, the coefficient of variation for specific breaking strength decreased from 5.45% to 4.87%. Compared to the performance of the yarn obtained from the LOT-3 mixture, the coefficient of variation in the linear density of the yarn

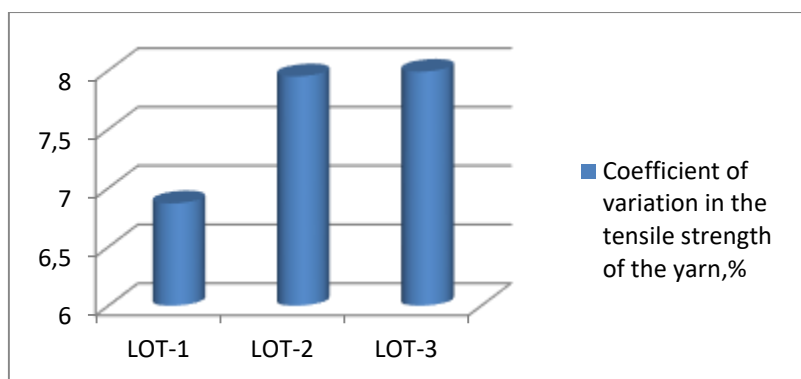
decreased from 1.2% to 0.9%, and the coefficient of variation in the number of twists of the yarn decreased from 6.9% to 3.2% , the yarn breaking strength increased from 377.86 sN to 380.60 sN, the variation coefficient of the yarn breaking strength decreased from 7.99% to 6.87%, yarn elongation at break increased from 5.72% to 6.0%, yarn elongation at break coefficient decreased from 7.44% to 6.30%, yarn specific tensile strength from 14.5 sN/tex to 16.8 sN/ tex, the coefficient of variation of the specific tensile strength decreased from 7.29% to 4.87%.



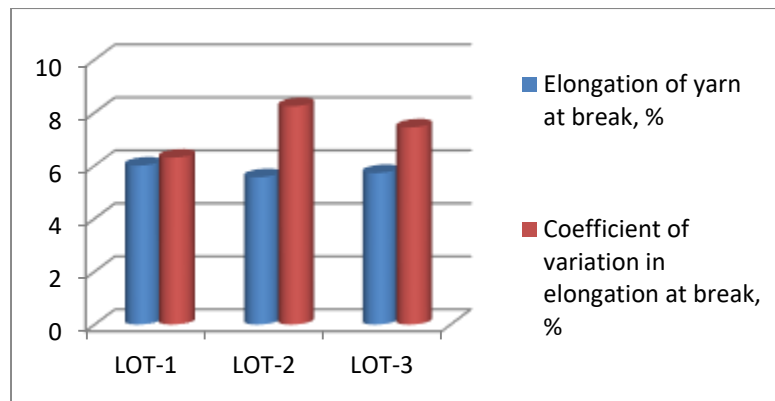
2.8- picture. Linear density and twists of yarns with different fiber content change of the coefficient of variation by number



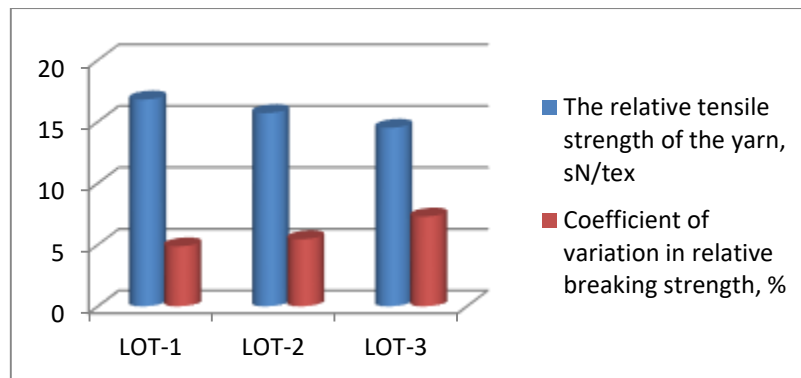
2.9- picture. Change in breaking strength of yarns with different fiber content



2.10- picture. Tensile strength of yarns with different fiber composition change of the coefficient of variation



2.11- picture. Elongation at break of yarns with different fiber composition and the coefficient of variation for the elongation at break of the yarn



2.12- picture. Variation of the specific tensile strength and specific tensile strength of yarns with different fiber content

The physico-mechanical properties of spun yarns are intrinsically dependent on the quality of raw materials, that is, the higher the quality of the fibers, the more quality products can be produced from them [14,15]. Including, the strength of fibers is considered one of the main properties of yarn. This property of fibers is important in spinning. In addition, the more the fibers are stretched, the higher their strength is [16,17] and it gives the opportunity to obtain more durable yarns.

Conclusion. Scientific and practical studies have shown us that the quality indicators of yarns obtained from LOT-1 mixture are higher than the indicators of yarns obtained from other mixtures.

At this point, we must say that the production of sewing yarns from the yarns obtained from the LOT-1 mixture offered by us gives good results.

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DEVELOPMENT OF A SOFTWARE STREAM ENCRYPTION ALGORITHM

Khudoykulov Zarif
Department of Cryptology,
Tashkent University of
Information Technologies named
after Muhammad al-Khorazmi,
associate professor, Ph.D

Rahmatullaev Ilhom Raxmatullaevich
Senior teacher of the Samarkand
branch of the Tashkent University
of Information Technologies named
after Muhammad Al-Khorazmi
Ilhom9001@mail.com

Annotatsiya. Mazkur ishda massiv baytlarini aralashtirishga asoslangan dasturiy amalga oshirish qulay bo‘lgan oqimli shifrlash algoritmi taklif qilingan. Taklif qilingan algoritmi NIST statistik testlari yordamida tasodifiylik bo‘yicha baholash natijalari olingan. Generatsiya qilish tezligi bo‘yicha olingan natijalar parametrlari solishtirilgan.

Kalit so‘zlar: RC4, VMPC, SPRITZ, ISAAC, NIST, PRNG, RC4A, SSL, WEP, ORACLE, SALSA, ChaCha

Аннотация В данной работе предлагается простой в реализации алгоритм потокового шифрования, основанный на перетасовке байтов массива. Предложенный алгоритм оценен по результатам статистических испытаний NIST. Полученные результаты сопоставлены с параметрами скорости генераций.

Ключевые слова: RC4, VMPC, SPRITZ, ISAAC, NIST, PRNG, RC4A, SSL, WEP, ORACLE, SALSA, ChaCha.

Abstract. In this work, an easy-to-implement stream encryption algorithm based on shuffling array bytes is proposed. The results of the evaluation of the proposed algorithm by NIST statistical tests were obtained. The parameters of the results obtained by the speed of generation are compared.

Keywords: RC4, VMPC, SPRITZ, ISAAC, NIST, PRNG, RC4A, SSL, WEP, ORACLE, SALSA, ChaCha

Introduction. R. Rivest created the stream-oriented, byte-oriented RC4 encryption in 1987. This algorithm was originally treated as a trade secret and kept confidential, but seven years later, it was distributed anonymously and uploaded online [1]. Since that time, the encryption has undergone extensive research and is frequently employed (SSL/TLS, WEP, Oracle, etc.). Every component of the cipher is simply explained, and the author's main point is crystal evident in RC4. The cipher gained popularity and is still the most commonly used streaming cipher as a result of its straightforward design, effective software, and hardware.

Advantages of the algorithm:



- ◆ A sufficiently large size of the internal state (8-bit shift table S and two 8-bit counters Q1 and Q2 ($8 \times 256 + 16$ bits));
- ◆ Immediate functions used to update the internal state and get the output value;
- ◆ Usability (coverage) limit: the algorithm works well not only for $n=8$, but also for any $n > 2$ bit length;
- ◆ A key consisting of any number of n -bit elements can be of any length up to $2n$;
- ◆ a universal self-sufficient algorithm for generating a substitution table;
- ◆ During the operation of the crypto-algorithm, the state of the cipher changes: in $2n$ steps, the replacement table is guaranteed to change completely.

The evolution of new kinds of attacks and the identification of fresh vulnerabilities are two factors that cause crypto-algorithms to become less secure over time, as demonstrated by the history of cryptography development. It is also known that the RC4 algorithm application can fail, for instance, when the WEP protocol is used [2]. Both the S-box generation method and the pseudo-random number generation (PRN) function have been shown to have statistical flaws over time. The following are the algorithm's primary found flaws[3]:

- The S-box initialization algorithm allows in some cases to recover the key from the cipher state;
- Key dependence of the initial values in the S-box substitution table;
- key collision occurs: different keys transfer the cipher to the same state;
- in some cases the current state of the cipher can be determined by the output pseudo-random sequence;
- The first bytes of the key stream from the pseudo-random number generator (PRNG) output are not always random, and as a result, these bytes may allow guesses to be made about the key being used. As a result, a long-term key can be determined by analyzing a large number of messages encrypted with that key.

Although RC4 can still be used despite the discovered vulnerabilities, new, more reliable alternative algorithms are inevitably being sought after to substitute it due to the increased awareness of the discovered vulnerabilities.

Main part

Up to this point, better iterations of the RC4 algorithm have been put forth, including RC4A, RC4+, VMPC, and SPRITZ.

A substitution table (s box) is originally generated in the RC4 algorithm and some of its improved variants using a secret key.

The RC4 algorithm and some of its improved variants were used for this procedure with the following substitutions.:

```
for (int i = 0; i < 256; i++)
{
    s[i] = (byte)i;
    k[i] = key[i % key.GetLength(0)];
}
j = 0;
for (int i = 0; i < 256; i++)
```




```

    {
    j = (j + s[i] + k[i]) & 255;
    temp = s[i];
    s[i] = s[j];
    s[j] = temp;
    }

```

Then, using this table, the output bytes are formed and the cipher state is changed. Table 1 below shows how RC4's modification options above are used in this process.

Table 1

The process of forming the Output Byte and changing the cipher state of RC4 and its enhancements

Algorithm	Iteration	Output byte formation and cipher state change
RC4	$i:=i+1$	$j:=(j+S[i])$
RC4A	$i:=i+1$	$j1:=j1+S1[i]$ $j2:=j2+S2[i]$
RC4+	$i:=i+1$	$a:=S[i]$ $j:=j+a$
VMPC	$i:=i+1$	$a:=S[i]$ $j:=S[j+a]$
SPRITZ	$i:=i+w$	$j:=k+S[j+S[i]]$ $k:=k+i+S[j]$

A software stream encryption algorithm that satisfies the demands of speed, tolerance, and pseudo-randomness was created after analysis of the aforementioned and other algorithms.

The program was created using a systematic-theoretical methodology. The algorithm's foundation is a one-dimensional array with 256-byte components.

Input parameters::

- $k[]$ – one-dimensional key array with a minimum length of 16 bytes (128 bits).;
- $s[]$ – a 256-byte long one-dimensional array of one-byte elements;
- $m[]$ – plain text array.

Reflections used in the algorithm:

- \oplus – add by two modules;
- \Leftrightarrow – replace values;
- $\&$ – bitwise multiplication of elements;
- $\%$ – the act of taking a balance.

The sequence of steps of the algorithm:

1. There are 256 bytes in the $k[]$ collection. If the array's initial length, $k[]$, is less than 256 bytes, the first element is gradually subtracted from the overall length until it reaches 256 bytes.;

2. Numbers ranging from 0 to 255 are placed in the $s[]$ array components from index 0 to 255, respectively;

3. In the next step, the $s[]$ array is shuffled using the $k[]$ array:

Initial values

$r=0$;

$rr=0$;



The number c represents the length of the array $k[]$ before it is filled;
For all values of i between 0 and 255, the following steps are performed:

$$r = s[(r + s[i] + k[i \% c] + s[rr]) \& 255];$$

$$rr = s[(r + i + i) \& 255] \oplus rr;$$

$$s[i] \Leftrightarrow s[r]$$

4. $t=0$; For initial values $j=0$ and all values of i from 0 to L (the length of the L-plaintext array), the following steps are performed:

$$bayt = s[(bayt + s[(t + j) \& 255]) \& 255];$$

$$v[i] = s[(s[s[bayt]] + 1) \& 255];$$

$$j = v[i] \oplus j;$$

$$s[t] \Leftrightarrow s[bayt];$$

$$t = (t + 1) \& 255;$$

Results

The unpredictability of sequences produced by a random number generator or pseudo-random number generator must be verified. The development of new hardware- or software-based random number generators is presently underway. Without first analyzing the random numbers that result from them, it is not advised to use them in practice [1].

A random number generator serves as the foundation for continuous ciphers, so statistical testing techniques are frequently employed in practice. The following statistical test collections were frequently used in reality (Table 2) [2].

Table 2

A set of statistical tests and their properties

№	author	Name	Number of tests in the set
1.	Donald Knuth/ Stanford University	The Art Of Computer Programming Vol. 2 Seminumerical Algorithms	11
2.	George Marsaglia/Florida State University	DIEHARD	15
3.	Helen Gustafson, et. al./ Queensland University of Technology	Crypt-XS	6
5.	Pierre L'Ecuyer, Richard Simard/ Université de Montréal	TestU01's test batteries	SmallCrush (10) Crush (96) BigCrush (106)
6.	Andrew Rukhin, et. al./NIST ITL	NIST Statistical Test Suite	15

The NIST test suite was used to assess the sequences produced using the suggested algorithm.

The Computer Security and Statistical Engineering Divisions of the NIST Institute created the NIST Statistical Test Suite (NIST Statistical Test Suite). There are 15 statistical tests in this collection. Each test has a particular objective and provides an evaluation based on this objective. Additionally, random values of the necessary



length must be introduced into each test before it can be evaluated. There is a minimal length that must be met when entering random numbers for each test in NIST.

The primary vulnerability that NIST assesses, the target, the length of the minimal input value needed for testing, and the assessment outcomes of the aforementioned algorithm are all shown in Table 3 below.

Table
NIST statistical test suite and results

№	Name of statistical test	The goal	Minimum required length (bits)	The result
1.	Frequency test	Too many ones or zeros	100	984/1000
2.	Frequency Test within a Block	The number of ones or zeros in the blocks is large	100	993/1000
3.	Runs test	The total number of runs representing fast (slow) one-to-zero and vice-versa transitions in the bit sequence.	100	991/1000
4.	Longest Run of Ones in a Block test	The deviation of the long-term duration distribution	128	991/1000
5.	Binary Matrix Rank test	The deviation of the color distribution resulting from part repetitions from a suitable random sequence	38912	990/1000
6.	Discrete Fourier Transform	The repetition property in a sequence of bits	1000	988/1000
7.	Nonoverlapping Template Matching	How many uncut templates appear	10^6	992/1000
8.	Overlapping Template Matching	Let m-bit runs of ones occur	10^6	992/1000
9.	Maurers «Universal Statistical»	Compression	387840	1000/1000
10.	Linear Complexity	Deviation from a linear complexity distribution for a finite-length (partial) string.	10^6	983/1000
11.	Serial	that the distribution of words of length m bits is non-uniform. Similar to Approximate Entropy	128	991/1000
12.	Approximate Entropy	that the distribution of words of length m bits is non-uniform	100	994/1000
13.	Cumulative Sums	Too many ones or zeros at the beginning of the sequence	100	990/1000
14.	Random Excursions	The deviation of the distribution of the number of transitions to a single state in a random walk	10^6	117/117
15.	Random Excursions Variant	The deviation of the distribution of the total number of transitions from different states to a single state	10^6	117/117



Using specifically created software, the speed of continuous encryption algorithms was determined. The time required to encrypt 100,000,000 bytes of data was calculated in milliseconds for this reason (Table 4).

Table 4

Security and speed analysis of developed and existing algorithms

№	The name of the algorithm	Analysis result based on NIST Special test set (out of 15 tests)	Speed (Mbps)
1.	SalSa20	15	254.89
2.	XSalSa20	15	216.61
3.	ChaCha	15	227.36
4.	ISAAC	14	550.15
5.	RC4	15	395.02
6.	RC4+	15	302.45
7.	VMPC	15	305.61
8.	SPRITZ	15	281.36
9.	HC128	12	229.51
10.	HC256	15	353.29
11.	AES CTR 128	13	131.08
12.	Key_New	15	322.5

Conclusion. The analysis's findings indicate that the Key_New proposed algorithm performed well in terms of speed and passed the randomness tests with flying colors. It is intended to compare this suggested algorithm to existing cryptanalysis techniques in future research. Additionally, novel stream encryption algorithms based on alternative methods are intended to be created.

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**A METHOD OF ORGANIZING PRACTICAL TRAINING IN SUBJECTS
RELATED TO PROGRAMMING LANGUAGES**

Mirsanov Uralboy Muhammadievich,
PhD, Associate Professor,
Navoi State Pedagogical Institute,
uralboynavoivy@mail.ru
Isroilov Nurshokhrukh Sunnat ugli,
Student of Navoi State Pedagogical Institute
nurshohruh@mail.ru

Annotasiya: Ushbu maqolada oliy ta'lim muassalarida dasturlash tillarining o'qitish holati va olimlarning tadqiqotlarining tahlili keltirilgan.. Dasturlash tillariiga oid fanlardan amaliy mashg'ulotlarni tashkil etish tuzilmasi keltirilgan. Taklif etilgan tuzilmani samaradorlik darajasini aniqlash bo'yicha tajriba-sinov ishlari olib borilgan hamda uning samaradorlik darajasi Styudent-Fisher kritepiyasidan foydalanib isbotlangan.

Key words: dasturlash, tuzilma, dasturiy vosita, web-kvest ta'lim texnologiyasi, tajriba-sinov, Styudent-Fisher.

Annotation: this article provides an analysis of the state of teaching programming languages in higher education institutions and the analysis of research by scientists. Experiments were conducted to determine the efficiency of the proposed structure, and its efficiency was proved using the Student-Fisher test.

Key words: programming, structure, software tool, web-quest educational technology, experiment-test, Student-Fisher .

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by scientists. Experiments were conducted to determine the efficiency of the proposed structure, and its efficiency was proved using the Student-Fisher test.

Key words: programming, structure, software tool, web-quest educational technology, experiment-test, Student-Fisher .

Introduction. In higher educational institutions, the practical training, together with the lectures on programming languages, is of great importance in fulfilling the function of connecting theory with practice. One of the main features of practical classes in programming languages, which differ from lectures, is visible in the efforts of the participants to achieve joint educational goals [1-4].

Practical training in programming language subjects is the connection of theoretical knowledge with practice and programming of mathematical problems, solving mathematical problems by numerical calculation, object management software is to develop tools and various applications [5-7]. Therefore, one of the important issues is to improve the form, methods and means of organizing practical classes on programming languages in higher education institutions.

Review literature. Researches on the methodology of teaching programming languages in higher education institutions, the development of thinking and competence of students regarding algorithms and programming MRFayziyeva, NAOtakhonov, VVKalitina, LAKugel, ADShemetova, V.YE. Jujjalov, RRIbrayev, RMMagamedov, USMunayev, FVShkarban, NVBujinskaya, Researched by such scientists as ISSpirin, ANPetrov, VVKalitina, YAKukushkina, A.YE. Kazakova, OPYurkovets, IVBajenova, Luís Filipe Leite Barbosa, Arturo Rojas López, Sónia Cristina Rolland de Lima Sobral, Amanda Jane Bird.

In the above-mentioned studies, there are studies on the theory and practice of improving the methodology of teaching programming languages in higher education institutions, the development of logical, algorithmic, creative thinking of students in programming, and the formation of competence, but practical training in programming languages in higher education institutions insufficient attention was paid to improving the form, methods and means of organization. Therefore, the research being promoted is important in training today's programmers.

Research Methodology. The concept of practical training is given a broad interpretation, that is, it means all trainings conducted under the guidance of a professor and aimed at deepening scientific and theoretical knowledge and mastering certain methods of work in a specific subject of the curriculum. . In this regard, according to MH Lutfillayev [8], AONorbekov [9], practical training is a method of reproductive education that ensures the connection between theory and practice, and students have lectures and independent work. application of the knowledge gained in the process helps to form skills and competencies. According to them, practical training provides the following:

- reveal the unity of theory and practice;
- systematization, strengthening and deepening of students' theoretical knowledge;
- finding optimal solutions by discussing controversial programming issues and teaching students to solve practical problems, performing calculations, graphics and other types of tasks by helping to improve skills and competencies;

- to ensure connection of the discussed material with future professional activities of students;
- formation of independent learning ability, mastering of self-development and control methods.

It is necessary to develop modern forms, methods and means of using practical training in the training of future specialists, including information technology specialists, with the help of these opportunities. With the help of practical training in computer science and information technologies, in particular, programming languages, it is possible to develop the competence of students to develop digital didactic resources and solve various problems in this field.

According to VVJuravlev, in each practical training, students are taught their subject, and their thinking is achieved [1]. Therefore, it is important for the professor-teacher to demonstrate his pedagogical talent, to effectively master the methods of the subject being studied, and to have professional competence in practical training.

Thus, on the basis of the above-mentioned points, it can be said that it is one of the important issues to pay special attention to practical training from subjects related to programming languages in higher education institutions. Therefore, within the framework of the study, a structure for organizing practical training in programming subjects was developed (see Figure 1).

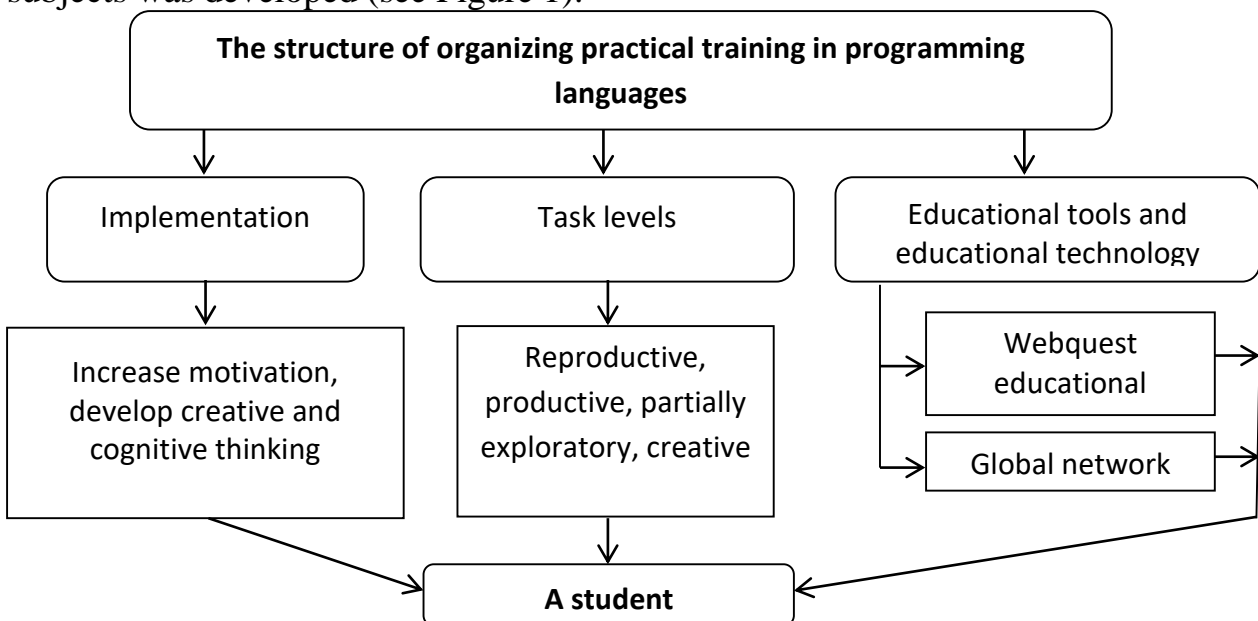


Figure 1. The structure of organizing practical training on programming languages.

In the framework of the recommendation, it is intended to increase students' motivation in the organization of practical training in subjects related to programming languages. Because in practical classes on programming languages in higher educational institutions, it is intended to teach students to prepare applications, practical programs, objects and data management systems aimed at solving various mathematical problems numerically. Such tasks require a lot of time and overcoming various mental challenges. Therefore, in order to teach programming to students, it is necessary to increase their motivation first. According to DASlinkina, teaching students to prepare various projects using programming languages is effective at first



to increase their motivation [10]. He said that by increasing the motivation of students for programming, they can be taught to prepare various practical projects. According to H. Heckhausen, "motivation is not the only process that penetrates the behavior uniformly from the beginning to the end. On the contrary, it consists of processes that perform the function of self-control at individual stages of behavior, primarily before and after the implementation of the action [11]. It can be said from the thoughts of this scientist that motivation determines how and in what direction different functional skills are used for programming. It also directs the preparation of various complex programs and forms the ability to perform the chosen action, to be intense and persistent in achieving its results.

Based on the mentioned points, we can say that it is necessary to increase students' motivation in developing their logical and algorithmic thinking about programming and forming their competence, as well as effectively organizing practical training.

At the same time, that is, while increasing the motivation of students for programming, special attention should be paid to the development of their creative thinking. By developing students' creative thinking about programming, it is possible to abandon various template solutions, solve practical problems and prepare visual projects independently.

According to Drapeau Pattini, on the basis of the concept of "creativity" the following are covered: putting forward a problem or scientific hypotheses; hypothesis testing and modification; identifying the problem based on the formation of decision results; sensitivity to the contradiction of knowledge and practical actions in finding a solution to a problem [12].

According to B. Lucas, E. Spencer, the educational process plays an important role in creative thinking. Creative thinking is an important skill that young people should acquire today [13].

Based on the above ideas, it can be said that programming creativity is the development of algorithms based on new, original ideas, creating program codes, designing various applications and object management systems based on non-standard ways of thinking.

Based on the above definitions of creative thinking, it can be said that when teaching students to prepare various practical projects with the help of programming languages, special attention should be paid to the development of their creative thinking.

It is important to develop the motivation and creative thinking of future professionals, as well as the development of their cognitive thinking in the preparation of mature personnel in the field of programming. Focusing on the basis of cognition, it is not limited to the theory of knowledge in philosophy. In today's era, cognitive is directly entering the field of information and communication technologies - robotics and artificial intelligence, defense and security - the application of cognitive technologies, medicine - pharmaceuticals, psychotherapy and neurovisualization, and several other fields. In our opinion, in the next 10-15 years, there will not be any aspect of cognitive technologies that has not been introduced. In this regard, according to T. Glushkova and O. Zaitseva, it is appropriate to use cognitive structures such as

stereotypes and frames in creating a media image of an object. To define the definition of a stereotype, it includes a stable, simplified, schematic understanding of something, an object, or in our case, an image of a country. A frame is made up of semantic relations that are connected to each other based on a specific meaning [1 4].

Therefore, it is necessary to develop the cognitive thinking of future informatics specialists in the field of information technologies, in order to prepare programmers in accordance with the requirements of the time and to solve the current problems in the field of information technologies.

Thus, it is necessary to improve the system of organizing practical training in the development of the above-mentioned qualities of students related to programming. In order to improve the system of organizing practical exercises related to programming, it is necessary to give a sequence of tasks, i.e. reproductive, productive, partial research and creative tasks. In order to increase students' motivation, we recommend independent performance of tasks at the reproductive level. In the development of creative thinking, it is appropriate to give practical and partially research questions. We recommend that students solve creative tasks through independent research without the support of professors and teachers. During the research, we were convinced that the use of web-quest educational technology would be effective in performing such tasks.

Analysis and results. In order to determine the level of effectiveness of the developed structure for the organization of practical training in subjects related to programming languages in higher education institutions, experimental work was carried out. Experimental work Students of Navoi State Pedagogical Institute "Informatics Teaching Methodology" and "Mathematics and Informatics" were involved, and they were divided into experimental (93) and control (92) groups. Practical training was organized for the experimental group using the structure developed within the framework of the research. The control group was not given this opportunity. The results of the students involved in this experiment were analyzed and mathematical-statistical analysis was performed based on the Student-Fisher criterion in order to check their reliability. When using this criterion, suitable mean values for samples $\bar{X} = \frac{1}{n} \sum_{i=1}^4 n_i X_i$, dispersion coefficients $D_n = \sum_{i=1}^4 \frac{n_i (x_i - \bar{X})^2}{n-1}$ formulas were used.

According to the calculation result, it was found that the average mastery rate of the experimental group was higher than that of the control group, that is, it increased by 10.6%.

Conclusion/Recommendations.

1. According to the research carried out in connection with the research, it was determined that it is necessary to improve the system of organizing practical training on programming languages in higher education institutions.

2. It is offered from the proposed structure during the research in the organization of practical training on programming languages in higher education institutions.



3. During the research, we were convinced that the use of web-quest educational technology is effective in organizing practical training on programming languages and teaching programming through independent study of students.

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METHODS OF CHECKING THE GIVEN LITERATURE ON THE INTELLECTUAL POTENTIAL OF SCHOOLCHILDREN

Madatov Khabibulla Akhmedovich

Doctor of Philosophy, Head of the Department of Information Technologies of Urganch State University

habi1972@mail.ru

Sattarova Sapura Beknazarovna

Urganch State University "Computer Linguistics" second-year master student

sprsattarova@gmail.com

Annotatsiya: Ta'lim tizimida maktab o'quvchilarining yoshiga va ilmiy salohiyatiga mos bo'lgan darslik va boshqa manbalarni tanlash bugungi kundagi dolzarb muammolardan biridir. Ushbu maqolada "School corpus"dan foydalangan holda, boshlang'ich sinflar misolida matnlarning leksik o'xshashlik darajasidan foydalanib, maktab o'quvchilari uchun tavsiya etiladigan o'quv materiallarining o'quvchining intellektual salohiyatiga mosligini aniqlash masalasi xususida so'z boradi. Albatta, qo'yilgan masalani yechishning har xil yondashuvlari mavjud. Maqolada masalani yechishning TF-IDF ga asoslangan metodi qaraladi. Bunda matnlarning TF-IDFi aniqlanadi, ular vektorli ko'rinishga o'tkaziladi va matnlar o'xshashligining kosinus o'xshashlik algoritmi yordamida berilgan o'quv materiali "School corpus"ning tegishli sinfi bilan solishtiriladi. Hisoblash natijalariga ko'ra berilgan o'quv materiali o'quvchining ilmiy salohiyatiga mos yoki mos emasligi aniqlanadi. Maqolada qaralayotgan masala boshlang'ich sinf o'quvchilari misolida to'la hal qilingan.

Kalit so'zlar: Ta'lim korpusi, darslik, leksik o'xshashlik, semantik o'xshashlik, kosinus o'xshashligi, atama chastotasi, teskari hujjat chastotasi

Аннотация: Выбор учебников и других ресурсов, соответствующих возрасту и научному потенциалу школьников в системе образования, является одной из самых актуальных проблем на сегодняшний день. В данной статье с помощью «Школьного корпуса», на уровне лексического сходства текстов на примере начальных классов, речь идет о проблеме определения совместимости рекомендуемых школьникам учебных материалов с интеллектуальным потенциалом учащегося. Конечно, есть разные подходы к решению проблемы. В статье рассматривается метод решения задачи на основе TF-IDF. При этом определяется TF-IDF текстов, они преобразуются в векторное представление и сравнивается соответствующий класс данного учебного материала «Школьный корпус» с использованием алгоритма косинусного сходства текстов. По результатам расчета определяется, подходит или не подходит данный учебный материал для учебного потенциала студента. рассматриваемый в статье вопрос в полной мере решен на примере учащихся начальных классов.

Ключевые слова: учебный корпус, учебник, лексическое сходство, семантическое сходство, косинусное сходство, частота термина, частота обратного документа.



Annotation: The choice of textbooks and other resources that correspond to the age and scientific potential of schoolchildren in the education system is one of the urgent issues today. In this article, with the help of the "School corpus", at the level of lexical similarity of texts on the example of primary school, we are talking about the problem of determining the compatibility of educational materials recommended for schoolchildren with the intellectual potential of the student. Of course, there are different approaches to solving the problem. The article highlights a method for solving the problem based on TF-IDF. Firstly, TF-IDF of texts is identified, then, they are converted into a vector representation, and the corresponding class of the given educational material "School corpus" is compared using the cosine text similarity algorithm. Based on the results of the calculation, it is determined whether the given educational material is suitable or not for the student's educational potential. The issue considered in the article is fully resolved on the example of primary school students.

Key words: educational corpus, textbook, lexical similarity, semantic similarity, cosine similarity, term frequency, inverse document frequency.

Introduction: Text similarity is one of the most advanced methods of text analysis in the field of NLP. Based on the sources studied so far, it is worth noting that the similarity of texts is used in a number of fields, such as information retrieval, text categorization, machine translation, and automatic essay evaluation. However, this article touches on about a new approach - providing schoolchildren with appropriate educational resources using the similarity of texts. The educational materials recommended for the use of students during the course of the lesson or outside of the lesson - their compatibility with their intellectual potential is one of the main criteria for the quality education of schoolchildren. This method, recommended by the author to improve the quality of education, is based on the "School corpus", which consists of a corpus of words that every student should know. This is the cosine of the similarity of the texts, which is suitable or not suitable for the student to master the stories, poems or other types of educational materials written by local or foreign writers, which are recommended to be employed in the educational process with the help of "School corpus". the issue of identification based on the similarity method is considered. Textbooks largely determine not only what topics and ideas are taught in the classroom but also the way they are presented to students (Stern and Roseman 2004, p. 539). Thus textbooks affect learning and teaching in many different ways. [1]. The textbook is just one of the tools that help teachers attain their educational goals. Teachers use teaching aids autonomously and plan individually when and how they will use them. In addition, teachers no longer have to follow the guidelines of one textbook, as several different textbooks are available for individual subjects. Teachers can choose the one that best suits both their teaching style and the specific characteristics of their students (Justin et al., 2003). Since the textbook is an important element of the teaching-learning process, the textbook politics must become part of the educational politics and receive more professional attention as well as a greater deal of systematic discussion (Turk Škraba, 2006). Learning from a textbook can only be efficient if it is adapted for students and vice versa, as this is the only way students are able to learn how to use effective learning strategies. Authors can adapt textbooks [2] to match the students' needs if they consider both the students' developmental stage as well as the level of



comprehension.

Similarity between words, sentences, paragraphs and documents is an important component in various tasks such as information retrieval, document clustering, word-sense disambiguation, automatic essay scoring, short answer grading, machine translation and text summarization. Text similarity means user's query text is matched with the document text and on the basis on this matching user retrieves the most relevant documents. Text similarity also plays an important role in the categorization of text as well as document. We can measure the similarity between sentences, words, paragraphs and documents to classify them in an efficient way. [3]

In Lexical similarity [4] provides the similarity on the basis of character and statement matching. Lexical similarity is a measure of the degree to which word set of two given string are similar. A Lexical similarity of 1 (means 100%) would mean a total overlap between words, Whereas Lexical similarity of 0 means there are no common word in given string.

Cosine similarity [5] measures the similarity between two vectors of an inner product space. It is measured by the cosine of the angle between two vectors and determines whether two vectors are pointing in roughly the same direction. It is often used to measure document similarity in text analysis. A document [6] can be represented by thousands of attributes, each recording the frequency of a particular word (such as a keyword) or phrase in the document. Thus, each document is an object represented by what is called *a* term-frequency vector.

Literature review: Uzbek researchers are conducting a number of scientific researches on text processing in the field of NLP. Because the creation of modern applications related to natural language processing, conducting scientific research will undoubtedly be an important factor in the development of any low-resource language. In today's era of rapid development of computer technologies and the Internet, any user is faced with relevant text processes such as searching for textual information, categorizing them, comparing and processing texts. One of the biggest challenges, especially when working with a large number of documents, is finding information that matches your interest. This problem can be easily solved by methods of determining the similarity of texts. Until now, many approaches have been developed by researchers to determine the similarity of words and texts.

The authors of the article [5] developed an algorithm for determining the similarity of cosines based on TF-IDF for texts in the Uzbek language. Removing stop words during text analysis reduces the size of the text and makes it easier to process the text [7] - the source lists stop words in the Uzbek language, [8] the article covers the issue of automatic detection of stop words in Uzbek texts. The article [9] presents a method for evaluating the quality of the list of stop words automatically determined from Uzbek texts. Also, in [10] stop words were identified using unigram, bigram and combination methods of "School Corpus" corresponding to the type of languages being studied. Semantic relationships between words are one of the key concepts in assessing natural language processing. In this paper [11], the authors present the SimRelUz-set dataset for evaluating the semantic model of the Uzbek language. One of the most common methods of processing textual data is TF-IDF. Google's search engine has been using the TF-IDF method to rank content relevant to user queries for many years.



This article [12] examines the process of sorting documents in the Uzbek language corpus in terms of using the TF-IDF method. Paper [13] defines different types of similarity like lexical similarity, semantic similarity. The article also effectively classifies the measurement of text similarity between sentences, words, paragraphs, and documents. Based on this classification, we can obtain the best relevant document that matches the user's request. Paper [14] presents a text semantic similarity measurement method, a corpus-based measure of word semantic similarity, and a normalized and modified version of the longest common subsequence (LCS) string matching algorithm. Existing methods for computing text similarity mainly focus on large documents or individual words. In this paper [15], research has been carried out on methods such as similarity calculation between Turkish text documents, plagiarism detection and author detection, text classification and clustering. In document analysis, an important task is to automatically find keywords which best describe the subject of the document. One of the most widely used techniques for keyword detection is a technique based on the term frequency-inverse document frequency (TF-IDF) heuristic. This techniques has some explanations, but these explanations are somewhat too complex to be fully convincing. In this paper [16], authors provide a simple probabilistic explanation for the TF-IDF heuristic. In [17], the authors defined a novel method for the vector representations of short texts. The method uses word embeddings and learns how to weigh each embedding based on its IDF value. The proposed method works with texts of a predefined length but can be extended to any length. The authors demonstrated showed that their method outperforms other baseline methods that aggregate word embeddings for modeling short texts.

In this article, using the "School Corpus", we provide information on the issue of determining the suitability of recommended educational materials for schoolchildren to the intellectual potential of students based on the lexical similarity of texts. The paper considers a problem solving method based on TF-IDF. The TF-IDFs of the texts are determined, they are converted into a vector, and the given educational material is compared with the corresponding class of the "School Corpus" using the cosine similarity algorithm of the text similarity. According to the calculation results, it is determined whether the given educational material corresponds to the student's scientific potential or not.

Research methodology: In this section, we describe the methodology adopted in the paper based on TF-IDF and cosine similarity of corpus-based texts.

Text Similarity: The main objective of text similarity is to analyze and measure how close two entities of text are to each other. These entities of text can be simple tokens or terms like words or whole documents, which may include sentences or paragraphs of text. There are various ways to analyze text similarity and we can classify the intent of text similarity broadly into the following two areas.

Lexical similarity: This involves observing the contents of the text documents with regards to its syntax, structure, and content and measuring their similarity based on these parameters.

Semantic similarity: This involves determining the semantics, meaning, and context of the documents and then determining how close they are to each other. Dependency grammars and entity recognition are handy tools that can help in this.



Term similarity: Similarity between individual tokens or words

Document similarity: Similarity between entire text documents [18]

Term Frequency – Inverse Document Frequency

Initially, we describe the concepts of TF and IDF [19]. Term Frequency - Inverse Document Frequency (TF-IDF) is one of the statistical methods widely used in natural language processing and data mining. Within a document is a measure of how important a term is relative to the entire document. Words in a text document are converted to significant figures through a text vectorization process. Among the various text vectorization methods, TF-IDF is one of the most common.

Term Frequency: The TF of a term or word is a quantity that represents the number of occurrences of a term in a document relative to the total number of words in the document. [19]

$$TF = \frac{\text{number of times the term appears in the document}}{\text{total number of terms in the document}}$$

Inverse document frequency: A quantity that reflects the proportion of documents containing the term's term's IDF in the corpus. Words that are specific to a subset of documents will have a higher value than words that are common to all documents. [19]

$$IDF = \log\left(\frac{\text{number of the documents in the corpus}}{\text{number of documents in the corpus contain the term}}\right)$$

The TF-IDF of a term is calculated by multiplying TF and IDF scores.

$$TF-IDF = TF * IDF$$

There are different approaches to calculating the IDF score. The base 10 logarithms are often used in calculations. However, some libraries use the natural logarithm. It can also be added to the denominator to avoid division by zero [19]

$$IDF = \log\left(\frac{\text{number of the documents in the corpus}}{\text{number of documents in the corpus contain the term} + 1}\right)$$

Cosine Similarity – is a metric used to measure the similarity of two vectors. Specifically, it measures the similarity in the direction or orientation of the vectors ignoring differences in their magnitude or scale. Both vectors need to be part of the same inner product space, meaning they must produce a scalar through inner product multiplication. The similarity of two vectors is measured by the cosine of the angle between them.

How to calculate Cosine Similarity: We define cosine similarity mathematically [19] as the dot product of the vectors divided by their magnitude. For example, if we have two vectors, A and B, the similarity between them is calculated as:

Where

• θ is the angle between the vectors,

• $A \cdot B$ is the dot product between A and B

$$\text{similarity}(A, B) = \cos(\theta) = \frac{A \cdot B}{\|A\| \|B\|}$$

angle between

dot product

between A and B calculated as:

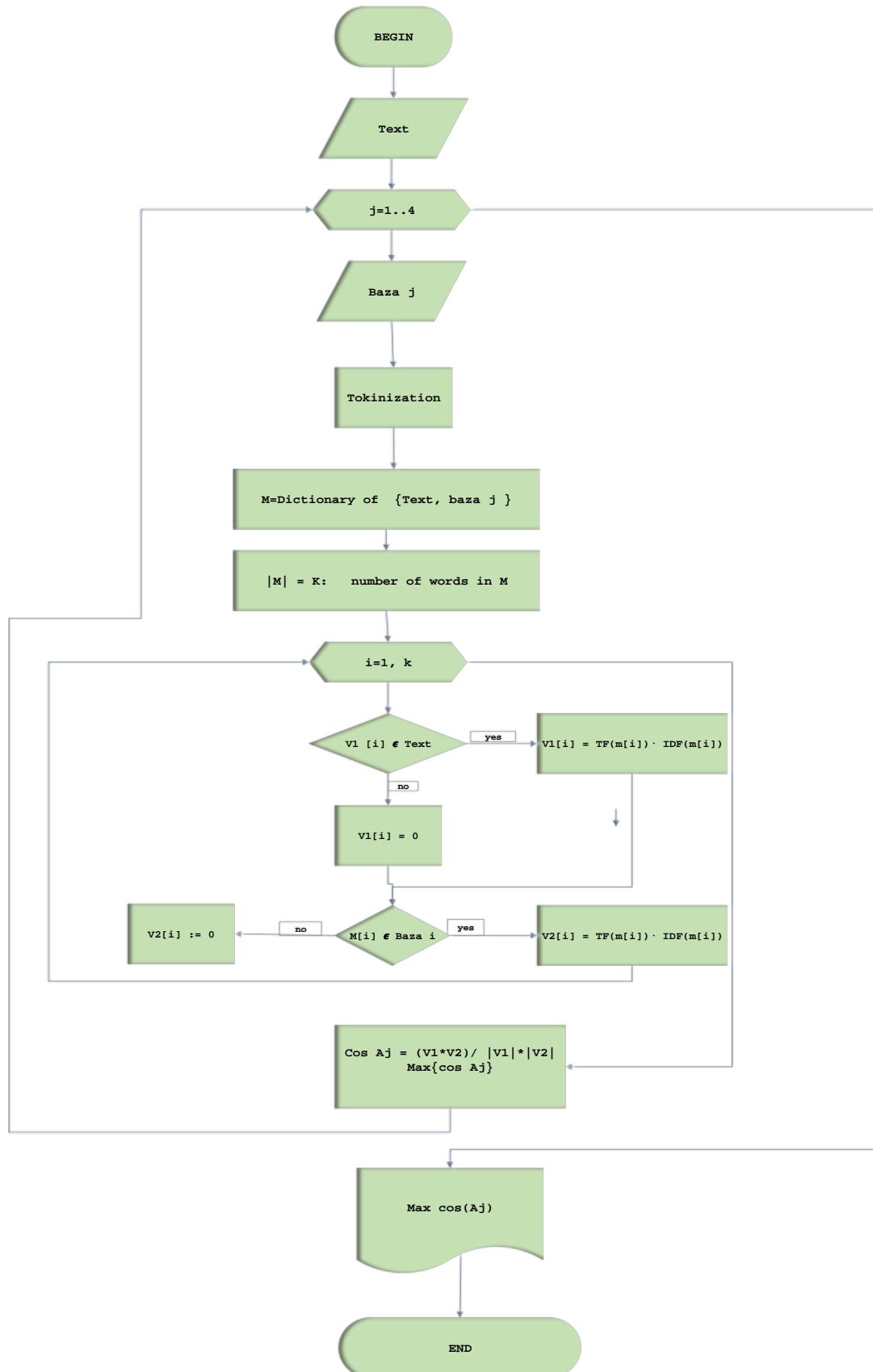


Figure 1: A detection algorithm using cosine similarity to determine the suitability of recommended educational materials for the schoolchildren to the intellectual potential of students using the "School Corpus".

- $A \cdot B = A^T B = \sum_{i=1}^n A_i B_i = A_1 B_1 + A_2 B_2 + \dots + A_n B_n$
- $\|A\|$ represents the L2 norm or magnitude of the vector which is calculated as $\|A\| = \sqrt{A_1^2 + A_2^2 + \dots + A_n^2}$
- The similarity can take values between 0 and +1. Smaller angles between vectors produce larger cosine values, indicating greater cosine similarity. For example:
 - When two vectors have the same orientation, the angle between them is 0, and the cosine similarity is 1.
 - Perpendicular vectors have a 90-degree angle between them and a cosine similarity of 0.

Analysis and results: Initially, 9 textbooks of the 1st, 2nd and 3rd grades, as well as 8 of the 4th, were downloaded from <https://kitob.uz/>. These books were then converted from pdf to txt format and tokenized. As a result, the School Corpus was created as part of the following numbers. Class 1 corpus has 24107 tokens, 7978 unique words, class 2 has 56650 tokens, 14858 unique words, class 3 has 90255 tokens, 21124 unique words, and class 4 corpus has 109024 tokens and 24736 unique words. The total number of unique primary school words was 42797.

Table 1: List of sources that we investigated in this article

(This table lists the elementary school bases as well as one text from each one, and children’s literature texts from the Internet)

№	FILE NAME	SOURCE NAME
1	corpus_1.txt	Total textbooks for 1st grade
2	corpus_2.txt	Total textbooks for 2nd grade
3	corpus_3.txt	Total textbooks for 3rd grade
4	corpus_4.txt	Total textbooks for 4th grade
5	1_qor.txt	1 st grade
6	Toshkent.txt	2 nd grade
7	hikoya.txt	3 rd grade
8	kichik_vatan	4 th grade text
9	ayiq.txt	https://gulxan.uz/ertaklar/ayiqpolvonning-xatosi
10	gulxan.txt	https://gulxan.uz/hikoyalar/aybsiz-aybdor
11	vatan.txt	https://hozir.org/ozbekiston-vatanim-mening.html
12	sariq_dev.txt	X.To’xtaboyev:” Sariq devni minib” asari

Table 2: File comparison: (In the process of defining file similarities, after comparing the text from the corresponding stage of the school bases with it, their cosine similarity was equal to 1, and in the other cases, the result was $0 < \cos A < 1$)

Results of applying cosine similarity to Uzbek texts



No	Files	corpus_1.txt	corpus_2.txt	corpus_3.txt	corpus_4.txt
	corpus_1.txt	1	0.866	0.864	0.851
	corpus_2.txt	0.866	1	0.953	0.928
	corpus_3.txt	0.864	0.953	1	0.967
	corpus_4.txt	0.851	0.928	0.967	1
	1_qor.txt	1	0.187	0.183	0.189
	Toshkent.txt	0.387	1	0.414	0.443
	hikoya.txt	0.266	0.236	1	0.244
	kichik_vatan.txt	0.408	0.412	0.428	1
	ayiq.txt	0.245	0.295	0.288	0.296
0	gulxan.txt	0.304	0.285	0.289	0.293
1	vatan.txt	0.625	0.617	0.673	0.712
2	sariq_dev.txt	0.35	0.335	0.322	0.329

According to the final results, the cosine similarity algorithm of the Uzbek language texts in accordance with the sources listed in Table1 was achieved using the Python programming language, and the results listed in Table2 were obtained. We can witness that the cosine similarity between the base and its derived text is 1, otherwise cosine similarity results $0 < \cos A < 1$. The essence of our article is that we have determined the cosine similarity of the educational material that is recommended to the schoolchildren using the algorithm shown in Figure1. Based on the result of the maximum cosine similarity, we can conclude which class the given educational material corresponds to.

Conclusion. As we all know, the 2023 was named "The year of human care and quality education". Providing educational materials suitable for the intellectual potential of primary school students is an important factor in improving the quality of education. In this regard, the creation of similarity algorithms of texts and textbooks in the Uzbek language is an important process. Because of this article we have achieved this attainments:

1. We presented the first "School Corpus" dataset with more than 109 024 tokens based on elementary school textbooks.
2. In addition, a TF-IDF-based cosine similarity algorithm was developed for Uzbek language texts, and it was tested based on the elementary school corpus, and the final



results were obtained based on the Python programming language.

3. Using the cosine similarity algorithm for determining the similarity of texts presented in the article, it is recommended to determine the similarity of not only school educational materials, but also literary genres of any kind.

In the future, researchers plan to apply other similarity algorithms, including neural network methods, to texts in the Uzbek language. Moreover, the researchers aim to expand additional datasets from different fields. Besides that, researchers will develop more sophisticated NLP similarity algorithms and tools for the Uzbek language.

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CREATION OF FABRICS AND PRODUCTS OF FUNCTIONAL PURPOSE FROM LOCAL BASALT FIBER

Matchonova Nargiz Nortoevna

Senior teacher of the Department

“Processing of textile products” of the

Jizzakh Polytechnic Institute

matchanova_n@mail.ru

Abbazov Ilkhom Zapirovich

docent of the Department

“Processing of natural fibers and fabrics”

of the Jizzakh Polytechnic Institute

abbasovilkhom@gmail.com

Annotatsiya. Ushbu maqolada qo'shimcha qiymat yaratishga yo'nalgan noan'anaviy materiallar, funksional maqsadli mato va ularni yaralashlari bazalt xom ashyosi bilan bog'liq holda to'qilgan.

Bazalt mato va erkinlar yukori mustahkamlikka yonmaydi, olovbardosh, +980 0S gacha o'zlitligini saqlaydigan, elektromagnit nurlanishga, namlikka, tuzatishga chidamli, kimyoviy ishga hamda elektroizolyasion to'g'ri keladi. Yuqorida keltiriladigan narsalarga bazaltdan foydalanishga oid amaliy materiallarga, yordamga va qo'shishga qiymat yaratishga yo'naltirilgan innovatsion kompozitsion materiallar, funktsiyaga mos keladigan vaziyatlarni ishga tushirishga bag'ishlangan.

Kalit so'zlar: bazalt, bazalt tolasi, roving, shnur, o'rganilgan armaturali roving, trikotaj, eng, kompozit.

Аннотация. В данной статье интерпретируются возможности создания нетрадиционных материалов, тканей функционального назначения и изделий, направленных на создание добавленной стоимости, применительно к базальтовому сырью.

Базальтовые ткани и изделия отличаются высокой прочностью, негорючесть и огнестойки, сохраняют целостность до +980 °С, устойчивы к электромагнитному излучению, влаге, коррозии, устойчивы к химическому



воздействию, характеризуются электроизоляционными свойствами. Статья посвящена исследованию использования базальта, локализации и созданию инновационных материалов с добавленной стоимостью, перспективам создания функциональных продуктов.

Ключевые слова: базальт, базальтовое волокно, ровинг, шнур, крученный армированный ровинг, трикотаж, рукав, композит.

Abstract. There are described the possibilities of creating unconventional materials, targeted functional paintings, and value-added products through the use of basalt raw materials in this article.

Basalt fabrics and products are highly durable, non-combustible and fire-resistant, retain their integrity up to +980 0C, are resistant to electromagnetic radiation, moisture, corrosion, chemical attack, and are characterized by electrical insulating properties. Focused on the research, localization and added value of basalt with the above properties, it is dedicated to the prospects for creating innovative composite materials, functional products.

Keywords: basalt, basalt fiber, roving, cord, braided roving, knitted, sleeve, composite.

Introduction. In the Decrees of the President of the Republic of Uzbekistan dated February 20, 2019 "On measures for the fundamental improvement and integrated development of the building materials industry" [1] No. PQ-4198, on July 6, 2022 "On organizational measures to implement the innovative development strategy of the Republic of Uzbekistan in 2022-2026" [2] No. PQ-307 special attention is paid to the further development of production, an increase in the types of modern building materials based on local raw materials and secondary resources is provided.

"Given that the global textile market is expected to grow by 4.0% from 2022 to 2030 and reach \$1,420.3 billion by 2030, according to the Global Textile Market Size & Share Report, 2022-2030", the application of advanced technologies in this field [3] and ensures their implementation. In this regard, the use of basalt fibers in the textile industry, especially in the production of knitted products, is considered important.

Analysis of the literature on the subject. Today, one of the main reasons for the more serious attention paid to the chemical treatment of basalt fibers is to reduce the brittleness of these fibers, to obtain textile products from them, and to create composite materials for various purposes based on them.

The first attempts to produce basalt fiber from basalt rock were made in 1923 by Paul De in the United States and were further developed by researchers in Europe and the Soviet Union. The spread of basalt rocks occupies 44,5% of the territory of the CIS and is of great interest as a raw material.

Currently, the production and use of insulating products from local basalt is widely carried out in the world, including in our country. In this, basalt fiber is first produced, and insulation products are produced from glass wool obtained from it. Insulating products made from basalt rocks are important due to their high natural initial strength, resistance to the effects of aggressive environments, long service life, electrical insulation properties, and production from natural, environmentally friendly raw materials.

K.S.Makarevich studied the influence of individual minerals on the process of melting basalt rocks with the formation of fibers from them. It has been established that the silicates of basalt rocks, according to the stability of crystalline structures to intense mechanical stress, are arranged in the following order: hydrosilicates - framework aluminosilicates (plagioclases) - chain silicates (pyroxenes) - orthosilicates (forsterite). The low mechanical resistance of hydrosilicates is explained by the presence of large interplanar distances, which begin with the destruction of the structure. The greater stability of pyroxenes compared to plagioclases indicates that the chain framework is mechanically stronger than that of aluminosilicates [4].

V.P. Shevchenko in his work on the topic "Creation of technology for the production of basalt fibers based on raw minerals of the Republic of Uzbekistan" [5] showed that the concentration ranges based on basalt, limestone, phosphorus components obey the fundamental laws of the formation of complex ones - by the dissolution of eutectics in silicate systems, quantitative change in solids with the introduction of additives and found that there is a direct relationship between the viscosity of the solution. In addition, he substantiated the possibility of using the mineral raw materials of the Republic of Uzbekistan for the industrial production of high-quality basalt fiber.

A.A.Kurbanov's scientific research [6] is devoted to the study of the structural and material parameters of basalt rocks. In his scientific studies, he recommended the production of filter materials from basalt fibers. It is described that basalt fibers have high corrosion and chemical resistance, are resistant to aggressive environments, salts, acids, alkali solutions.

N. K. Romanychev studied in detail the parameters of continuous glass and basalt fibers. The strength of basalt fiber is several times higher than that of other similar fibers, that is, according to the existing dimensions of the diameter of elementary fibers: 5,0 μm - 215 kg/mm^2 ; 6,0 μm - 210 kg/mm^2 ; 8,0 μm - 208 kg/mm^2 ; 9,0 μm - 214 kg/mm^2 ; 11,0 μm - 205 kg/mm^2 . This aspect served as the basis for obtaining technical fabrics from basalt fibers. He also provided information on the creation of technological equipment designed for the production of technical fabrics [7].

At this point, we considered it appropriate to provide information about short fibers obtained by cutting basalt fiber, rope or other fibrous material pilik (roving) to a certain length. "Fibre" (eng. "fibre") - means pieces of fiber (Fig. 1). Fibers with their unique properties are widely used in various sectors, including industry, construction and road construction. For example, polypropylene, glass, and metal fibers are used in construction to increase concrete strength [8].



Figure 1. Basalt fibre

Theoretical research. He justified the possibility of using the mineral raw materials of the Republic of Uzbekistan for the industrial production of high-quality basalt fiber.

Based on regularities, the physicochemical properties of basalt samples from the “Osmonsoy” mine and changes in the chemical and mineralogical composition of the fibers are described. As a result of research, it was established [9] that silicon oxide contains 46-52%, compared with 43-50% (in other mines), magnesium oxide - 2.6%, compared with 10%; calcium oxide - 15%, compared to 3%; sodium oxide - 2.6% versus 3% and iron - 6.37% versus 9%.

The abundance of calcium, magnesium and iron oxides in the basalt mineral content led to a decrease in viscosity, but improved crystallization of liquid basalt, as a result of which rapid solidification of the casting was observed. During the research process of "Osmonsoy" basalts, when samples of basalts were studied through a number of analyses, the presence of the following chemical elements Zn, Cd, Ag, Bi, Ge, Sb, W, Sn, In, As and the absence of P in their composition and, in turn, Al, Fe, Mg, K, N, Ti and Si chemical elements were found to be bonded to oxygen.

Basalt fabric and products have high strength, are non-flammable and fire-resistant, maintain their integrity up to +980 °C, are resistant to electromagnetic radiation, moisture, corrosion, chemical (acidic, alkaline environment and salts) and have electrical insulating properties. Compared to fabrics and products made from fiberglass, their breaking strength index is 25% higher, the working temperature range is from -260 °C to +820 °C (maximum +980 °C).

As we mentioned above, the type of raw material, its composition determines the parameters and properties of the fiber. It defines the specific characteristics of woven, non-woven fabrics and products made from fibrous material. However, taking into account many aspects related to the structure and geometric dimensions of non-woven, woven or knitted fabrics, each of which requires the scientific approach of an expert in this field, when obtaining textile fabrics or finished products for a specific purpose.

Results and discussion. According to the information of the State Geological Committee of the Republic of Uzbekistan, the reserve of known basalt minerals in our country is estimated at 243 million m³ [10]

Today, depending on the intended use of basalt fiber, various polymer surfactants (VPS) are used. Yarn and spun yarns used in the textile industry are treated with VPS in the process of preparing fabric (textile, knitwear) for weaving [11-12].

The first prototypes of the Cord (Fig. 2, Fig. 3) were obtained in the laboratory of the Tashkent Institute of Textile and Light Industry using physico-chemically modified local basalt rovings at “Mega Invest Industrial” JV LLC. .



Figure 2. Cord view: *a* - cord from basalt and cotton thread;
b – basalt cord



Figure 3. Cord view with filler:
a – basalt cord; *b* – the base is polyester, the filler is basalt cord

It has been scientifically and practically proven that it is possible to obtain a variety of special import-substituting export cords from local basalt rovings prepared according to improved technology by treating with new surfactants [13-15].

Conclusion and Recommendations: In conclusion, it is necessary to thoroughly study the world experience, obtain basalt fiber, create functional purpose textile fabrics and products, produce functional composite materials and direct them to their intended use in cooperation with experts in related fields. Today, chemical treatment of basalt fiber, one of the main reasons why more serious attention is paid to its processing, is to reduce the brittleness of these fibers, obtain textile products from them, and create composite materials based on them for various purposes..

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**OFFICIAL ETIQUETTE AND SPEECH CULTURE DEVELOPMENT
TASKS OF LEADERS**

Arzimatova Inoyatxon Madimarovna
Associate Professor of Fergana State
University, Candidate of Philosophy
arizmatova@gmail.com

Annotatsiya: Maqolada boshqaruv tizimida faoliyat yurituvchi yetakchilar oldiga qo'yilgan vazifalar, notiqlik va zamonaviy targ'ibot, yetakchi faoliyati bilan bog'liq muloqot madaniyati, nutqda maqsadga erishish usullari, ularning yetakchilar faoliyatidagi o'rni va ahamiyati haqida so'z boradi.

Kalit so'zlar: yetakchilik, davlat va jamiyat taraqqiyoti, notiqlik nutqi, muloqot madaniyati, monolog, dialog, zamonaviy targ'ibot, targ'ibotni boshqarish tizimi, nutq san'ati, tinglash qobiliyati, suhbatdoshni xolis baholash, har qanday shaxs bilan munosabat o'rnatish qobiliyati.

Аннотация: В статье говорится о задачах, которые ставятся перед руководителями, работающими в системе управления, красноречии и современной проповеди, культуре общения, связанных с деятельностью руководителя, способах достижения целей в речи, их роли и значении в деятельности руководителей.

Ключевые слова: лидерство, развитие государства и общества, публичное выступление, культура общения, монолог, диалог, современная проповедь, система управления пропагандой, искусство речи, умение слушать, объективная оценка собеседника, умение устанавливать отношения с любым человеком.

Abstract: The article talks about the tasks set before the leaders working in the management system, eloquence and modern preaching, communication culture related to the leader's activity, methods of achieving goals in speech, and their role and importance in the activities of the leaders.

Key words: leadership, state and society development, public speaking, culture of communication, monologue, dialogue, modern preaching, propaganda management system, art of speaking, ability to listen, objective evaluation of interlocutor, ability to establish relationship with any person.

Introduction. Each stage of the development of the state and society imposes certain requirements on each leader operating in the management system. Failure to comply with these requirements will cause failure, ineffectiveness of the work being carried out towards the set goal. In the current conditions, for any manager working in the management system, whether he is a head of an enterprise, organization, team or a political figure, it is necessary to master the culture of communication with people, to be able to correctly explain the policy of the government of Uzbekistan to people through live speech, and to actively participate in the process of fundamental reforms being carried out in our country. and it is important to help them develop a deep understanding of their civic duties.



Oratory and modern preaching are based on live communication with people, and the leader is not only able to effectively organize work within his authority, but also to show the achievements of the reforms in independent Uzbekistan with the help of clear, bright facts and examples that are understandable to people, to correctly explain the government's policies, presidential decrees and government decisions. explanation, gives an opportunity to influence the mind and heart of the people. It is very important to openly talk about some shortcomings and difficulties in life, discuss ways to eliminate them, and start a dialogue with each person. Moreover, the attitude towards communication has changed dramatically in the current environment. In the conditions of Uzbekistan, which is on the way to build a legal democratic state and a civil society, an environment where everyone has the right to know the truth has been established. A system based on administrative command is being replaced by a democratic dialogue based on persuasion.

Analysis and results: Working communication is defined by the need for joint activity between people and is understood as the establishment and development of relations that involve information exchange, development of a unified strategy of cooperation, and understanding of other people. "The most important feature of business communication is that it is necessary to know how to establish relations with different categories of people in an effort to achieve the maximum efficiency of business relations" [1]. In this case, it is very important for a person to be able to attract people to himself and to convince them.

Communication culture related to the leader's activities means the following:

1. The art of speaking (including in public).
2. Ability to listen.
3. Skills of objective assessment and correct understanding of interlocutor (partner, other people, subordinates).
4. Being able to establish a relationship with any person and be able to effectively influence him on the basis of mutual interest.

A true culture of communication implies a high moral culture, that is, it is necessary to be able to see in another person not only a necessary person to achieve one's own goals, but also a complete person.

Speech culture - correct, beautiful and appropriate speech in accordance with the norms of the literary language; the sum of skills and competences to use the language appropriately [2].

E. According to Begmatov, ... speech culture is a method of creating information about existence and personality on the basis of speech communication, expressing and clearly conveying it through signs of the language system. Or language culture expresses the level of "civilized", literary, normalization of the language, the level of development of vocabulary, grammatical, semantic, stylistic aspects, the scope of potential expressive possibilities [3].

The leader and the person or audience with whom he communicates are inextricably linked and form a unique tandem in solving this or that issue. The importance and necessity of the leader's ability to establish communication, the ability to convince others is also determined by the complex ideological processes of our country and the whole world. The main condition for development is stability in the



country. The main factor of maintaining stability in the state and society is to protect people from ideological attacks organized by various groups, organizations and states. In the conditions of the struggle for the human mind and heart, every leader, regardless of whether he works in the state and society management system or manages any enterprise, is also charged with the task of arming our citizens with a true national idea that represents the true interests of our people. Therefore, for a modern leader, professional knowledge and management skills are lacking. He should know the specific laws and regulations of propaganda work, and be able to apply them in communication with people. On the contrary, a person who is unable to perform complex social tasks, such as changing people's minds and directing them towards higher goals, cannot hold a leadership position. The fate of the country and the people, the effect of the implemented reforms, first of all, depends on the level of the leading personnel, how well they can respond to the requirements of time and development. One of the most important requirements is mastering public speaking skills, being able to use the power of the living word.

A leader who has mastered the art of public speaking can use the power of words to become a true leader who can draw people to him. And this, as we said above, is not an easy task. The great Roman orator Cicero said: "Happiness is a quality that is not easily acquired and is born of much learning and work." These words never lose their relevance. Knowing the theory of public speaking, studying the psychology of people, constant practice of speaking and serious work on the word will give you the opportunity to influence people and attract their attention.

The most important feature for a speaker and the characteristic that shows his skill is the ability to communicate with the audience. Of course, the scientific-theoretical content of the speech and its focus on practical results are of primary importance. But if the speaker is not listening, if the audience is busy with their thoughts or work while the speech is being delivered, in other words, if the speech does not attract the attention of the audience, it will be completely ineffective.

Political figures who have a natural oratorical talent and who developed this talent through special education gained popularity among people and gained great political influence. Observing the activities of such political figures reveals that they follow a number of rules of public speaking as professional speakers. In particular, they talk to people about what they expect and want to hear, so they usually talk about different issues based on the mentality of the specific audience listening to them. This corresponds to the principle of the art of public speaking about the appropriateness of the speech. In fact, an orator's speech is not just a simple collection of information from various sources, but a unique work of art, the result of creative work. In it, the speaker chooses appropriate arguments, grounds, words and tone according to the situation, taking into account which people he is expressing his opinion in front of, under what conditions.

The leader's professional speech has characteristics that are formed as a result of striving for a number of internal psychological goals. A leader has a range of goals, just as a speaker sets goals that can be achieved through speech. The scope of goals means the result a person wants to achieve through speech, the things he feels the need



for, that is, the problems he has set before himself and wants to solve. To what extent he can solve this problem depends on his oratory skills.

The methods of achieving the goal in speech are divided into three large groups.

1. Imperative is a force-based method of speech influence. This method is the basis of authoritarian speech (command, intimidation, personal touch, etc.)
2. Persuasion is the basis of democratic speech, and through reasoning, it is possible to inculcate one's point of view and point of view into another person's mind (proving, explaining, guiding, etc.).
3. Stimulation is the basis of liberal speech and is related to the desire to receive information (debate, questioning, etc.).

In order to influence different aspects of the audience's mind, the direction of the speech can be focused on different aspects of increasing efficiency:

1. Arousing emotion.
2. Attracting attention.
3. Dissemination of knowledge.
4. Arousing desire.
5. Call to action.
6. Formation of skills.

In order to attract the attention of the audience, the speaker must have a number of other characteristics. In particular, deep ideological-theoretical preparation, compatibility of words with the issues being solved by our society is the key to the success of the speaker. The speaker is always in front of the audience, and his manner is of great importance in attracting the attention of the audience. Regardless of his mental state and forms, he should believe in his knowledge, concentrate on one point, and be calm.

There is nothing secondary in the speech of the speaker, in his behavior, in the way he communicates with the audience. In particular, the appearance of the speaker is of great importance and can form a positive or negative attitude in the audience towards him from the beginning, because a person evaluates another person primarily based on his appearance. The main criteria for the creation of a common state of mind between the speaker and the audience, which is one of the conditions for effective communication, are, firstly, that both parties are engaged in the same mental activity, that is, they are confused about the same problems, they discuss the same issues, and secondly, they have similar feelings. It is expressed in -yish. For this, the speaker should show sincere respect to the listeners and be able to speak with them equally.

It is known from history that teaching a child to speak and write correctly and clearly was the most important task of the teacher even in the first schools that were established five thousand years ago. In "Avesta", the sacred source of Zoroastrianism, it is said about an incompetent, bad teacher: "Truly, a bad teacher makes life sad, glorifies the ignorant, and deprives great women and men of the blessings of Yazdon." Such teachers, with their improper education, annoy the people in the best jobs, and with their wrong teachings, they lead the people away from the way of livelihood and start them on a bad path. They extinguish the light of life. Knowing the ignorant, the most respectable women turn men away from the path of God. With their ignorance, they turn the people away from their best qualities, they destroy the lives of the peoples



of the world with false words" [4]. In "Avesta" three important concepts are emphasized: good word, good thought, and good deed. After all, the transformation of good words into good thoughts, and they into good deeds, is important in public speaking. For example, the peculiarity of the oriental speech is determined by the fact that it goes back to the problems of speech and its manners.

The culture of public speaking is a very important factor in the activities of leading personnel. It is also an indicator of their moral and aesthetic culture. Speech culture is a complete and beautiful expression of thought. A thought that is not logically connected to each other will not be effective; it will not be deeply understood by a person. After all, the culture of speech is its correctness and compliance with the standards of the literary language. Important signs of speech culture. Not using words and expressions (slang, street sayings) that do not correspond to the standards of literary language is not only a sign of speech culture, but also a sign of moral culture.

Public speaking is the art of speaking beautifully and impressing the audience. But just being beautiful does not mean eloquence. Public speaking means conveying certain ideas and goals to people, orienting them to certain goals. The speaker's speech will be aimed at a wide audience. At the same time, attention is paid to the content, logical foundations, and content structure of the speech. Therefore, in order for the speech to be effective and meaningful, it should be rich in logically based, evidential facts and life examples.

Conclusion. Art plays an important role in the formation of speech culture and eloquence, namely fiction, theater, and cinema. It is necessary not to ignore the fact that their wide awareness of national values serves as an important means of education in civilizing the human personality. Because the basis of these art forms is the word. Speech plays a very important role in the life of society. It serves as a means of interpersonal communication and formation of opinions, expression of feelings and experiences in speech culture. In addition, the word, as the most lively system of expressing thoughts, has the ability to include the entire structure of human consciousness and experience.

In short, public speaking culture and high-level etiquette skills are effective in the professional activity of management personnel. It affects their work efficiency.

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**INFORMATION SECURITY OF SOCIETY AS A CURRENT PROBLEM
(BASED ON EXPERIMENTAL TEST RESULTS)**

Biyimbetov Jaksilik Kilishbayevich
Assistant teacher of the Department
of Social Sciences of Karakalpak
State University named after Berdak
Biyimbetov_j@gmail.com

Annotatsiya : Yangidan yangi texnologiyalarning ochilishi inson va jamiyatning axborot sohasida xavfsizligi muammosi ochilib berilgan. Axborot va axborot xavf-xatarsizligining ijtimoiy falsafiy tekshiruviga bo'yicha amalga oshirilgan tajriba sinov ishlari yuqori darajaga ko'tarilishi mumkin bo'lgan maqolada ko'rsatish. «Axborot va jamiyat axborot xavf-xatarsizligining ijtimoiy falsafiy tekshiruvi» sud ishi yuzasidan axborot xavfsiz muammolarimiz respublika mikyosida savolnoma asosida o'tkazilgan.

Kalit so'zlar: Axborot, axborot xavfsizligi, «kompyuterda», «flesh-disklar»da, «Google disk»da, «Ijtimoiy tarmoqlar, axborot xavfsizligi muammolari»

Аннотация: Открытие новых технологий обнажило проблему безопасности людей и общества в информационной сфере. Проведенная экспериментальная работа по социально-философскому анализу информации и информационной безопасности проведена на высоком уровне и проанализирована в статье. В рамках научно-исследовательской работы «Социально-философский анализ информационной безопасности информации и общества» было отмечено, что проблема информационной безопасности изучалась на основе анкетного опроса в масштабах нашей республики.

Ключевые слова: Информация, информационная безопасность, «на компьютере», «флешки», «Google Диск», «Социальные сети, проблема информационной безопасности».

Annotation:The discovery of new technologies has revealed the problem of human and society security in the field of information. The experimental work carried out on the socio-philosophical analysis of information and information security was carried out at a high level and analyzed in the article. Within the framework of the research work "Social Philosophical Analysis of Information Security of Information and Society", it was highlighted that the problem of information security was studied on the basis of a questionnaire on the scale of our republic.

Key words: Information, information security, "on the computer", "flash drives", "Google Drive", "Social networks, the problem of information security in order to strengthen it, it was held on the republican scale. In this, the results of scientific research on information and information security were widely used. The conducted experiment is aimed at determining the important place and role of information and information security in the life of people and society through testing.

Introduction. In today's developing era, we cannot imagine science and research without information and innovative technologies. These information and innovative technologies are gaining importance in the life of our society. The discovery of new



technologies creates the problem of security of people and society in the information field. This problem requires an approach from the point of view of their dialectical unity, taking it as a whole system. This requires the study of human and social views in society. In this case, polls play an important role in determining social views. Therefore, in researching the problems of the thesis, questionnaires were conducted in program form in the Republic of Karakalpakstan and Khorezm region to determine social opinions regarding information and information security. Pilot tests were conducted online in the Republic of Karakalpakstan, Tashkent city and all regions. This experimental test work was carried out on the national scale in order to strengthen scientific conclusions within the framework of information and information security. In this, the results of scientific research on information and information security were widely used. The conducted experiment is aimed at determining the important place and role of information and information security in the life of people and society through testing.

Literature Review. The experimental work on the socio-philosophical analysis of information and information security was carried out at a high level and the expected results were achieved. Through trial and error, we have gathered a wealth of information to help develop the necessary forward-looking plans for information and information security.

In the preparation of questionnaires on information and information security, a series of questions were created that would include current issues related to information and information security. In order to carry out questionnaires online, they were placed in the "google" database. The survey included a total of 2,601 respondents.

In the pilot test, a total of 4 questions were asked to collect information about the participants. Among them, depending on their age, from 12 to 71 years of age participated in the survey. Basically, the survey covered 85% of young people (under 30 years old).

The second short form of information in the survey is gender, which mainly means that 1476 out of 2601 respondents. 43% of the respondents who took part in the survey were men.

Survey respondents were asked what A total of 15 main (different forms) inquiries related to information and information security were selected. In the questionnaire, the questions are mainly based on the many situations that people and society encounter regarding information security. The analysis of participants' participation in surveys based on the principles of confidentiality was mentioned in the questionnaire to the participants as a final principle.

Research Methodology. When it comes to the main questions asked in our pilot study regarding information and information security needs, which is one of our main tasks, "where do you first look for information and from what sources do you get it?" Analyzing the answers to the question, 88.6% of the participants answered "from the Internet", and how do you rate the effectiveness of information protection in the state? 50% of the participants answered "good". This means that there are problems in the field of information security.

Next "What types of data storage do you use?" 38% of the respondents answered "on a computer", 29% on "flash drives", 20% on "Google Drive" and 13% on paper.



Based on these answers, we can see that the role of information and information technologies in the development of our country is increasing. Next "What do you most often use the Internet for?" 41% answered that it was for education, and another 41% answered that it was for following the news. Based on this, we can conclude that the role of Internet networks in changing people's world view is high.

Analyzes and Results. Among the questions of the test case, "Which social networks do you use?" 84% of the respondents chose the answer of using Telegram social network. Next "What do you think is the harm of social networks?" 47% of the respondents answered that they require a lot of time. Interestingly, 8% of participants answered that they did not know. This confirms the presence of information and information security problems in the social entity.

The next part of the survey is "Does social media play a big role in your life?" 44% of the respondents stated that social networks are necessary during their life and work. In addition to this, the eighth, that is, "What information about yourself do you post on social networks?" to the question, 42% of the participants answered that it is the minimum required information. If we analyze the answers to this question, it shows that there are doubts about the security of social networks.

The next "Are you going on a date with a virtual friend you met on the Internet?" 57% answered "no, I won't go at all", and 7% answered "yes, I will definitely go". It can be seen from these answers that nowadays social networks are gaining importance in the relations between people. Next, "Do you know how to protect yourself on social networks?" 41% of the participants answered "I know well". This answer shows that the issue of information security in our society requires further research. The reason is that there is a certain level of risk of people in society falling into information attacks. The reason is that in the period of new development, the President often emphasizes in his statements that our country is rapidly entering the age of information.

Among the questions of the practice test is "What do you often search on the Internet?" 45% answered that they look for educational materials, 21% for music and movies, 16% for fiction and educational literature, 11% for discoveries, and 7% for goods and services. It is worth noting that 45% of respondents chose the answer "to search for educational materials". The most priority area of development of the society is, of course, education. Therefore, the answer chosen by the respondents regarding the field of education is important in the development of the society. After that, "How much time do you spend on the Internet per day?" 44% of the participants answered that they would spend 3-4 hours. Among the answers to this question, we noticed that none of the 2,601 participants answered "I don't use the Internet." It can be concluded that in any country that chooses a path of development, the need for rapid communication and information exchange increases.

Next "Have you come across any questionable groups promoting radical acts, suicide, etc?" 96% of 2601 respondents answered "no" and 4% answered "yes". An important aspect of our interest in this question is that 4% of the respondents indicated that they have encountered such situations. So, to sum up, in the current globalization conditions, information threats cover the whole world and have an impact on people's daily activities. Therefore, prevention of information threats in such processes is considered an urgent problem today. After that, check the information obtained from



the Internet? 89.4% of respondents answered "I use only reliable sources". "What would you do if your data was stolen?" to the question, 31% chose the answer that they will contact the public service center. 28% of participants answered that I will ask my friends, relatives, and acquaintances for advice, 23% will turn to the court and law enforcement agencies, 10% will ignore it, and 8% will consult a lawyer. This indicates that people's knowledge and skills on information security and law are not high enough. Answered "no", 4% of respondents answered "yes". An important point that interested us in this question was that 4% of the respondents answered that they have encountered such situations. So, to sum up, in the conditions of the current globalization, information threats cover the whole world and have an impact on people's daily activities. Therefore, prevention of information threats in such processes is considered an urgent problem today. After that, check the information obtained from the Internet? 89.4% of respondents answered "I use only reliable sources". "What would you do if your data was stolen?" to the question, 31% chose the answer that they will contact the public service center. 28% of the participants answered that I will ask for advice from friends, relatives, acquaintances, 23% will turn to the court and law enforcement agencies, 10% will ignore it, 8% will consult a lawyer. This indicates that people's knowledge and skills on information security and law are not high enough.

Conclusion. Compiling questionnaires on information and information security issues in the pilot test method and statistically analyzing them through the answers of the participants has become somewhat complicated. The problem of information security was studied on the basis of a questionnaire within the framework of the research work on the topic "Social-philosophical analysis of information security of information and society". Participants in the experiment participated actively and with interest.

Based on the research, we offer the following recommendations:

- ☞ Implementation of moral activities related to information security in public relations related to information and information security.
- ☞ Regular imparting of information security knowledge on radio, television and social networks.
- ☞ Solving the problems of people who are exposed to information threats by starting a conversation with them.
- ☞ Considering the problem of information security as one of the priorities of youth policy.

Generally speaking, the problem of information security is considered one of the most important problems for our developing country, and its philosophical research is the demand of the time. Therefore, in this scientific work, the problem of information security was analyzed as an example of age, various social influences, social relations and risks in various information systems.

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ACTUAL PROBLEMS OF MATHEMATICS, PHYSICS AND MECHANICS

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IMPACT OF RADON ON THE HUMAN BODY AND HEALTH THREATS

Karataeva Saodat Bobirxonovna
Magistr of Department
"Electronics and automatics"
Tashkent State Technical University
said.@uzsci.net

Sardorkhon Avazkhonovich Saidkhanov
Junior Researcher at Physical-Technical Institute
of Uzbekistan Academy of Sciences
said.@uzsci.net

Rano Bobirxonovna Fozilova
Bachelor of Science of Geography Department
National University of Uzbekistan
named after M. Ulugbek
said.@uzsci.net

Annotatsiya: Radon tabiati, uning fizik-kimyoviy xususiyatlari to'g'risida ilmiy adabiyotlarda bayon etilgan ma'lumotlarining tahlili amalga oshirildi. Inson uchun radon xavfi tibbiyot nuqtai nazaridan tavsiflandi. Uning xavfini kamaytirish yo'llari sanab o'tildi. Shu bilan birga, ilmiy adabiyotlarda keltirilgan - radondan inson uchun foydali maqsadlarda foydalanish, xususan yer qimirlashini oldindan bashorat qilish, muta'dil dozada ishlatilganida insonni davolash uchun foydalanish yo'llari bayon etildi. Radonni aniqlash uchun yaratilgan zamonaviy qurilmalar tahlil qilinib, yangi avlod radonometrlarini yaratish zarurati haqida xulosa qilindi.

Kalit so'zlar: radon, radiofaollik, alfa-zarrachalar, yemirilish, yer tuprog'i, qurilish materiallari, nurlanish, dozimetr, qiz farzand mahsulotlari, o'pka raki, kanserogenlar.

Аннотация: Проведен анализ литературных данных о природе радона, о его физических и химических свойствах. Изложена опасность радона для человека с точки зрения медицины. Перечислены пути уменьшения его опасности. Вместе



с тем, приведены литературные данные в которых изложены возможности использования радона с пользой, а именно: в качестве предвестников землетрясения, для лечения человека - при использовании в умеренных дозах. Анализированы современные приборы для обнаружения радона, сделан вывод о необходимости создания радонометров нового поколения.

Ключевые слова: радон, радиоактивность, альфа-частицы, распад, земной грунт, строительные материалы, облучение, дозиметр, дочерные продукты, рак легких, канцерогены.

Annotation. The analysis of the literature data on the nature of Radon, about its physical and chemical properties is carried out. The danger of Radon is presented for a person from the point of view of medicine. The ways to reduce its danger are listed. At the same time, the literature data are presented in which the possibilities of using radon with benefit are outlined, namely: as precursors of an earthquake, for human treatment - when used in moderate doses. Modern radon detection devices are analyzed, and a conclusion is made about the need to create a new generation of radonometers.

Key words: radon, radioactivity, alpha particles, decay, earth soil, building materials, irradiation, dosimeter, daughter products, lung cancer, carcinogens.

Introduction. Radon is a natural gas, odorless and colorless. It is formed during the decay of uranium, which for natural reasons can be found in rocks, soil and water. Extremely dangerous if ingested by living organisms. It is impossible to detect it without special equipment, neither man nor animals are able to somehow feel it on their own.

Isotopes of radon, which are isolated from geological rocks, are variants of the existence of natural radon (atomic masses 222, 220, 219). Radon-222 carries the bulk of the radiation. In second place in importance is radon-220 (the historical name of Radon-220 is thoron, denoted by the symbol Tn [1,2]), but its contribution to radiation is only 5 percent.

For a correct understanding of the processes of radioactive decay of radon and the danger that it carries for the human body, we present the basic terminology and units of measurement.

1. The activity (A) of a radionuclide is measured in becquerels (Bq), 1 Bq corresponds to 1 disintegration per second. An off-system unit, the curie (Ci), is also used to denote high activity, 1 curie is equal to 37 billion becquerels.

2. Volumetric (specific) activity (VA) is the number of disintegrations per unit volume of a substance, for example, Bq / m³, Bq / l or Bq / kg (becquerel per cubic meter, becquerel per liter, becquerel per kilogram, respectively). Often, specific activity is related to area: Ci / km² - curie per square kilometer.

Physical and chemical properties of radon. Radon belongs to noble inert gases, like neon or argon, and almost does not react with other substances. Due to the fact that radon is 7.5 times heavier than air, it sinks into the lower layers of the atmosphere. For example, radon released from the ground accumulates in basements, and released from water in bathrooms settles on the bathroom floor. Radon released from the gas settles on the floor of the kitchen rooms.



Radon has no smell, has no color and taste, so it cannot be detected without special devices. However, under the influence of the energy of alpha particles, it emits a glow. initiates the fluorescence effect in him. At room temperatures, as well as in liquid form (minus 62 degrees Celsius), radon emits a blue glow. At temperatures below 71 degrees (in solid crystalline form), the color of the emitted light changes from yellow to orange-red.

Analysis of the literature on the subject.

What is the special danger of alpha particles from the point of view of medicine. Alpha particles formed during the decay of radon carry energy from 6 to 10 MeV. Despite the great energy, they can easily be delayed by a sheet of ordinary paper, or a person's clothes. However, when radon enters the respiratory tract, as well as the gastrointestinal tract, there is a great threat to human health.

According to the International Commission of the Commission for Radiation Safety and Control, a person receives 55% of ionizing radiation from radon (for comparison, we note that 11% of radiation a person receives from medical services, and 5% from cosmic rays) [3,4,5]. The daughter products of radon decay – lead, polonium and bismuth - are very dangerous for humans and can cause cancer.

Beta and gamma radiation have a greater penetrating power than alpha particles. On the one hand, the biological effect of alpha particles on the cellular tissues of the body has 20 times more destructive effects than beta particles or gamma radiation. The ingestion of radon isotopes and its daughter decay products into the human lungs leads to lung cancer, causes burns of areas in the lung tissue. In the list of causes of fatal cancer, radon is the sixth. Radon exposure is especially dangerous for smokers, when they act together, the risk of cancer increases dramatically. Radon is classified by the International Agency for Research on Cancer Diseases as a carcinogen of the first class of danger.

Research methodology.

Ways to reduce the risk of exposure to radon

Radon is unevenly distributed on the Earth's surface. The radon concentration also changes over time. All this makes it necessary to conduct periodic monitoring for radiation safety.

Let's first figure out which objects are the main sources of radon and its daughter products. As noted above, such sources can be:

- a) ground
- b) construction materials
- c) water, especially from deep-water artesian wells [6,7],
- d) natural combustible gas.

Knowing these sources of radon, it is possible to minimize the amount of radon entering a person's home. To do this, the following rules must be followed:

1. Careful selection of a site for the construction of a house, provide basements in houses, place living rooms on the upper floors, give preference to wood from building materials, as well as materials that have passed radon radiation control. Regularly ventilate the living rooms.

2. Do not drink raw water from deep-sea sources and should be boiled. To purify water, use carbon filters.



3. Be sure to ventilate the shower before using by other family members.
4. An exhaust ventilation system must be installed above the gas stove.

It is recommended to have an individual device with the help of which systematic monitoring of radon concentration is carried out in various rooms of the house in order to identify dangerous places.

At the same time, there is a useful possibility of using a detector-indicator of radioactive gas. All these measures will significantly reduce the dangerous effects of radon on the human body.

Analysis and results.

The effects of radon with moderate use

According to the authors of the work [8], with moderate use of radon baths, drinking springs, mud therapy, allows to successfully treat patients with inflammatory, dystrophic and functional diseases.

Radon baths give an excellent therapeutic effect in ischemic heart disease and hypertension, rheumatoid arthritis and deforming arthrosis, ankylosing spondylitis and intervertebral osteochondrosis.

These processes themselves and the mechanisms of inflammation development in various organs are determined by the organ-specific properties of various tissues that make up this or that organ. However, long-term observations and special studies show that any natural or transformed physical factor should be used in dosages corresponding to the functional state of the patient's body, otherwise an exacerbation of the disease may occur.

It is important to know how various factors will act in various diseases, otherwise it is possible to cause an exacerbation of the process in patients and worsen their health. Moreover, ignorance of the essence of the action of natural factors in these cases can be disastrous, since mineral waters or therapeutic mud, sunbathing or intense motor activity with their incorrect appointment can, for example, in patients with rheumocarditis cause an exacerbation of the process and lead to serious consequences or in patients with latent tuberculosis of the bone, joint cause disseminated (widespread) tuberculosis and cause a tragic outcome.

With short-term effects of radon, for example, when systematically taking radon baths in a sanatorium, when dipping into a font at a radon spring or bathing in a radon lake, a person has an adaptive reaction to the intake of radon through the respiratory organs and through the skin. Such a reaction of the body to the effects of radon leads to an improvement in microcirculation (improvement of local blood supply to organs and tissues). Also, the effect of alpha radiation of radon and its daughter products on melanocytes (skin pigment cells) leads to the oxidation of the amino acid tyrosine and the formation of biologically active substances (dopamines), which increase the production of adrenaline, which increases the level of metabolism in the body, increases resistance to stress. Such a biological effect of radon exposure makes it possible to widely use short-term, but intense exposure to radon for therapeutic purposes. Similar physiological processes occur in the human body during the first years of life in conditions of increased radon concentration in the room (exceeding the maximum permissible concentration from 2 to 5 times). Although, as noted above, radon is chemically inert, its ionized daughter decay products (polonium, bismuth and



lead radionuclides) are sorbed by dust and moisture, forming α -radioactive aerosol particles ranging in size from 10 to 400 nanometers, which are able to penetrate deeply into the respiratory tract and settle in them. Also special immune cells (Langerhans) they are capable of transferring radioactive microparticles to regional lymph nodes, which causes the possible localization of tumors in lymph nodes. Studies have shown that smokers living in radon-hazardous areas have a 10-fold higher concentration of polonium isotopes in their lungs than non-smokers living in the same places. This is explained, among other things, by the fact that cigarette smoke (aerosol of soot microparticles) is an excellent carrier for polonium isotopes into human lungs - especially with deep puffs when smoking. Also, at the burning temperature of tobacco, polonium isotopes (both contained in tobacco and in the radon-containing atmosphere) become volatile, and are much easier to inhale by humans and penetrate faster and deeper into the respiratory system. Gorenje The isotopes of polonium ^{218}Po and ^{214}Po , whose half-life is three minutes and one tenth of a second, respectively, decay in the lumen of the bronchi with the release of alpha rays and gamma quanta. Damage to the cells of the pulmonary epithelium from the radioactive decay of polonium isotopes, apparently, is a leading factor in the development of central lung cancer.

The effects of radon during its prolonged exposure. As the period of residence in an atmosphere with a high concentration of radon increases and overexposure of the body to radon and its daughter decay products occurs, a cumulative effect occurs, leading to an adaptation overstrain of the body, which is characterized by a persistent increase in the erythrocyte sedimentation rate (ESR), increased platelet aggregation and the formation of capillary thromboembolism. These maladaptive consequences of overexposure lead to a deterioration in the blood supply to the organs and tissues of the body. Serious violations of the mechanisms of protective adaptation of the organism to overexposure occur only after ten or more years of living in conditions of excess radon concentration in the premises. The nature of violations depends on the concentration of radon, the accompanying environmental aggravating factors in the room (for example, the presence of asbestos, aerosol pollution of the atmosphere by cigarette or stove smoke, dust), the age of the person, his social status and lifestyle, health status, and, to a large extent, on whether a person smokes or not.

The general result of long-term maladaptation is the weakening of the immune system responsible for the destruction of atypical cells that constantly appear in the body. Under the influence of carcinogenic physical factors (radioactive radiation from the decay of radon and its daughter products), the DNA of the nucleus of bronchial epithelium cells (basal or secretory cells) is damaged. When DNA is damaged, a change in the cell genome occurs and, as a result, a change in its structural features that differ from the norm. This is the first "hidden" stage in the development of lung cancer - the formation of an atypical (cancer) cell that is not recognized by a weakened immune system and is not destroyed.

At the second stage of lung cancer development, with constant contact of lung epithelial cells with carcinogenic radon and its decay products, additional gene changes occur in such a surviving atypical cell, which lead to the multiplication of cancer cells and the formation of a tumor node (tumor).



At the third stage, various pathological processes characteristic of malignant growth (cell atypia, active growth, spread of metastases, etc.) increase. The maximum doses of ionizing radiation during the decay of the daughter products of radon degradation fall on the epithelium of segmental bronchi, which corresponds to the predominant localization of developing cancers. Among the types of lung cancer caused by radon exposure, adenocarcinoma, squamous carcinoma, and lymph node sarcoma are diagnosed more often than others. With prolonged exposure to radon, tumors in other organs are at least an order of magnitude less likely than lung cancer.

The 2010 ICRP Publication 115. Lung cancer risk from radon and progeny and statement on radon [Ann. ICRP 40(1), 2010] gives a detailed overview and analysis of the epidemiology of radon-related diseases (lung cancer) based on studies conducted in North America, Europe and China from 1946 to the second half of the 2000s. Analysis of the presented data allowed the International Agency for Research on Cancer to draw the following conclusions in 2010:

1. Through the study of the incidence of miners and people permanently living in houses with high concentrations of radon in the atmosphere, there is convincing evidence that radon and its progeny decay products can cause lung cancer. Currently, there is no evidence that radon exposure can cause tumors in other organs and leukemia.

2. Three long-term surveys of people permanently living in homes with high concentrations of radon in the atmosphere conducted in Europe, North America and China led to similar results and showed that the risk of lung cancer increases by at least 8% with an increase in radon concentration in the atmosphere. room for every 100 Bq/m³.

3. After taking into account the corrections for random uncertainties in the concentration of radon activity during measurements taken during a survey in Europe of people permanently residing in homes with high concentrations of radon in the atmosphere, the calculation of the relative risk of lung cancer incidence showed an increase in the probability of occurrence of the disease by 16% (from 5% to 32%) with an increase in the concentration of radon in the room for every 100 Bq/m³. The values obtained can be considered as a reasonable estimate when controlling risks from radon exposure at relatively low radon concentrations and long periods of exposure, taking into account that this risk is associated with human exposure to radon for at least 25 years.

4. There is evidence from the European Study (Darby et al., 2005) that there is a risk of developing lung cancer with long-term residential radon exposure even at levels below 200 Bq/m³.

5. The cumulative risk of developing lung cancer at age 75 is estimated for never-smokers at 0.4%, 0.5%, and 0.7% for radon concentrations of 0, 100, and 400 Bq/m³, respectively. The cumulative risk of developing lung cancer at age 75 has been estimated for lifelong smokers at 10%, 12%, and 16% for radon concentrations of 0, 100, and 400 Bq/m³ (Darby et al., 2005, 2006). Smoking remains the most important cause of lung cancer.



6. Studies of the risk of developing lung cancer in miners and people who permanently live in homes with high concentrations of radon show good agreement between the results.

7. Studies of the risk of lung cancer in miners, including miners exposed to low doses of radon, have shown at least a two-fold increase in risk compared to data previously published in Publication 65 (ICRP, 1993).

The report of the British Health Agency "Radon and public health" [HPA, 2009] states that it is quite clear that the health risk from exposure to radon arises even at indoor radon concentrations even below the UK allowable 200 Bq/m³. The average risk of lung cancer from exposure to radon is 16%. According to the HPA, there is no proven evidence that the risk of developing lung cancer depends on the sex, age of a person, whether he smokes or not, or has smoked in the past. However, at typical indoor radon concentrations of 21 Bq/m³, smoking increases the likelihood of death from lung cancer at the turn of 75 years to 15% for smokers [9,10]. For non-smokers, the chance of dying from lung cancer at age 75 is 0.4%. At indoor radon concentrations of 200 Bq/m³, the risk of death is 19% and 0.5%, respectively. About 40% of non-smokers who die of lung cancer are former smokers.

The foregoing shows that there is a need to create a reliable device for determining the concentration of radon with sufficient accuracy for practice, which allows continuous monitoring and is equipped with an actuator for supplying a light-acoustic signal when the radon concentration rises above a given concentration; having the ability to automatically turn on the forced ventilation system and turn it off when the radon concentration reaches a safe level.

Conclusion. Based on the foregoing, there is a need to develop a radonometer for continuous (express) monitoring of radon in atmospheric air, water, soil and material with the above capabilities for monitoring and recording changes in radon concentration over time.

Professional and household radon detectors

Radon and its decay products are considered dangerous alpha emitters, so almost all household dosimeters will not be able to detect radon. You can use dosimeters with multi-sensitive mica sensors that have the ability to evaluate alpha radiation (for example, RadiaScan-701A or MKS-01SA1B with a Beta-1-1 sensor on board). At the same time, it is important to understand that such dosimeters will help to detect only the very fact of the presence of radon, but the assessment of its amount in the room will be very, very approximate. Such dosimeters do not allow to calculate the concentration of radon in the examined room.

For the most adequate assessment of the radon content in the premises, professional devices, radon concentration meters, are used. Many of them are arranged in approximately the same way: the devices contain devices for sampling the studied air and dosimetric means for monitoring EEVA. The air containing radionuclides is pumped through the collecting filter for a long time (from several hours to several days), then the volumetric alpha activity of the accumulated portion is determined. Professional devices of this type include RGA-04 (integral radon radiometer), RRA-01M-01 (radon radiometer), RAA-10 (aerosol radiometer), KAMERA (measuring complex for monitoring radon) and others. These devices are quite bulky, weighing up



to 6 kg or more. Some of them have wide functionality. The basic relative error of EEVA measurement is 15-30 percent, depending on the range and mode of operation.

The Institute of Physics and Technology has developed the RR-4M Radonometer, designed to measure the volumetric activity of radon and thoron. This device can be widely used in health care, environmental protection, mining metallurgy and nuclear power plants. The main technical and metrological characteristics are given in the table.

No	Characteristics	Measurement limit
1	Measurement of radon volumetric activity	From 1 - to 2.0x10 ⁴ Bq/m ³
2	Interval of measured energy	4-6 MeV
3	Measurement errors	± 30%

Table. Main technical and metrological characteristics of the RR-4M radonometer.

This radonometer was issued by the National Institute of Metrology of Uzbekistan "Certificate of metrological certification of measuring instruments No. 05.37450-2021".

By order of large consumers, the Institute annually manufactures and puts into operation about ten RR-4M radonometers.

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ACTUAL PROBLEMS OF NATURAL SCIENCES

UDC: 914/919

UNIQUE TERRITORIAL FEATURES OF KHOREZM REGION'S URBANIZATION PROCESSES

Avezov Sattarbergan Atabaevich,
dosent, Urgench state university
avezovsattarbergan@gmail.com

Gulimmatov Ikrom Bakhtiyarovich,
teacher, Urgench state university
ikromgulimmatov@gmail.com

Normetov Suhrob Muhiddin oqli,
master's student,
Urgench state university
normetovsuhrob@gmail.com

Annotatsiya. Ushbu ilmiy tadqiqotda Jahon miqyosida va O'zbekistonda urbanizatsiya jarayonlari dinamikasi statistik manbalar asosida o'rganildi. Xorazm viloyatida urbanizatsiya jarayonlari rivojlanishining hududiy jihatlari statistik ma'lumotlar asosida tizimli tahlil, qiyoslash, kartografik metodlardan foydalangan holda tahlil qilingan. Urbanizatsiya darajasining dinamik o'zgarishlari va unga ta'sir qiluvchi omillar atroflicha o'rganilgan. Xorazm viloyati urbanizatsiya jarayonlari hududiy jihatlari kartografik metodlarda tahlil qilish hisoblanadi.

Kalit so'zlar: Urbanizatsiya, shahar, shaharcha, qishloq, infrastruktura, turizm, aglomeratsiya, sanoat, sanoat markazi, statistik tahlil, kartografik metod.

Аннотация. В данном научном исследовании динамика процессов урбанизации в мировом масштабе и в Узбекистане изучалась на основе статистических источников. Территориальные аспекты развития процессов урбанизации в Хорезмской области проанализированы на основе статистических данных с использованием системного анализа, сопоставления и картографических методов. Подробно изучены динамические изменения уровня урбанизации и факторы, влияющие на нее. С использованием картографических методов анализируются территориальные аспекты процессов урбанизации Хорезмской области.

Ключевые слова: Урбанизация, город, поселок, деревня, инфраструктура, туризм, агломерация, промышленность, промышленный центр, статистический анализ, картографический метод

Abstract. In this scientific study, the dynamics of urbanization processes on a global scale and in Uzbekistan was studied based on statistical sources. Territorial aspects of the development of urbanization processes in Khorezm region were analyzed on the basis of statistical data using systematic analysis, comparison, and cartographic methods. Dynamic changes in the level of urbanization and the factors affecting it have been thoroughly studied. The territorial aspects of Khorezm region urbanization processes are analyzed using cartographic methods.



Key words: urbanization, city, town, village, infrastructure, tourism, agglomeration, industry, industrial center, statistical analysis, cartographic method.

Introduction. According to the analysis of historical sources, the first cities in the world began to form in the Neolithic period with the development of agricultural culture. The first “static cities” were established in the Nile Valley and later in the Indo-Ganges Valley and on the shores of the Mediterranean Sea. Later, the development of cities served as a unique stage in the formation of the initial political structures of city-states (polis)⁷.

The population of cities in the world continues to grow continuously. In particular, it was 14 percent in 1900, 29 percent in 1950, 47 percent in 2000, 51 percent in 2008, and 57 percent in 2022. It can be said that the 1000th anniversary of the city began in 2008. Of course, the urbanization process does not happen all at once and consists of several stages. Initially, in developing countries, the number of urban residents increases rapidly, and false urbanizations occur. This caused the emergence of various sectors in the city. With the development of infrastructure and transport, cities expanded first territorially, then economically and socially, and small cities can merge to form agglomerations. The general indicator of urbanization determines the level of development of the country's economy and, in turn, expresses the nature of the relationship between them. For example, if the level of urbanization is approximately 70-75 percent or more, then the country can be considered as a highly developed industrial country; 50-70 percent industrial-agrarian; 30-50 percent is a developing agrarian-industrial country, and below 30 percent is considered a poorly developed agrarian country. Today, the continents of America with the highest level of urbanization in the world are 83 percent and Europe is 78 percent. Countries such as Qatar, Monaco, Singapore, Gibraltar, Bermuda, Kuwait can be called special “city states”. As a result of the implementation of open economic reforms in these countries, service provision (tourism, banking services, transport-logistics, IT), regions specialized in the most developed industries were formed. In countries such as Papua New Guinea, Burundi, Malawi, and Samoa, the level of urbanization is 10-20 percent⁸, which indicates that they have a predominantly agrarian economy.

From a socio-geographic point of view, the city can be understood as a kind of “demographic cauldron” where very complex social and demographic processes take place. The environment, as a social organism, has a significant impact on the demographic behavior of people and their social stratification. It not only creates favorable conditions for the flourishing of human personality, but also causes the phenomena of social pathology. Centers of high culture and crime dens operate simultaneously in the city. It is not for nothing that cities are called special “engine of development”. In addition, cities are a unique system, and B. Berry suggests considering cities as an ecosystem that allows effective study of environmental problems of the modern world.[2]

Uzbekistan, located on the Asian continent, has an urbanization level of 50.5 percent, which is included among the average urbanized countries. The level of

⁷<https://www.britannica.com/summary/city#:~:text=The%20first%20cities%20appeared%20during,and%20the%20Wei%20River%20valley.>

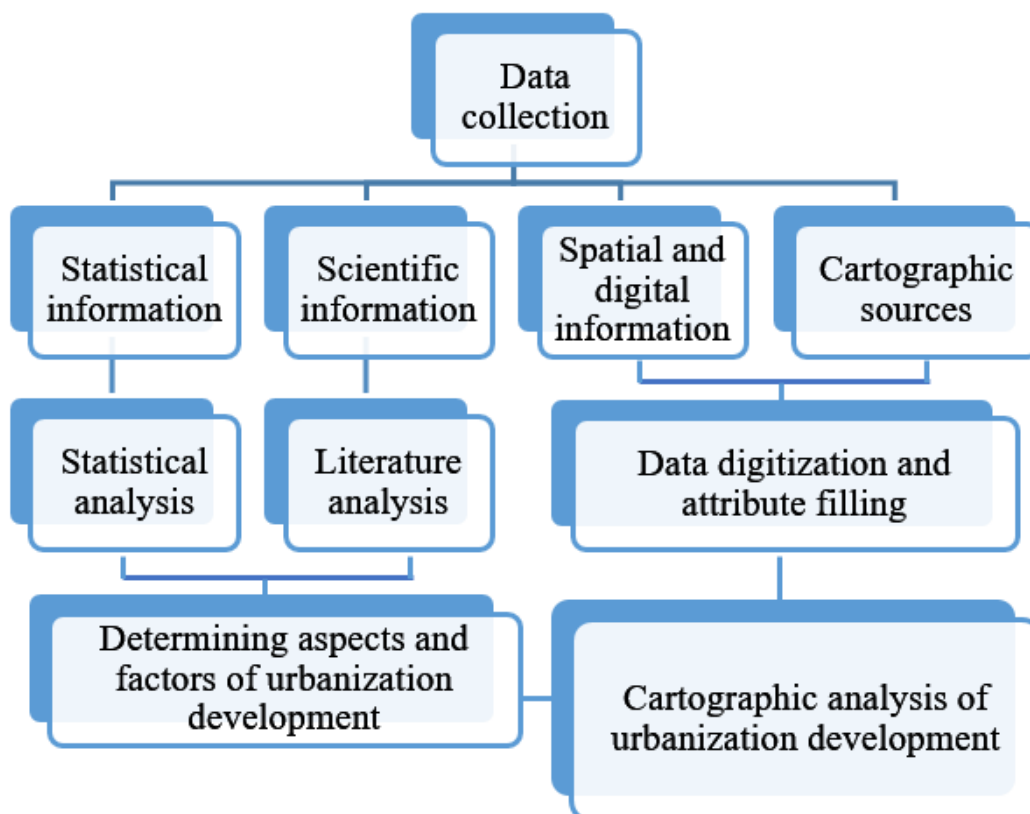
⁸https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?most_recent_value_desc=false

urbanization in the republic until 2008-2009 was 34 percent. As a result of the reforms carried out in connection with the program “Year of Rural Development and Welfare” (2009), many settlements were given the status of cities and towns.

Literature review: Many studies have been conducted on the territorial characteristics of cities and the development, content, and scientific methodological aspects of urbanization processes. In particular, Zipfa Stewart was one of the first to base the concept of the city on science. The methodology of G. Lappo is widely used in the classification of cities. G. Lappo recommended researching cities by typology according to their genetics, population aspects, functions, and territorial characteristics.

In Uzbekistan, scientists such as O. Ota-Mirzayev, A. Soliyev, Z. N. Tajiyeva, and Y. Ahmadaliyev conducted research on the analysis of urban planning and urbanization processes. A. Soliyev is especially distinguished by the development of economic and social relations between urban and rural settlements and the development of scientific methodological bases for researching differences at the national level.

Method and methodology. Statistical, comparative, systematic analysis, geographic analogy, comparison, cartographic analysis methods were used in the scientific work. The research was carried out at the stages of data collection, sorting, comparison, economic geographic analysis and cartographic analysis and evaluation



The sequence of the research is summarized in the following methodological scheme:(Figure 1).

Figure 1. Research methodology

Analyses and results. Khorezm region is the region with the lowest level of urbanization in the republic. There are 3 cities and 56 little cities in the region, the

largest city is the administrative center of Urganch. The level of urbanization in the region was only 21.8 percent until 2009.

As a result of the improvement of infrastructure conditions in many areas within the framework of the “Qishloq taraqqiyoti va farovonligi (Year of Rural Development and Prosperity)” and “Obod mahalla (Prosperous Neighborhood)” programs, the number of little cities in the region reached 56. Improving the level of urbanization of the region largely depends on the development of industry and the creation of favorable conditions for the population. It can be seen from statistical data that in 2002 Baghat and Yangiariq districts of the region were not urbanized (Figure 2).

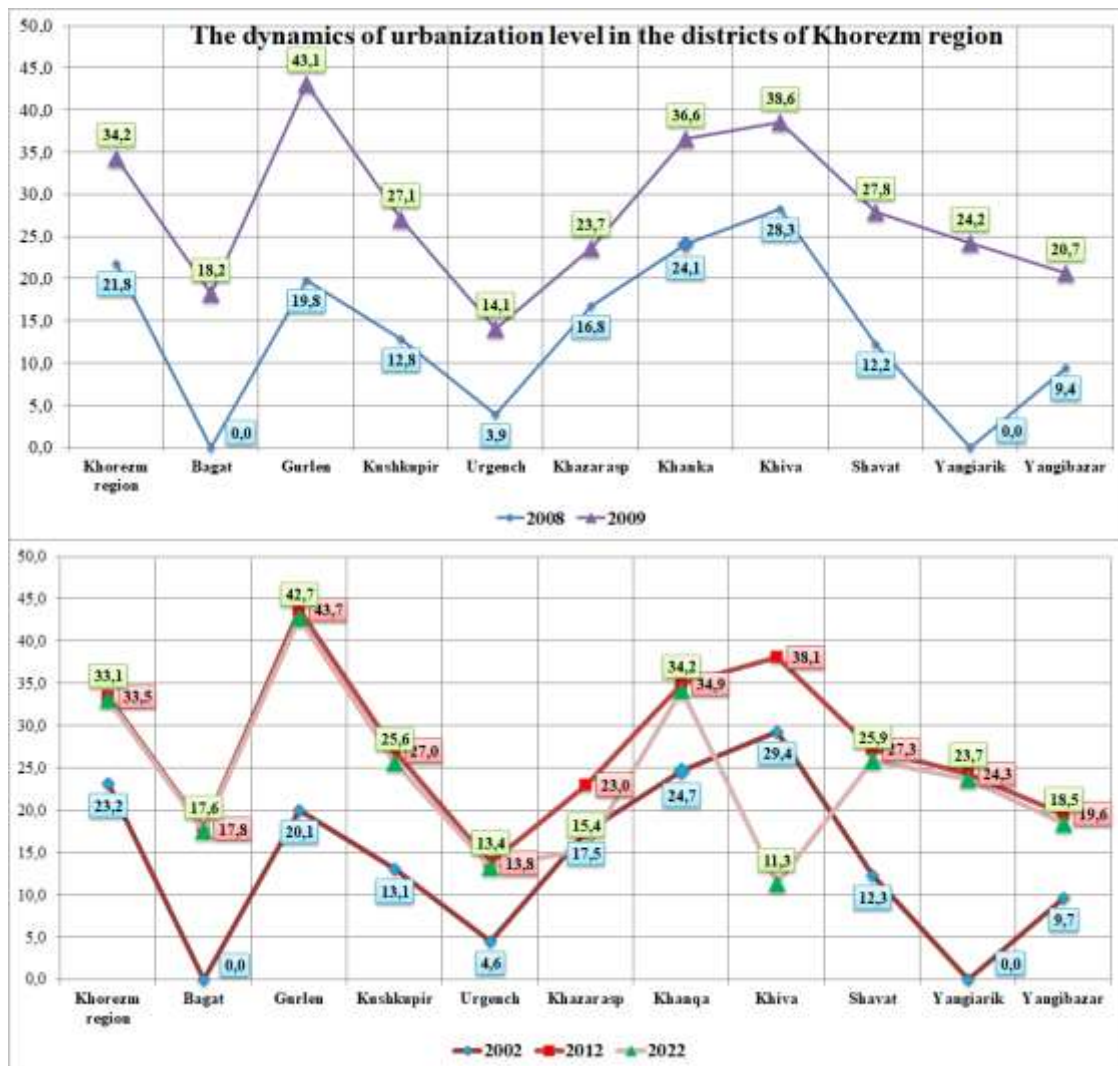


Figure 2. The diagram was prepared on statistical data by the authors.

At the beginning century of XXI, the highest indicator in the region was 29.2 percent in the tourism center of Khiva district, by 2012, it was 38.1 percent and in 2022, it was dropped to the lowest in the region by 11.3 percent. The reason for this was the establishment of the city of Khiva as a separate region within the Khorezm region in 2017 by the decision of the President № PQ-3124. In addition, in Khazarasp district, as a result of the establishment of Tuprok-kala district in 2020 with the decision of PQ-

4671, it decreased from 23 percent to 15.4 percent. For information, the Pitnak city is located in the Tuprok-kala district, and the level of urbanization is 42.1 percent. The analysis of statistical data shows that state reforms are gaining significant practical importance in the development of urbanization processes in the region.

Urbanization processes in the region were analyzed based on the cartographic approach in 3 stages in 20 years after analyzing the dynamics of development. Khiva, Khanka and Khazorasp districts were the regions with a relatively high level of urbanization in the region in 2002 (Figure 3).

Due to the reforms carried out by the state and positive changes in the economy of the region, the level of urbanization increased by 33.4 percent in 2012. At this stage,

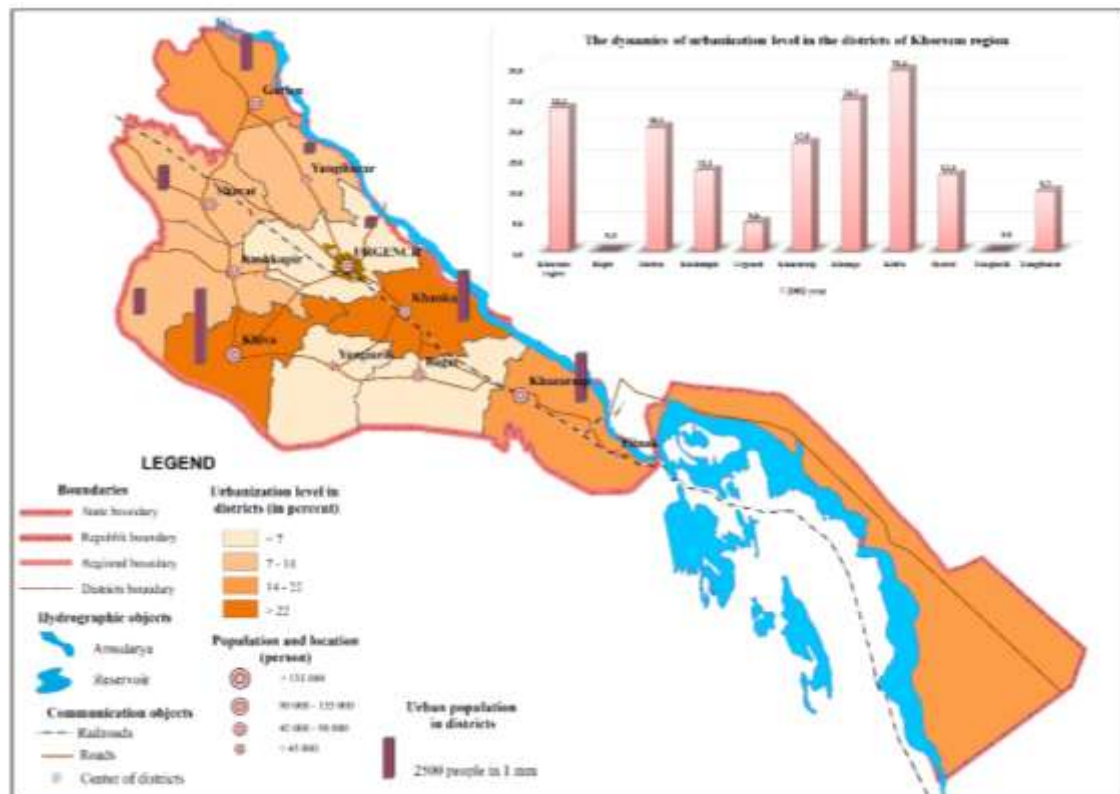


Figure 3. Khorezm region urbanization level (2002 - year) card scheme

Gurlan (43.7 percent), Khiva (38.1 percent), Khanka (34.9 percent) became the regions with the highest level of urbanization, while Urganch district (13 percent) recorded the lowest rate (Figure 4).

It can be seen that by 2022, drastic changes have occurred in the dynamics of the level of urbanization. At this stage, the level of urbanization in Khiva and Khazorasp districts in the region dropped sharply (Figure 5). We touched on the main reasons for this above. Another reason for this process is that the development of industry and service sectors determines the level of urbanization of the regions. In addition to the cities of Urganch and Khiva, Tuprok-kala, Gurlan and Khanka districts of the region have much higher indicators of industry and service. Therefore, the growth of urban population in these districts differs from other regions in that it is more intensive.

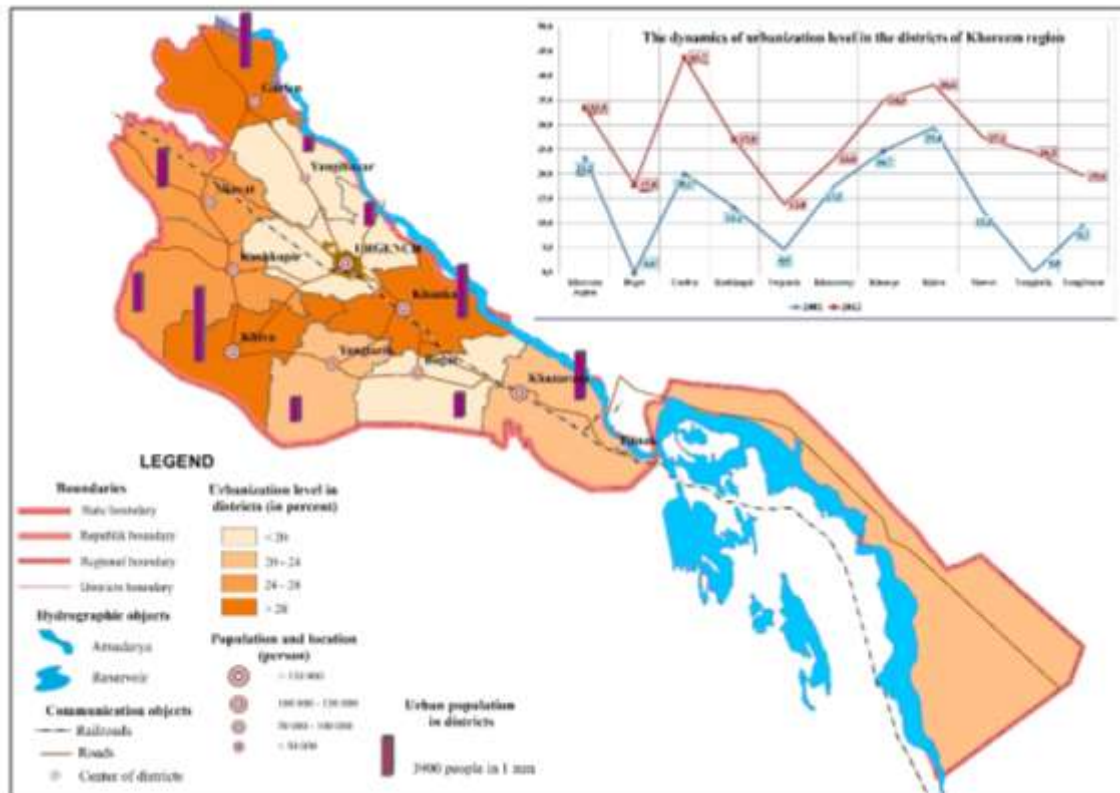


Figure 4. Khorezm region urbanization level (2012 - year) card scheme

Another peculiar aspect of the regional urbanization process is that 38 percent of the total population of the city is in Urganch and Khiva and 62 percent is in 56 towns. The largest number of little cities in the region is in Gurlan district (9) and the least is Yangibazar district (3). Little cities can be called a “core” that forms a small cities of its own. When organizing city-type “settlements”, it is appropriate to choose areas with certain functional specialization. Because the specialization of the region determines its perspective and intensity of development. It is effective to organize little cities in Khorezm region on the basis of small industrial centers or service areas.

Also, another characteristic aspect of urbanization processes is the inconsistency between territorial dynamics and administrative coverage. It should be noted that the territorial coverage of the city is much larger than the administrative territory of the city of Urgench.

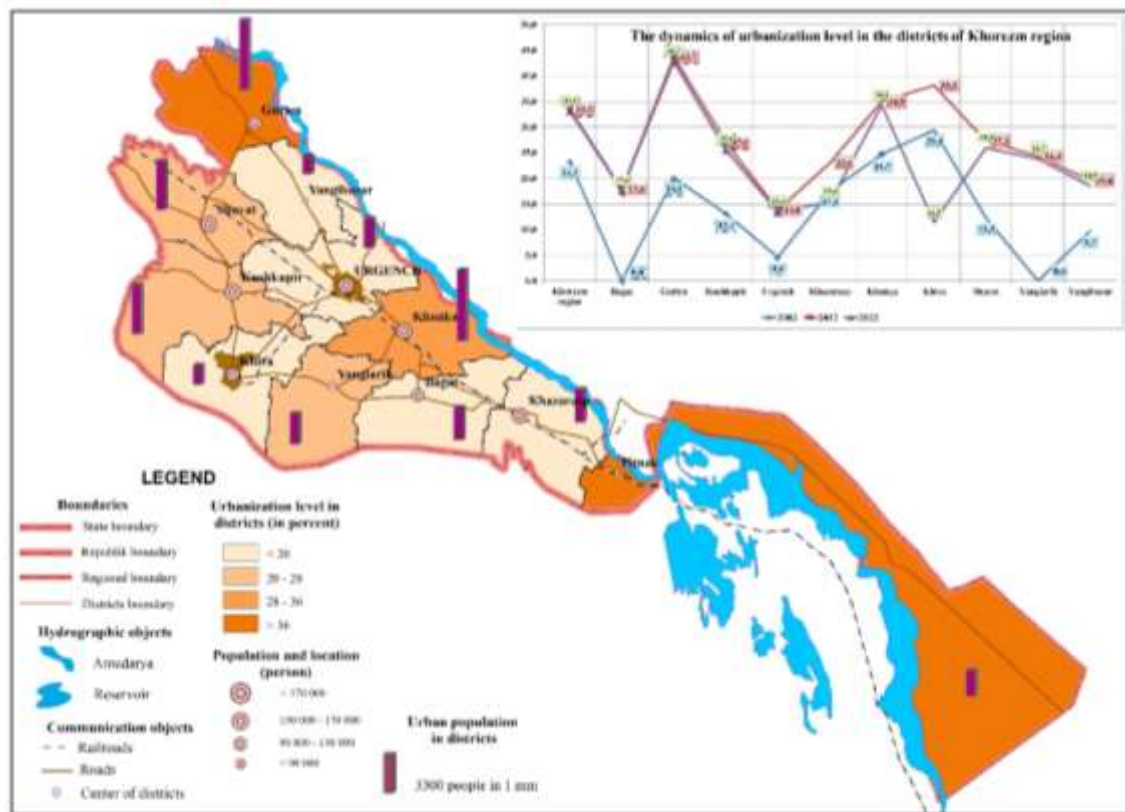


Figure 5. Khorezm region urbanization level (2022 - year) card scheme

In general, the territorial and economic growth of the city depends on the development of the population, structure, industry, agriculture, construction, service sectors (utilities) and transport networks. In the territorial dynamics of the city, transport routes can be called the "impulse" factor that gives the initial impetus. Because, with the development of transport networks, construction, service, and industrial sectors can also be formed. For example, with the opening of the "Ganga Expressway" in India, positive changes were observed in the economic, social and territorial development of several cities.[1]. The introduction of the railway to the city of Khiva in the Khorezm region (2018), and the opening of the UzAuto Motors branch in the city of Pitnak (2014) became important not only in the economic and social development of the city, but also in the region.

Conclusion. Khorezm region is one of the regions of the republic located in ancient irrigated farming centers. The slow development of industry in the region (its share in the gross industrial product of the republic is about 3 percent) and its natural conditions are the reason for the slow development of urbanization processes. The development potential of the region in the field of tourism is very large, but the tourist infrastructure does not meet world requirements.

Based on the analysis of regional urbanization processes, the following conclusions were reached.

1. The slow development of industrial sectors is one of the main reasons for low urbanization.
2. The harsh environmental conditions of the region have a negative impact on the development of cities.



3. The fact that the natural growth of the rural population in the region is high has a negative impact on the processes of urbanization.

4. If the possibilities of developing small towns in the region are effectively used, it is possible to prevent the reduction of the area of irrigated agricultural land.

The Urganch city is the administrative, cultural and economic center of the region, but the city is distinguished by the highest negative migration (3.2 percent) in the republic. The reason for this is the lack of environmental conditions, infrastructure and jobs. For this reason, one of the most important issues is to improve the living conditions of the population and create jobs in the city. It would be appropriate to develop strategic plans for the development of urban areas in the region.

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UDC 546.47:549.751(043.3)

IR-SPECTROSCOPIC AND THERMAL ANALYSIS OF THE COORDINATION COMPOUNDS OF ZINC NITRATE WITH THIOUREA, BENZAMIDE AND BENZOIC ACID

Sharipova Lobar Akramovna
Doctor of Philosophy in Chemical Sciences
Jizzakh Polytechnic Institute
sharipovalobar82@gmail.com

Khudoyberganov Oybek Ikromovich
Doctor of Philosophy in Chemical Sciences
Khorezm Ma'mun Academy
oybek_hudoyberganov@mail.ru

Ibragimova Mavluda Ruzmetovna
Doctor of Philosophy in Chemical
Sciences, senior researcher
Institute of General and Inorganic
Chemistry
mavluda@gmail.com .

Azizov Tokhir Azizovich
Doctor of Chemical Sciences, Professor
Institute of General and Inorganic
Chemistry
azizov-t@mail.com

Annotatsiya: Rux nitratining tiomochevina, benzamid va benzoik kislotasi bilan kompleks birikmalari sintez qilingan. Mexanokimyoviy usulning afzalliklari, sintezning optimal sharoiti keltirilgan. IQ-spektroskopiya va diferensial termik tahlil usullari bilan ligandlar va ular asosida hosil bo'lgan kompleks birikmaning bog' tabiati, markaziy atom qurshovi, poliedri, valent va deformatsion tebranishlardagi siljishlar, termik barqarorligi, effektlar tabiati, termoliz mahsulotlari, qoldiq mahsulotlari aniqlangan.

Kalit so'zlar: ligand, kompleks birikma, IQ-spektroskopiya, bog' tabiati, poliedr, markaziy atom, mexanokimyoviy sintez, termik tahlil.

Abstract: Complex compounds of zinc nitrate with thiourea, benzamide and benzoic acid were synthesized. The advantages of the mechanochemical method, the optimal conditions of synthesis are presented. By means of IR-spectroscopy and differential thermal analysis methods, ligands and the complex compound formed on their basis, the nature of the bond, central atomic circle, polyhedron, shifts in valence and deformation vibrations, thermal stability, nature of effects, thermolysis products, residual products were determined.

Key words: ligand, complex compound, IR-spectroscopy, bond nature, polyhedron, central atom, mechanochemical synthesis, thermal analysis.

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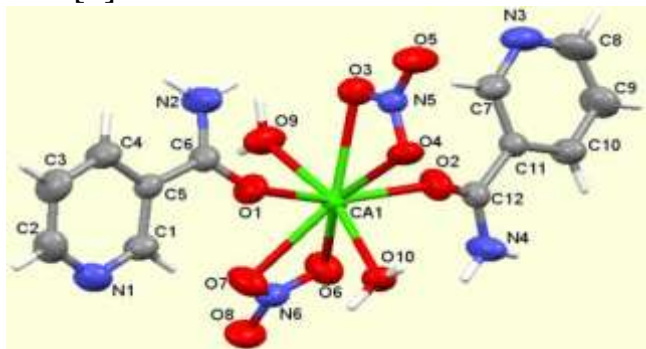
Introduction. In the world, a lot of scientific research is being carried out on the development of optimal methods for the synthesis of coordination compounds of metal salts with amides and the synthesis of biologically active substances and stimulants with a highly effective complex effect. In this regard, the scientific solutions for creating stimulants that accelerate the growth of plants and increase their productivity, including the synthesis of complex compounds of zinc ion with ligands such as thiourea, benzamide and benzoic acid, are aimed at this goal, furthermore, development of favorable synthesis conditions, study of their composition, structure and physico-chemical properties are of particular importance [1].

Literature Review: The search for new environmentally friendly methods of synthesis of chemical compounds and materials based on them is an urgent issue of modern chemistry. One of these methods is the mechanochemical method, which does not require different solvents either at the synthesis stage or in cases of extraction of the main product. As a result of plastic deformation of a solid body, its shape and size change and this leads to its physicochemical properties to vary. Mechanically processed solids have an activation process, that is, during the grinding process, the particle size approaches a specific critical size. Mechanical activation not only increases the surface of the object, but also leads to the accumulation of defects in the entire volume of the crystal. It is necessary to use special mechanical activation methods (reaction medium, impact energy, reaction time, temperature) to change many physico-chemical properties and reaction abilities of solid bodies in the desired direction, because according to the mechanisms, chemical reactions of solid bodies depend on various defects in the crystal [2].

The mechanical energy produced during mechanochemical activation at the synthesis stage prevents the formation of some intermediate products that are formed in solution, in addition to breaking bonds, so mechanochemical reactions lead to the formation of new compounds without the use of solvents. Many of these solvents can inhibit the interaction of reagents or strongly bind to the product, changing its structure and reactivity [3].

In the research work of Z.K.Djumanazarova, the coordination compound of calcium nitrate with nicotinamide (diaqua-dinitrato-bis-nicotinamide calcium) was synthesized by mechanochemical method. In the trigonal dodecahedral form of the resulting complex, the central calcium atom is connected to ligands through eight oxygen atoms. In this case, two nitric acid residues are connected bidentately, while nicotinamide is monodentately connected through the oxygen atom of the carbonyl group (Fig. 1). In the obtained coordination compound, all ligands are connected to the central atom through an oxygen atom, but the length of the bond between them is determined to be different. For example, the bond length of the oxygen atom between

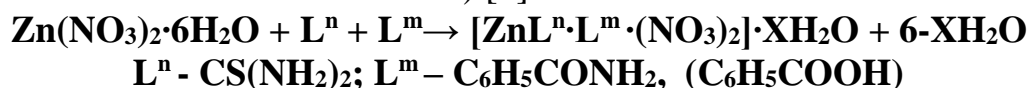
the calcium and the nitric acid residue (Ca1-O3 bond 2.5754 Å (16), Ca1-O4 bond 2.5824 Å (17)) was found to be longer than the bond length of the oxygen atom between the calcium and the nicotinamide carbonyl group (Ca1-O1 bond 2.3361 Å (16), Ca1-O2 bond 2.3150 Å (16)). But in this complex, despite the presence of an oxygen atom in all the nodes involved in the formation of the trigonal dodecahedron, the bond length was different. The reason for this is that oxygen atoms are connected with nitrogen, carbon and hydrogen atoms [4].



**Figure 1. Spatial structure of the molecule
[Ca(NO₃)₂·2NC₅H₄CONH₂·2H₂O]**

Research Methodology. Synthesis of coordination compounds of zinc nitrate with organic ligands was carried out by mechanochemical method (solid phase). To determine the optimal conditions for conducting the reaction, the mechanochemical reaction was performed in a ball mill (planetary mill) using the 1st and 2nd balls with a diameter of 20 mm for 0.5-0.75 hours. The mass of the working part is 67 grams. The number of rotations is 150 rpm, duration of one rotation is 30 seconds. Three of these rotations constitute one cycle, the time between cycles is 2-3 seconds. Zinc nitrate and ligands were mixed in equimolar ratios of 1:1:1 (Zn(NO₃)₂·6H₂O:Lⁿ:L^m) in the synthesis of zinc nitrate with ligands. For the synthesis of complex compounds, 0.003 mol of zinc nitrate, 0.003 mol of thiourea (Lⁿ), 0.003 mol of benzamide or benzoic acid (L^m) was intensively mixed in a ball mill for 30 minutes. In the synthesis of a complex compound of zinc nitrate with a mixed ligand, at the beginning of mixing, the substances come to the same homogeneous state (liquid state), that is, the molecules of crystallization water are separated, instead of them, the ligand molecules are coordinated. During 7-9 cycles of mixing, it becomes sticky. When mixing was continued, it became a dry powder in 15-17 cycles.

On this basis, the following conditions for conducting the mechanochemical reaction in a ball mill were adopted: the reaction lasts 0.5 and 0.75 hours, 1 working part (a steel ball with a diameter of 20 mm) [5].



The amount of metal in the synthesized complex compounds was recorded in the novAA 300 atomic absorption spectrophotometer of Analytic Jena AG (Germany) [6], and the amount of elements in the EuroEA3000 CHNS-O Analyzer (Eurovector S.p.A., Milano, Italy) element analyzer [7].

Analysis and Results: Elemental analysis of the synthesized new complex compounds was performed (Table 1).

Table 1

Elemental analysis results of mixed ligand coordination compounds of zinc nitrate synthesized

№	Compounds	Zn,%		S,%		N,%		C,%		H,%		Brutto-formula
		found	calc.	found	calc.	found	calc.	found	calc.	found	calc.	
1	$[\text{ZnL}^4\cdot\text{L}^8\cdot(\text{NO}_3)_2]\cdot\text{H}_2\text{O}$	15,94	16,09	8,07	7,92	17,28	17,33	23,69	23,76	3,17	3,22	$\text{ZnC}_8\text{H}_{13}\text{O}_8\text{SN}_5$
2	$[\text{ZnL}^4\cdot\text{L}^9\cdot(\text{NO}_3)_2]\cdot 2\text{H}_2\text{O}$	15,28	15,37	7,48	7,57	13,35	13,24	22,78	22,70	3,26	3,31	$\text{ZnC}_8\text{H}_{14}\text{O}_{10}\text{SN}_4$

Based on the differences in the spectrum of the complex with the original components, it is possible to draw conclusions about new interactions and new bonds. Absorption areas of IR spectra were recorded on the IR Tracer-100 ($500\text{-}4000\text{ cm}^{-1}$) spectrometer of the company "SHIMADZU" [8]. The IR spectrum of the complex compound $\text{ZnL}^4\cdot\text{L}^8\cdot(\text{NO}_3)_2\cdot\text{H}_2\text{O}$ showed that the $\nu_{(\text{CS})}$ frequency of the thiourea molecule shifted from 739 cm^{-1} to the lower region of 705 cm^{-1} . The intense band of CO bond of benzamide molecule changed from 1659 cm^{-1} to 1637 cm^{-1} .

There is a small intense peak at 1604 cm^{-1} representing ring vibration. In the formation of $[\text{ZnL}^4\cdot\text{L}^8\cdot(\text{NO}_3)_2]\cdot\text{H}_2\text{O}$ complex compound, it was found that the thiourea molecule is coordinated through the CS bond, and the benzamide molecule is coordinated through the CO bond. Asymmetric and symmetric vibrations of the NH_2 group were observed in the 3312 cm^{-1} and 3224 cm^{-1} regions (Figure 2).

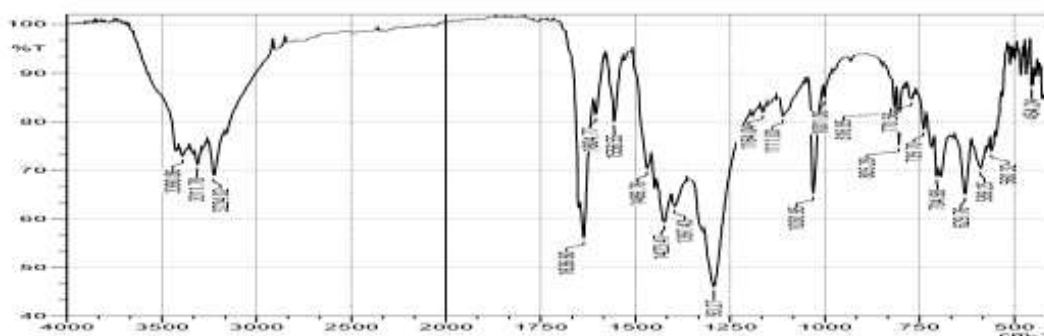


Figure 2. IR-spectrum of the complex compound $[\text{ZnL}^4\cdot\text{L}^8\cdot(\text{NO}_3)_2]\cdot\text{H}_2\text{O}$

In the IR-spectrum of the complex compound $[\text{ZnL}^4\cdot\text{L}^9\cdot(\text{NO}_3)_2]\cdot 2\text{H}_2\text{O}$, there are peaks of the low-intensity $\nu_{(\text{CS})}$ vibration at 706 cm^{-1} , which is characteristic of the thiourea molecule, and the valence vibration at 1500 cm^{-1} , which is characteristic of the C-N bond. The $\nu_{(\text{OH})}$ valence frequency of the carboxyl group of benzoic acid decreased from 2500 cm^{-1} to 2490 cm^{-1} . valence vibrations $\nu_{\text{s}(\text{CO})+(\text{OH})}$ shifted from 1300 cm^{-1} to 1290 cm^{-1} and the lower intensive vibration line was recorded. Nitrate group is characterized by valence vibrations $\nu_{3(\text{NO}_3)}$ 1313 cm^{-1} and $\nu_{1(\text{NO}_3)}$ 1032 cm^{-1} . $\delta_{(\text{NO}_3)}$ has absorption spectra at 804 cm^{-1} . The nitrate anion is bidentately coordinated. The valence frequency of the CO bond at 1687 cm^{-1} region of the benzoic acid molecule remained unchanged. Frequencies characteristic of asymmetric and symmetric vibrations of 3311 cm^{-1} and 3225 cm^{-1} (NH_2) group were observed. At 3427 cm^{-1} , there is a peak characteristic of crystallization water molecules, and it was found that water molecules are located in the outer sphere [9]. At 1590 cm^{-1} , a low-intensity peak characteristic of the ring vibration was observed (Figure 3).

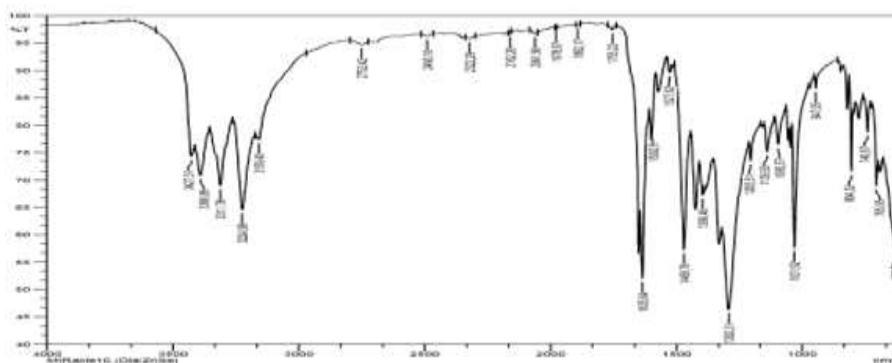


Figure 3. IR spectrum of the complex compound $[\text{ZnL}^4 \cdot \text{L}^9 \cdot (\text{NO}_3)_2] \cdot 2\text{H}_2\text{O}$

Thermal analysis is a method that allows determining the temperature of phase cycles, the thermal nature of exothermic and endothermic processes. This method uses differential thermal analysis, thermogravimetry and derivatogravimetry. Differential thermal analysis provides information on phase transitions (dehydration, thermal dissociation, polymorphic changes), as well as processes that proceed without weight change (liquefaction, crystallization, polymorphic changes, etc.).

Thermal analysis was performed by using F.Paulik-L.Paulik-L.Erdey system derivatograph 9 degrees/min. speed sensitivity of the galvanometer T-900, TG-200, DTA, DTG-1/10. A platinum crucible with a diameter of 10 mm without a cover was used as a holder. Al_2O_3 was used as a standard [10].

Complex compound $[\text{ZnL}^4 \cdot \text{L}^8 \cdot (\text{NO}_3)_2] \cdot \text{H}_2\text{O}$ was dehydrated at 92°C according to DTT results. According to the temperature of the water, we can know that it is located in the outer sphere. Thermal transition and decomposition of thiourea molecule (CS_2 , H_2S , NH_3) was observed at a temperature of 161°C . Temperatures of 209°C are characteristic of the stepwise decomposition temperature of the benzamide molecule. Decomposition of zinc nitrate was observed at 257°C . Also, other endo- and exo effects were observed in the thermolysis of the complex compound (Figure 4).

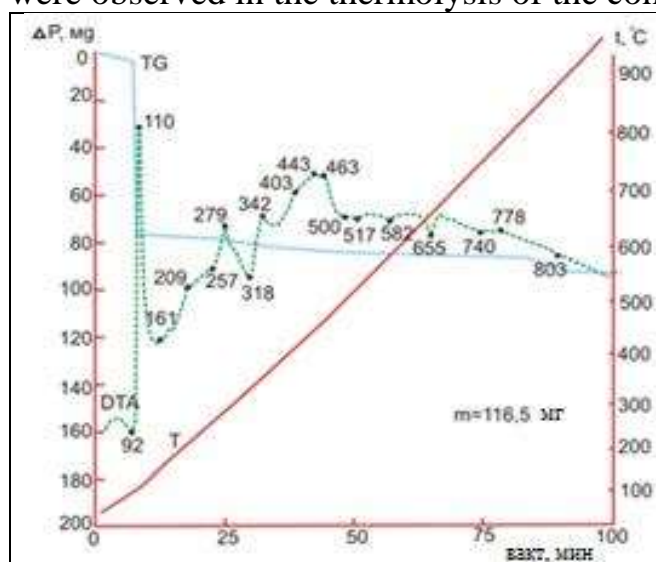


Figure 4. Complex derivativeogram of $\text{ZnL}^4 \cdot \text{L}^8 \cdot (\text{NO}_3)_2 \cdot \text{H}_2\text{O}$

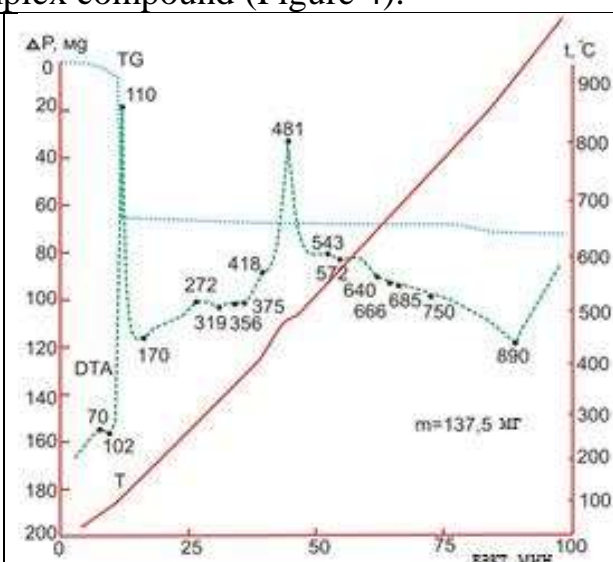


Figure 5. Complex derivativeogram of $[\text{ZnL}^4 \cdot \text{L}^9 \cdot (\text{NO}_3)_2] \cdot 2\text{H}_2\text{O}$



In the thermolysis of the complex compound, a temperature of 102°C corresponds to the liquefaction temperature of the complex compound $[ZnL^4 \cdot L^9 \cdot (NO_3)_2] \cdot 2H_2O$. A large amount of mass loss was observed at a temperature of 110°C. In this effect, along with dehydration, heat absorption and deamination reactions took place in parallel. In the endothermic effect at a temperature of 170°C, a thermal transition is observed along with the decomposition of the thiourea molecule and turns into ammonium rhodanide. Benzoic acid decomposed at 272°C. Decomposition of zinc nitrate was observed at a temperature of 319°C (Figure 5).

Conclusion. The result of IR-spectroscopy shows that in the composition of the complex compound, the thiourea molecule is coordinated through the sulfur atom of the CS bond, the benzamide molecule is coordinated through the oxygen atom of the CO bond, and the benzoic acid molecule is coordinated with the zinc atom in a monodentate state through the oxygen atom of the carboxyl group. Nitric acid anions are bound to zinc atoms in a bidentate state. Water molecules are located in the outer sphere. The zinc atom has an octahedral structure with ligands. The thermal properties of the synthesized complexes were studied, and the results of the thermal analysis showed the gradual decomposition of coordination compounds. Dehydration, leaving the coordination sphere of ligands and decomposition of zinc nitrate to zinc oxide and nitrogen oxides were found with increasing temperature.

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THE METHOD OF ORGANIZING STUDENTS' INDEPENDENT LEARNING OF GEOGRAPHICAL SCIENCES

Shodiev Hamza Ruzikulovich

**Doctor of philosophy in technical sciences of
Navoi state pedagogical institute**

shodiyev5052@gmail.com

Annotatsiya: ushbu maqolada talabalarнинг mustaqil taʼlimini tashkil etishga oid nazariy maʼlumotlar baʼen etilgan. Shuningdek, talabalarнинг geografiya fanlaridan mustaqil taʼlimini tashkil etish tuzilmasi kelтирилган. Taklif etilgan tuzilmани samaradorlik darajasini aniqlash bʼuyicha tajriba-sinov ishleri olib borilgan hamda uning samaradorlik darajasi Styudent-Fisher kriteriyasidan foydalаниb isbotlangan.

Kalit soʻzlar: kredit-modulʼ, axborot taʼlim muhiti, mustaqil taʼlim, E-learning, M-learning, motivatsiya, ijodiy qobiliyat, kognitiv fikrlash.

Аннотация: в данной статье описаны теоретические сведения по организации самостоятельного обучения студентов. Также представлена структура самостоятельного обучения студентов по географии. Были проведены эксперименты по определению эффективности предложенной структуры, и ее эффективность была доказана с помощью теста Стьюдента-Фишера.

Ключевые слова: кредитно-модульная система, информационная среда обучения, самостоятельная обучения, E-learning, M-learning, мотивация, творческие способности

Annotation: this article describes the theoretical information on the organization of independent education of students. Also, the structure of independent education of students in geography is presented. Experiments were carried out to determine the efficiency of the proposed structure, and its efficiency was proved using the Student-Fisher test..

Key words: credit-module system, informational learning environment, independent learning, E-learning, M-learning, motivation, creativity skill, cognitive thinking.

Introduction. Higher education institutions of our country have changed the requirements for the graduate in terms of the level and content of competence formed in the educational process due to the transition to the credit-module system. [1]. The State Education Standard for subjects in higher education institutions is aimed at forming and developing the knowledge, skills, qualifications, and competence that



students should acquire. Currently, in order to increase the effectiveness of teaching subjects and adapt them to international requirements, Dependent education (lectures, practical and laboratory sessions) is required for separating from independent education. [2, 3, 7].

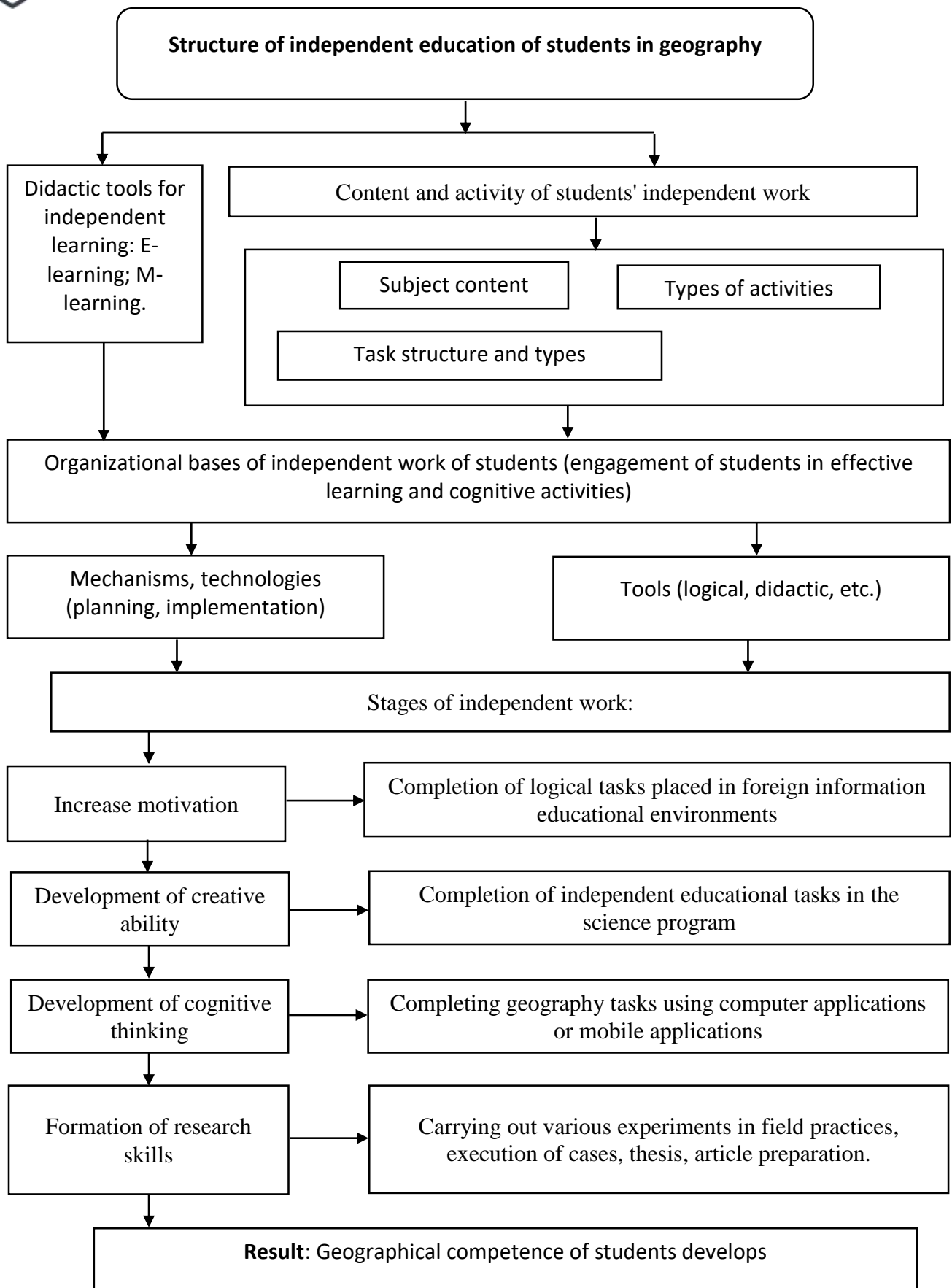
It is important for students studying in higher education institutions to acquire certain abilities and skills for obtaining knowledge from various sources, systematizing the received information and evaluating a specific production situation. The formation of such skills takes place during the entire period of study through the participation of students in practical exercises, independent completion of control tasks, solving tests, writing course and graduation qualification works. [4-7].

Such activity directly depends on the development of self-education skills in students. Therefore, achieving the required level of competence is largely determined by the independent education of students and the increasing role of independent work. The responsibility of professors and teachers is considered important for the development of students' independent work skills, stimulation of their professional growth, development of creative activity and initiative. Only with such an approach, it is possible to prepare the necessary employee who knows his profession well and is capable of effective work in his specialty, including related fields. [8].

All this made it possible to identify problems such as the development of students' self-education skills, the intensification and individualization of learning, and the development of a modern structure of academic subjects as the main tasks of higher education institutions of our country. [9]. As a basis for improving the quality of professional training in solving such diverse tasks, it can be achieved by optimizing the cognitive activity of students of higher education institutions in general, and pedagogical management of their independent activity in particular. As a result, independent educational activities provide the basis for continuous education, provide students with the opportunity to constantly improve their skills, become socially and professionally active individuals. [5, 6]. Therefore, improving the system of organizing independent education of students in subjects, including geography, remains one of the important issues.

Review literature. Research on the theory and practice of developing students' independent learning skills, and the methodology of organizing future students' independent educational activities has been carried out by the following scientists not only in our country, but also in the Commonwealth of Independent States and abroad: G.J. Abylova, U.B. Bakhodirova, H.B. Nikadambaeva, O.A. Koysynov, N.A. Muslimov, G.S. Ergasheva, M.U. Kochkarov, J.T. Yarashev, B. R. Muqimov, D.T. Yakhshiboeva, I.Kh. Iminakhunova, R.M. Garanina, G.N. Dinits, Yu.B. Drobotenko, N.L. Kalugina, N.G. Lukinova, A.O. Prokubovskaya, O. N. Prokhorova, T. V. Rudina, H. B. Smetanina, E. N. Trushchenko, L. Pavlovych, I. Bilous, T. Bidjerano, D. Y. Dai.

Research Methodology. Based on the analysis of the works of the scientists mentioned above, it was concluded that there is a need to improve the structure of independent education of students in geography. For this purpose, the structure of independent education of students in geography was improved within the framework of the research (picture 1).



Picture 2.10. Structure of organization of independent education of students.

The recommended structure is aimed at effective organization of independent education of students in geography in higher education institutions. It focuses on the use of E-learning and M-learning in independent learning of science.

Independent education in geography with the help of e-learning provides the following opportunities [6]: flexible or personalized education; ability to focus on learning outcome, broadcast content on any platform and device.

Such exercises:

- - mental stress of students does not appear and educational information is delivered effectively;
- - qualities such as creativity, logical, critical thinking are formed;
- - virtual reality - the world created with the help of technical means interacts with people through senses such as sight and hearing.

At the same time, the student stops feeling like an outside observer during training and begins to perceive the virtual world as real. The effectiveness of filling in the received information and information perception increases.

Taking into account the above possibilities, it is important to use E-learning in organizing independent education of students of higher education institutions..

Using M-learning together with E-learning is effective in organizing independent education of students studying in higher education institutions.

In this regard, according to B.A.Uskova, M.V.Fominykh, M-learning is the use of portable technologies, wireless and mobile networks to simplify, support, improve and expand the learning space without being tied to a specific place [10]. A. According to V.Loginova, M-learning is a temporary, mobile, online, accessible to all, fast, 24/7, convenient, flexible environment. [11].

M-learning or mobile learning is learning in multiple contexts, through social and meaningful interactions, using personal electronic devices [12, 13]. M-learning focuses on the mobility of the student interacting with portable technologies. [14].

Thus, it is appropriate to pay special attention to independent work of students along with theoretical knowledge using E-learning and M-learning. The student's independent work is one of the main methods of acquiring and deepening knowledge and social practice. The main task of independent work is to acquire scientific knowledge through personal research, take an active interest in creative independent approach to educational and practical work, increase motivation, creative ability, develop cognitive thinking, and develop research skills. Independent work consists of studying educational and special literature, basic and additional, normative materials, taking notes on sources, preparing oral and written messages, lectures, abstracts, performing practical tasks, performing various tasks using computer programs, mobile applications. Therefore, within the framework of research, we developed four stages of organizing students' independent work:

Stage 1. Increase motivation. In this case, students strengthen geographical knowledge using foreign information educational environments and perform logical tasks placed in these environments.

Stage 2. Development of creative ability. In this, students are expected to complete independent tasks listed in the subject program of professional subjects.

Stage 3. Development of cognitive thinking. In this, students perform tasks related to geography using computer applications, mobile applications and online platforms: drawing geography maps; preparation of video lessons on geography; preparation of interactive maps; development of electronic open and closed tests; preparing crosswords;

Step 4. Formation of research proposals. It consists of carrying out various experiments in field practices, carrying out cases, thesis, article, preparation.

If we rely on foreign experiences, special attention is paid to their implementation of cases in independent educational activities of students in higher education institutions. For this purpose, it is possible to achieve independent research, independent decision-making, increase of creative ability and formation of research skills by assigning cases to students in the independent education of geography. At the same time, experiments are conducted in field practices, and it is important to use the experiments conducted in the completion of reports, thesis, articles, and graduation work.

Analysis and results. In order to determine the level of effectiveness of the developed structure for the organization of independent education in geography in higher education institutions of pedagogy, experimental work was carried out. Experiments Students of Navoi State Pedagogical Institute "Basics of Geography and Economic Knowledge" were involved and they were divided into experimental (62) and control (63) groups. Independent training was organized for the experimental group using the structure developed within the framework of the research. The control group was not given this opportunity. The results of the students involved in this experiment were analyzed and mathematical-statistical analysis was performed based on the Student-Fisher criterion in order to check their reliability. Appropriate mean

values for samples using this criterion $\bar{X} = \frac{1}{n} \sum_{i=1}^4 n_i X_i$, dispersion coefficients

$D_n = \sum_{i=1}^4 \frac{n_i (x_i - \bar{X})^2}{n-1}$, and in determining mastery rates $A \% = \frac{\bar{X}}{3} \cdot 100\% - \frac{\bar{Y}}{3} \cdot 100\%$

formulas were used. According to the calculation result, it was found that the average mastery rate of the experimental group was higher than that of the control group, that is, it increased by 11.2%.

Conclusion/Recommendations.

1. The use of global network search systems, information-educational environments and educational platforms is effective in organizing independent education of future geography teachers in pedagogical higher education institutions. In this environment, students' competence is developed by having the opportunity to study the processes and phenomena related to geography in a virtual form.

2. It is effective to use the structures proposed in the framework of research in the organization of independent educational activities of future geography teachers in professional educational institutions.

3. It is important for future geography teachers to use computer programs and mobile technologies in their independent educational activities to increase their



creative thinking about professional subjects, to form their practical skills and to develop their competencies.

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**ECOLOGICAL FEATURES NEAR-WATERS ROVE BEETLES
(COLEOPTERA, STAPHYLINIDAE) SOUTHERN ARAL SEA**

Tanirbergenova G. S¹., Seytova N.J²., Daulbaeva K.K.³

Karakalpak State university¹

Nukus branch of Samarkand veterinary medical institute²

Karakalpak Scientific-research institute of

natural sciences of the Karakalpak Branch of

Academy of Sciences of Republic of Uzbekistan³

daulbaeva80@mail.ru

Annotasiya. Maqolada qirg'oq bo'ylaridagi stafilinid turlari haqida ma'lumotlar keltirilgan. Mazkur turlarning ekologik xususiyatlari va biotopik tarqalishi o'rganilgan. Supralitoral' mezofaunada Oxytelinae kichik oilasi vakillari ustunlik etadi.

Kalit so'zlar: stafilinidlar, fauna, Janubiy Orolbo'yi, ekologik xususiyatlari.

Аннотация. В статье приведены сведения о прибрежных видах стафилинид (Coleoptera, Staphylinidae) Южного Приаралья. Изучены экологические особенности и биотопическое распределение стафилинид данных видов. В супралиторальной мезофауне доминировали представители подсемейства Oxytelinae.

Ключевые слова: стафилиниды, фауна, Южное Приаралье, экологические особенности.

Annotation. The article presents the species of supralittoral rove beetles (Coleoptera, Staphylinidae) of the Southern Aral Sea region. The ecological features and biotopic distribution of these species were studied. The supralittoral mesofauna is dominated by representatives of the Oxytelinae subfamily.

Kew words: staphylinidae, fauna, Southern Aral sea, ecological future.

Introduction. Coastal biotopes are extremely dynamic habitats, the conditions in which are largely determined by the hydrological regime of the reservoir. Among the groups, which are the most abundant and diverse in coastal biotopes of various types, the family Staphylinidae stands out from the Coleoptera.

Literature review. Several studies were published on the topic of research, in which attention was paid to these beetles (Coiffait, 1970; Gildenkov, 2001; Kashcheev, 2002; Bekbergenova and Hamraev, 2008) of the region under study.

Material and research methodology. The materials described in this work were collected in 2012-2019 y., the studies were carried out on the shores of water bodies of various types in the region under study. The collection of beetles was carried out during the taking of soil-zoological samples according to the generally accepted method, along the banks of rivers and various reservoirs (the lower reaches of the Amu Darya, loch Karateren, Akchakul, Zhylytyrbas, lough Saribas and Sudochoye lake systems, as well as artificial reservoirs of Kyzylkum, artesian wells).

Results of the research. The region under study is characterized by a significant xerophytization of the climate, which largely determines the composition of the fauna and the nature of the distribution of rove beetles, which are extremely moisture-demanding habitats. Most of the studied region is occupied by deserts and semi-deserts, where rove beetles can exist only in a limited range of habitats. Our studies have shown that representatives of the subfamily Oxypoda predominate in the supralittoral mesofauna of rove beetles, and the ecological features and biotopic distribution of these species are the most studied.

The species composition of rove beetles in the surveyed regions varies depending on landscape conditions and specific habitats. In the extreme conditions of the sandy Kyzyl Kum desert, most of the rovebeetles are present in the supralittoral of artificial reservoirs (KSMK), as well as on the coasts formed near artesian wells. These reservoirs determine the regularities in the distribution of desert rove beetles, which is confirmed by the gradation of their terrain in homogeneous substrates at different distances from the reservoir.

The taxonomic structure of rove beetles in Kyzyl Kum consists of representatives of the genus *Carpelimus*, *Bledius*, *Stenus*, *Paederus*, *Anotylus*, *Platystethus*, *Oxypoda*, *Aleochara*, *Falagria*.

The delta of the Amu Darya River is the richest in species and numbers rove beetles. Studies have shown that the most common for the supralittoral are various species staphylinidae belonging to such genus as *Bledius*, *Carpelimus*, *Anotylus*, *Platystethus Scopaeus*, *Paederus*, *Philonthus*, *Gnypeta*, *Aleochara*, *Oxypoda*, *Falagria*, *Stenus*.

Due to a number of environmental factors (primarily in terms of humidity and the availability of food), convenient habitats provide optimal conditions for rove beetles throughout the warm season, which is especially important in dry seasons typical for the climate of the studied region. On terms of the abundance and species composition of supralittoral rove beetles, species typical of floodplain meadows and coastal strip have a large specific weight. Permanent inhabitants here are representatives of the genus *Carpelimus* Leach, *Stenus* Latr., *Bledius* Mnh., *Platystethus* Mnh. The representatives of the genus *Carpelimus* that feed on soil algae prefer a free of vegetation and well-lit supralittoral. They live in the upper (1.5-3 cm) soil layer in burrows or soil dug by them, less often under plant remains in the coastal strip. Often, these species are found not only along the banks of large water bodies, but also along the edges of long-lasting puddles, along the banks of canals, small streams, within the boundaries of settlements near wells and water pipes, i.e. in places with constant soil moisture. Usually there are 2 or 3 (sometimes up to 4 or more) species together. For *Bledius tricornis* Herbst., *B. spectabilis* Kr., *B. atricapillus* Germ., *B.*



verres Er. and their larvae are known to feed on soil diatoms. Beetles of these species live in the soil of the coastal strip, breaking through passages up to 30-40 cm deep. The density of these species is usually low and amounts to 10 exz./m². *Bledius tricornis* Herbst. prefer heavy loamy soils. *Platystethus cornutus* Grav., *P. nitens* Sahlb., usually live along the banks of stagnant or slowly flowing water bodies in the mass of last year's herbaceous vegetation and in fouling of filamentous algae that are exposed when the reservoir dries up. In very favorable conditions, they reach a density of 300-400 exz / m² and above.

The near-water population of rove beetles undergoes seasonal and migration changes. In most cases, the dominant species are background insects in these areas and outnumber ecologically close groups of inhabitants of the supralittoral.

Many nocturnal and crepuscular insects, including rove beetles (especially supralittoral species) show a positive phototropism. A characteristic feature is evening and night migrations, as a result of which they actively fly into the light. The rove beetles actively flew to the light trap from June to the end of August (from 22:00 to 01:00), in mass in July, especially in calm weather, for example, *Bledius tricornis* in July-August in masses flies into the light, often clogs (I. Sarybas) completely coastal searchlights.

In our observations carried out on coastal biotopes, many species show specialization to certain types of water bodies. Species of the genus *Stenus* prefer shores devoid of vegetation, while representatives of the genus *Philonthus* are more common on the shores of steppe water bodies. Representatives of the genus *Carpelimus*, feeding on soil algae, prefer a vegetation-free and well-lit supralittoral. They live in the upper (1.5-3 cm) layer of soil, in the minks or wells dug by them, less often under plant remains in the coastal strip.

Supralittoral rove beetles of the Southern Aral Sea region are characterized by high species diversity and high similarity throughout the study area (Table 1). This is due to the fact that the Amudarya river, all canals and collectors, lakes and lake systems throughout the territory of the study region represent a single hydrographic network with the Amudarya.

Table. 1

The value of the coefficients of faunistic similarity (according to Jaccard) of supralittoral rove beetles between coastal biotopes of inland water bodies in the conditions of Karakalpakstan (%)

№	I	II	III	IV	V	VI	VIII	VIII	IX	X	XI	XII
I	-	28,3	27,2	17,2	22,2	12,1	3,7	16	13,2	3,8	5,2	11,2
II	28,3	-	21	12,9	11,6	13,7	14,2	13,3	28,2	6,9	26,1	24
III	27,2	21	-	31,7	24,2	30,7	17,3	12,8	7,5	8,3	4,5	10
IV	17,2	12,9	31,7	-	5,4	40	22,5	10,5	7,8	27,2	17,1	10,4
V	22,2	11,6	24,2	5,4	-	9,1	4	20,8	12	4,3	3,3	8,1
VI	12,1	13,7	30,7	40	9,1	-	28,5	14,7	15,5	21,4	24,2	19,1
VII	3,7	14,2	17,3	22,5	4	28,5	-	20,8	21,7	20	10,7	14,2
VIII	16	13,3	12,8	10,5	20,8	14,7	20,8	-	24	8	13,3	19,4
IX	13,2	28,2	7,5	7,8	12	15,5	21,7	24	-	8,3	17,8	31,2
X	3,2	6,9	8,3	27,2	4,3	21,4	20	8	8,3	-	11,5	11,7
XI	5,2	26,1	4,5	17,1	3,3	24,2	10,7	13,3	17,8	11,5	-	36,3



XII	11,2	24	10	10,4	8,1	19,1	14,2	19,4	31,2	11,7	36,3	-
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Note: I- Irrigation canals; II- NABR; III - Z. Sarbas; IV - z. Muynak; V- Mesopotamia; VI - Sudochoye; VII - Dzhaltyrbas; VIII - Dautkul; IX - in. Karateren; X - Aral Sea; XI- SKMK; XII- Akchakul.

According to our studies on the nature of nutrition, living in coastal biotopes, rove beetles that feed on live prey (zoophages) - 48%, feed on algae, parts of plants (phytophages) - 13%, feed on decayed plant residues (saprophages) - 17%, and euryphages make up - 15%, food specialization 6 types 7% - not established.

Conclusions. Ripikols or representatives of the complex of coastal species of rove beetles of the studied region can be divided into three large groups: The first group (geobionts) is burrowing ripicols, which on the shores of *Bledius* reservoirs, some *Carpelimus* and *Platystethus*, these beetles inhabit the banks of rivers, aryks, lakes and some others reservoirs.

The second group (saprobionts) includes rove beetles associated with sediment and litter along the banks of all kinds of permanent or temporary bodies of water. Dead plant organic matter, to a greater or lesser extent, is present in a significant part of the near-water area of rivers, and also accumulates at the water edge of most lakes, canals and other bodies of water. Active processes of destruction of plant residues under conditions of high humidity often attract a large number of various beetles of this group. As a result of the research, the species composition of this habitat, represented mostly by semiaquatic rove beetles from the subfamilies: Oxytelinae, Aleocharinae, and Staphylininae (*Carpelimus*, *Philonthus*, *Aleochara*).

The latter group (epibionts), in contrast to the inhabitants of the coastal plant organic matter, there are living on the soil surface in open areas of the coast or in a rare herbage (sedge, cattail). These include *Stenus*, *Paederus* and some *Philonthus* supralittoral substrata inhabiting sediments confined to open coastal areas, as a rule, devoid of any shelters of organic origin, that is, the presence of vegetation cover, coastal sediments or litter. Thus, representatives of the Staphylinidae family of the Southern Aral Sea region inhabit the supralittoral of all kinds of water bodies in the region, but under favorable conditions they can also move into zonal ecosystems - associations of various successive hydroseries, if abundantly wetted areas can provide the necessary trophic base for the successful completion of the reproduction cycle. This explains the presence of certain species in some composts and wet litter.

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