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АКТУАЛЬНЫЕ ВОПРОСЫ СОВРЕМЕННОЙ НАУКИ, ОБРАЗОВАНИЯ И ВОСПИТАНИЯ

ACTUAL PROBLEMS OF MODERN SCIENCE, EDUCATION AND TRAINING

CONTENTS

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SPECIFIC PECULIARITIES OF THE USE OF ICT IN EDUCATION PROCESS

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Аннотация. Мазкур мақолада таълим жараёнида ахборот-коммуникация технологияларидан фойдаланишнинг ўқув жараёнини ташкил этиш ва таълим сифати даражасини оширишга таъсири ҳамда таълим тизимида масофавий ўқитишнинг афзалликлари кенг ёритилган.

Аннотация. В данной статье рассмотрены влияние использования информационных и коммуникационных технологий на организацию образовательного процесса и повышение качества образования, а также преимущества дистанционного обучения в системе образования.

Abstract. This article analyses about the impact of the use of information and communication technologies in the organization of the educational process and improving the quality of education, as well as the advantages of distance learning in the education system.

Калит сўзлар: ўқув жараёни, таълим соҳаси, коммуникация технологиялари, миллий тармоқ, интернет технологиялари

Key words: educational process, education sphere, communication technologies, national net, internet technologies

Introduction: In "The National Program of Personnel Training" [1. 97p] of the Republic of Uzbekistan, one of the main documents on reforming the education system of the country, emphasizes the need to organize the educational process on the basis of information and communication technologies (ICT), Internet and computer networks.

In the education system of our country, these tasks are being implemented in a timely and effective manner. In order to achieve this goal, integrated and consistent, coordinated measures are being implemented step by step. In particular, in order to introduce wide-format communication networks and Internet technologies in the educational process, the task is to create a national network "Electronic Education" and connect all universities, and then academic lyceums and professional colleges to a single computer information network. At present, these measures are being implemented successfully in a comprehensive manner. For more successful implementation of these tasks, it is necessary to develop and introduce new innovative measures and proposals that can have a positive effect in this area. One such measure is the modern ICT-based distance learning (DL), a learning process that is widely used effectively in the education system of developed countries to train quality personnels.[4. 85p]

It is advisable to place all the necessary elements on the MOODLE platform, in particular, lectures, video lessons, tests, assignments, chat, forums, surveys, glossaries, feedback and webinars. It is also a series of online webinars for students with professors and teachers from leading local and foreign higher education institutions, uniting strong professionals and young people, through which every citizen who wants to study can stand in any part of the country and learn from strong professionals. [5. 58p].

The experience of the education system shows that the opportunities to radically improve the quality of personnel through the transformation of the Internet and ICT in the learning process as a means of acquiring, storing, transmitting new knowledge and practical decision-making are expanding. The use of the Internet and ICT in DL ensures, first of all, the quality, sociality, popularity and economic affordability of education. In addition, DL has a number of advantages and positive aspects compared to the traditional form of teaching. It should be noted that, there are sufficient opportunities for the effective introduction of modern DL forms of education in the higher education system of the country. Information and communication technology (ICT) is a broad concept that includes systems, processes and individuals involved in communication through technological means.[2. 63p]

Distance Learning is a pedagogical system of education, which confirms the level of education (educational censorship), using the process of distance learning using modern ICT. Distance learning is the process of acquiring knowledge and skills through the use of information technology, which provides the exchange of educational information at a distance, the implementation and management of the educational process.

Distance education is a form of education based on the complex distance learning of all subjects in the system of training specialists in a particular field, but not a conditionally established place and time criteria for the learning process within the complex. In order to fully and correctly understand the essence of this definition, it is necessary to bring it together with the definition of distance learning mentioned above. Distance learning is the most important and increasingly popular form of modern education. The rapid development of information and communication technologies in modern conditions has created favorable conditions for the use of their potential in the educational process. [6. 5p]

Literature Review.: At present, leading foreign countries have accumulated rich experience in distance learning. Distance learning technology is believed to have been formed in 1969 year by the initiative of the British Prime Minister G. Wilson. But distance learning occurred much earlier, that is, during the formation of the first stable, regular postal service. Since 1858, at the University of London, all aspirants have been allowed to study independently, taking examinations for academic degrees in all specialties and in all fields. Since 1938, Part Time of the International Council has been operating as an international educational organization known as the International Council for Distance Education since 1982. The cost of studying at Open universities is 8-10 times cheaper than teaching at traditional institutes.[7. N613] In the UK, for example, it costs £ 3,000 for full-time study and £ 300 for distance learning. Expenses for building maintenance, equipment and laboratory, staffing of teachers, administrations and service personnel will be reduced. Students will be counseled through a network of branches, a television studio and a computer network. In the UK, the student preparation program includes 130 courses, many of which are interdisciplinary. Distance education began to develop rapidly in the United States in the mid-1960s and in Europe in the early 1970s. This form of teaching is a goal-oriented interactive process of interaction between learners and teachers with each other and with teaching aids, the learning process does not depend on their geographical and spatial location. The educational process consists of subsystems, ie a specific pedagogical system, which includes elements such as the purpose, content, methods, tools, organizational forms, control, educational material, financial and economic, normative-legal and marketing.[3. 147p]

Research Methodology:.Distance learning is a unique, improved form of independent learning, which combines elements based on new information technologies and multimedia systems. Modern telecommunications and electronic publications allow to overcome the shortcomings of traditional forms of education and at the same time retain all their advantages. Textbooks and manuals based on information technology and multimedia systems in teaching students to think independently should focus on the advanced ideas, scientific conclusions, practical facts, events and reactions of students to the topic. The scientific and vital truths previously known to the scholars, the author of the textbook, and the educator, which are included in textbooks to teach the learner to think independently in certain disciplines, are explained to each learner in his or her own way. [8.439p]

Thus, the purpose of teaching independent learning through distance or local area networks and software tools of teaching should not only be to provide the student with certain knowledge, but also to acquire in them the peaks of independent knowledge and skills.

Distance Learning can be characterized by the following five main conditions in education:

- the presence of a teacher and a student;

- implementation of the educational process at a certain distance;

- Two-way communication between teacher and student;

- Availability of special materials for distance learning;

- both parties are provided with computers and other equipment and means of communication. [9. 11p]

In our opinion, the following are important in the formation and development of ICT in higher education, including DL: retraining of highly qualified personnel to achieve their goals;

- training of specialists based on new needs, also market formation;

- Proper consideration of quality requirements in the training of new staff; cooperation with entities on the basis of integration;

- mechanisms necessary or involved in the activity;

- networking and working with them;

- creation, change and improvement of market elements;

Analyses and results: As a result of the popularization of this process, universities play an important role in the formation of relations with production and the market. Also, the use of ICT in the educational process allows:

- development of intellectual and creative abilities of the person;

- each member of the society can improve their skills and change their field of activity;

- create conditions for comfortable education and increase efficiency;

- reduce costs per student based on the effective use of educational resources; - Proper consideration of quality requirements in the training of new staff; cooperation with entities on the basis of integration;

- mechanisms necessary or involved in the activity;

- networking and working with them;

- creation, change and improvement of market elements; [10. 662p]

Conclusion:.In short, the effective use of ICT in the education system provides both economic and social benefits, as well as the use of information and communication technologies in all areas of education, based on the competitiveness of personnel in a market economy, the organization of the educational process in universities and improving the quality of education. Therefore, the improvement of theoretical, methodological and other aspects in this regard in accordance with the requirements of the time is one of the urgent tasks of today.

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IMPROVING THE CONTENT OF THE SECTION OF PROJECTIVE DRAWING IN SECONDARY SCHOOLS

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Annotatsiya: Maqolada proyeksion chizmachilik bo`limining respublikamiz umumta`lim maktablarida o`qitilish ahvoli va uning zamonaviy talablarga moslik darajasi qisqacha o`rganib chiqildi. Shuningdek proyeksion chizmachilik bo`limini o`qitishdagi innovatsiyalar va ilg`or xorijiy tajribalarning muhim jihatlari, ulardagi ta`lim jaroyoniga innovatsion yondashishlarni o`rganib, tahlil qilindi.

**Kalit so`zlar:** ko`rinish, proyeksiya, aksonometriya, proyeksiyalar tekisligi, metod, perspektiv proyeksiya, texnik rasm.

Аннотация: В статье кратко рассматривается состояние преподавания проекционного рисунка в общеобразовательных школах страны и его уровень соответствия современным требованиям. Также были изучены и проанализированы инновации в преподавания проекционного рисунка важные аспекты передового зарубежного опыта, инновационные подходы к учебному процессу в них.

Ключевые слова: вид, проекция, аксонометрия, плоскость проекций, метод, перспективная проекция, технический рисунок.

Annotation: The article briefly deals the state of teaching projection drawing in secondary schools of the country and its level of compliance with modern requirements. Also, innovations in the teaching of projection drawing and important

aspects of advanced foreign experience, innovative approaches to the educational process in them were studied and analyzed.

Keywords: aspect, projection, axonometry, plane of projections, method, perspective projection, technical drawing.

Introduction: The level of students' spatial imagination, their mastery of projection techniques in the development of literacy and drawing skills and competencies is of great importance. Due to the difficulty of mastering the subject of drawing with insufficiently developed spatial imagination, the current curriculum [1] and textbook [2] in secondary schools of the country allocate 14 hours to study the topics of this section and 5 hours to study axonometric projections. If to take into account that the drawing course is taught for 34 hours in the 8th and 9th grades of secondary schools, it becomes clear that the knowledge of projection drawing and the amount of time allocated to it is of great importance.

Literature Review: Having analyzed the role of the section of projection drawing in the school drawing course on the basis of textbooks of the Russian Federation, to study it in the textbook of A.A Pavlova and E.I Karzinova (axonometric projections, perspective projections and technical drawing)" 6 hours [3]. V.V. Stepakova and others. The textbook "Drawing", published by the Ministry of Education and Science of the Republic of Kazakhstan, provides for 12 hours of study of the topics of projection drawing [4]. A similar situation is observed in the textbooks of other authors [5, 6]. It should be noted that in the majority of drawing textbooks for secondary schools of the Russian Federation in the study of projection drawing are studied such topics as "shape formation" and "construction of lines of intersection of geometric objects". This allows students to learn the theoretical foundations of projection in depth and apply their knowledge in the design process.

Research Methodology: Here are some suggestions on how to look or get an appointment for hair extensions.

In technical drawings, images of objects (details) are made by the method of right-angled orthogonal projections. The horizontal, frontal, and profile planes, which are mutually perpendicular, form the sides of the cube. The detail is placed in the first octant, between the observer and the projection plane opposite it. Construction of projections is carried out by the first angular method - E (European) method. This method has been adopted in Uzbekistan, many European countries and Russia.

In the United States, the United Kingdom, and some countries, the projection plane is placed between the observer and the object being described - the third-angle method (A (American) method).

Analysis and results: The International Organization for Standardization (IOS) recommends the use of a special symbol in the form of a truncated cone to indicate in which system the drawings are made (Figure 1). In the European system, this mark can be omitted when the drawing is done.

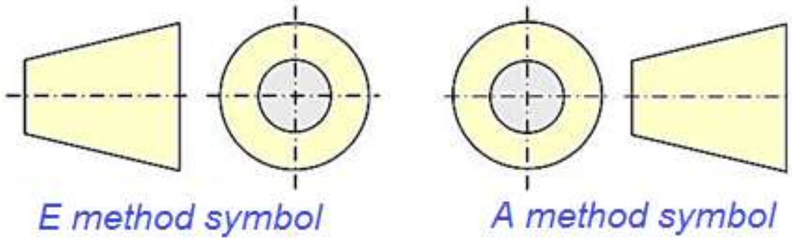


Figure 1

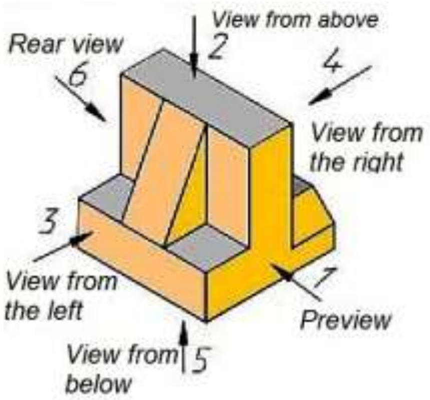
European projection: In this method, the object is placed inside the thought cube and its projection is done on the inside of the cube. The projecting rays will be directed from the observer to the sides of the cube. The six sides of the cube are considered to be the principal projection planes. By drawing the sides of a cube in one plane with the images in it, a drawing of the object is formed. The image in the frontal plane is taken as the main view. This image should give the most impression (information) about the shape and dimensions of the object [5].

Figure 2 shows the direction of view that defines the images of the object in the projection planes (sides of the cube). The posterior side of the cube is taken as the plane of the frontal projections. By joining the other sides with it, a drawing consisting of six images is formed (Figure 3).

Once the spread is done, the images are positioned relative to the main view as follows: 1 - front (main) view; 2 - top view; 3 - view from the left; 4 - view from the right; 5 - view from below; 6 - Rear view (rear view is allowed to be placed to the left of the view from the right).

The textbook provides for the study of the topic of views after studying the methods of projection, projection on one, two and three planes, as well as the projections of geometric objects. It is recommended that the teacher begin the topic of appearances by demonstrating that it will have 6 appearances through a clear depiction of the detail (Figure 2).

This explains to the students that the number of basic views is 6, and that the views in the drawings are used in the minimum amount necessary to provide information about the detail. It then explains a clear picture of the image-making apparatus and the order in which the images are formed (Figures 3 and 4).



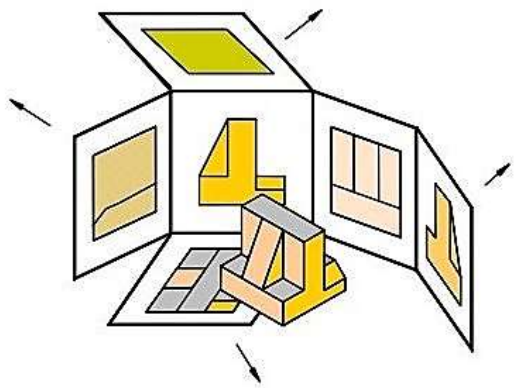


Figure 2

Figure 3

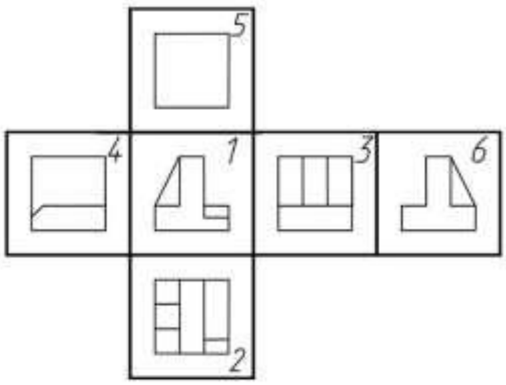


Figure 4

Views. There will be basic extras and local views.

The views that result from the projection of what is placed inside the cube on the six sides of the cube are called basic views.

If the top, left, right, bottom, and rear views are not in projection connection with the main image (frontal projection plane view or crop image), the projection direction is indicated by an arrow next to the corresponding image. The arrow and the same print letter are written on the resulting image.

If it is not possible to depict the shape and size of a part of an object without changes through the main views, additional views are used. In this case, the object is projected onto an additional plane. Hence, an image of an object in a plane that is not parallel to any of the projection planes is called an additional view [5]. The arrow and the sight mark are not placed when the additional view is depicted in a projection connection with the corresponding image (Figure 5).

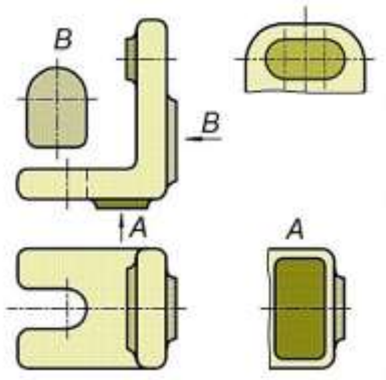


Figure 5

If there is no projection link between the main and secondary views, the additional view is capitalized in the drawing. An arrow should be placed indicating the direction of view of the image of the object associated with the additional view (arrow A in Figure 5).

An image of a bounded, separate part of the surface of an object is called a local view. The local view can be described as bounded or unbounded by a dashed line (Figure 5, view B).

If the main and auxiliary views are not interconnected by projection lines, the additional view is capitalized on the drawing. An image with an appropriate letter indicating the direction of view should be placed in the image of the object associated with the additional view (Figure 6, arrow A, images b and c).

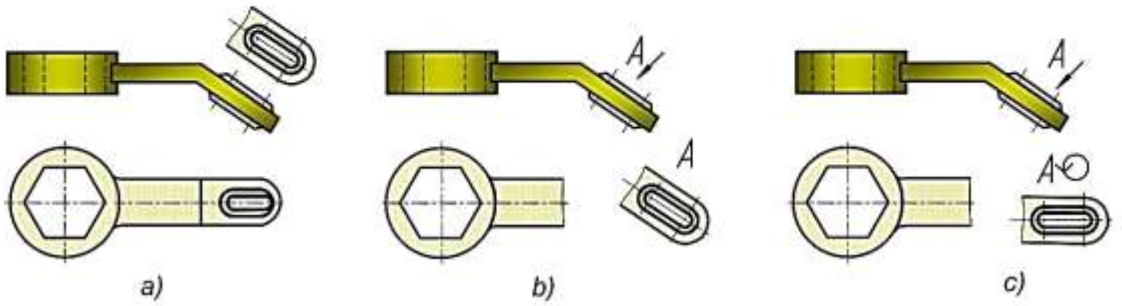


Figure 6

It is also permissible to twist the additional view while maintaining the shape of the main view (Fig. 6, c). In this case, a conditional sign is also placed when defining the view (Figure 6, c). If necessary, the angle of rotation is indicated after the sign "twisted" [5].

Figure 7 shows the dimensions of the arrow indicating the direction of view (Figure 7, a) and the dimensions of the conditional symbols that replace the word “twisted” (Figure 7, b) and the words “spread” (Figure 7, c).

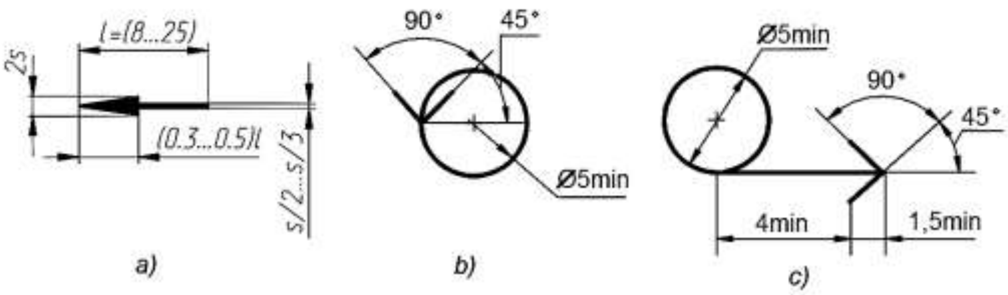


Figure 7

When explaining the topic of scenes to the students, the teacher should prepare a colorful presentation and explain to the students in detail that the apparatus for creating vivid images and images, such as Figures 2 and 3 above, will have 6 main views. The use of colorful shapes in the presentation makes it easier for students to master the topic.

Conclusion and recommendations: In conclusion, the results of the analysis showed that:

a) By studying the section of projection drawing in the science program, it strengthens students' spatial imagination, motivation for knowledge and develops their creative thinking skills;

b) The proposed drawings provide an opportunity for students to learn new concepts in interesting forms, which significantly increases the effectiveness of lessons in the field of projection drawing;

c) Through these diagrams, students learn new concepts, develop skills of correct projection, and develop graphic cultures.

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EFFECTIVENESS OF APPLICATION OF NEW PEDAGOGICAL TECHNOLOGIES IN THE ORGANIZATION OF PRACTICAL TRAINING IN COURSES "NATURAL GEOGRAPHY"

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Annotatsiya. Maqolada tabiiy geografiya kurslarida amaliy mashg'ulotlarni tashkil qilishda yangi pedagogik texnologiyalar, xususan "Keys-stadi" texnologiyasidan foydalanish imkoniyatlari ko'rib chiqilgan hamda ular asosida tashkil etilgan amaliy mashg'ulot darslarining natijalari yoritilgan.

Kalit so'zlar: geografiya, tabiiy geografiya kurslari, amaliy mashg'ulot, yangi pedagogik texnologiyalar, "Keys-stadi" texnologiyasi, zamonaviy ta'lim, metod.

Аннотация. В статье рассматриваются возможности использования новых педагогических технологий при организации практических занятий по естественной географии, в частности, кейс-технологии, и результаты практических занятий на их основе.

Ключевые слова: география, курсы естественной географии, практические занятия, новые педагогические технологии, кейс-технологии, современное образование, методы.

Abstract. The article discusses the possibility of using new pedagogical technologies in the organization of practical classes in natural geography, in particular, the case-study technology, and the results of practical classes based on them.

Key words: geography, natural geography courses, practical training, new pedagogical technologies, case-study technology, modern education, methods.

Introduction: The main task of the National Training Program of the Republic of Uzbekistan is to reform all levels of education. To this end, one of the most important issues is the introduction of advanced pedagogical technologies in the educational process. New pedagogical technologies being introduced into the educational process are aimed at increasing the effectiveness of the acquisition of knowledge by students. Today, the rapid development of information technology places new demands on education, as in all areas. Therefore, the organization of lessons with the use of information and pedagogical technologies, the development of mechanisms for their application in the classroom is one of the most pressing issues today.

Today, the requirements of the unity of theory and practice in education and the integration of education with production, the development and implementation of modern pedagogical technologies that stimulate creative activity, develop thinking, as well as facilitate the acquisition of time-saving knowledge. important. It should be noted that among the disciplines taught in higher education institutions, geography, in particular, natural geography, has a number of features. Therefore, the use of new pedagogical technologies in the organization of practical classes in natural geography is unique.

Literature review: Scientists such as M.Nabikhanov, O.Muminov, T.Abdullaeva, P.Musaev, M.Yunusova, R.Kurbanniyozov, H.Vahobov, P.Baratov, U.Safarov, P. Saidov, R.Gaypova, A.Khayitov, M.Abdurahmanov, H.Nikadambaeva have conducted research on the methods of teaching geography in our country. They have done a lot of scientific and methodological work on the use of pedagogical technologies.

Research methodology: deductive, analytical, comparative, distinguishing, generalizing the main idea.

Analysis and results: The concept of international education until 2030, adopted by UNESCO, identifies "creating opportunities for quality education throughout life" as an urgent task. In the national and international educational environment of the world's leading higher education institutions, emphasis is placed on further enhancing the knowledge of specialists in the field, the integrated use of traditional and modern methods of teaching through new pedagogical technologies.

One of the most pressing problems of the new century, the geo-ecological problems that are the product of the relationship between nature and society, has also become the object of study of natural geography. With this in mind, the study of human economic activity as a major factor in what happens in nature and events is the main task of natural geography. Because the further development of nature, its destiny depends on human activity.

In the age of modern science and technology, every science is gaining more and more knowledge over the centuries. Therefore, the urgent task of today's education is to create conditions that allow members of society, especially the younger generation, to acquire new knowledge in the context of scientific and technological progress. This necessitates the selection of educational content and the amount of information, taking into account the individual and age characteristics of students, adapting it to the capabilities of students.

The main purpose of modern education in the system "pupil (student) - textbook (teaching material) - teacher" is the formation of skills and competencies of the student through independent learning, teaching positive thinking. In particular, Natural Geography courses offer hands-on activities that help students work freely and independently. One of the most important tasks in such classes is to improve teaching methods using new pedagogical and information technologies.

There is a great potential for the application of new pedagogical technologies in geography, especially natural geography, taught in higher education institutions. We know that the science of "Geography" studies the nature, population and economic activity of the Earth's surface, and the science of "Natural Geography", which is its branch, studies the events and phenomena that occur in the geographical crust, their changes. is a science that studies the causes complex. Therefore, the widespread introduction of modern pedagogical technologies and their methods and techniques in the teaching of this subject is a requirement of the times.

Based on the above, it is advisable to use case-study technology in the organization of practical training in natural geography courses in higher education institutions.

The essence of this technology is that it is based on a specific situation or event ("sase" - an event). Therefore, firstly, the event under analysis must reflect the real life situation, and secondly, the situation must have an unresolved, hidden problem or several problems. Working with this technology requires additional information in addition to the information provided in the lesson. In the process of working with this information, students draw their own conclusions and make suggestions on how to solve the problem.

This technology is one of the most interactive methods, which is implemented through a "subject-subject" relationship between teacher and student. That is, the student becomes an active learner, developing the skills to work in a team, express themselves, and defend. Most importantly, Keys-Study technology focuses beyond the learning space, directing students to solve problems related to their profession and shaping their professional motivation. The technology also requires the teacher to think critically and creatively, as well as to constantly work on themselves, gather new information in science, and learn from foreign experiences.

Scientific research and practical observations, as well as solving such cases in practical classes on the course "Natural Geography of Central Asia" in the course of teaching geography, increase students' activity, develop their independent thinking skills and help them in future independent pedagogical activity. important in the preparation. The practical training in the course "Natural Geography of Central Asia" will play an important role in the formation of these features in future geographers.

Because in the course of practical training, if students carefully complete the tasks and questions using textbooks, maps and atlases, it is important for them to make comparisons, draw conclusions independently, analyze numerical data using a given table, create profiles, graphs and skills such as drawing diagrams are formed. This, of course, increases the effectiveness of education. For this reason, it is advisable to use case-study technology in the practical lessons of the course "Natural Geography of Central Asia".

Before completing the assignments in the Central Asian Natural Geography course, students should be asked to publish the text of a number of case studies and encourage them to find solutions. For example, in the case of Central Asian soils, case-study technology can be used as follows:

Formulation of Problem 1: Why do soils in the Central Asian plains and deserts contain different salts and less humus?

Formulation of the first small problem: What are the properties of soils in the plain-desert zone?

Questions for solving a small problem:

1. Why is the humus content of desert soils low?
2. Under what conditions do bald eagles and salt marshes form?
3. Where are grasslands found?
4. Where do wetland soils form?

Formulation of Problem 2: Why in the mountains this or that type of soil does not stick together and form a ribbon?

Formulation of the second sub-problem: what regions are formed as soil types change as they rise?

Questions for solving a small problem:

1. Why are typical humus soils relatively high in humus and thick in humus?
2. Explain why dark brown mountain-forest soils with brown soils are located at the same altitude, but there are differences in their properties.
3. What kind of soil is called oasis soil?

Formulation of Problem 3: Why and under what factors is soil contaminated?

Forming a third sub-problem: what do you mean by soil conservation?

Questions for solving a small problem:

1. Which soil type occupies the largest area in the agricultural use of Central Asian land resources?
2. What type of soil erosion is predominant in Central Asia?
3. In what areas does the soil become saline and what measures are taken against it?

It is advisable to present the case study in the following table:

T/r	The main problem	small problem	solution	conclusion
1	Why is it that the soils of the Central Asian plains and deserts contain so many different salts, so little humus, and so much salinity?	What are the characteristics of soils in the plains and deserts?		
2	Why in the mountains did this or that type of soil stick together and form a ribbon?	What regions do the soil types change as they go up?		
3	Why and under what factors is soil contaminated?	What do you mean by soil conservation?		

In order to determine the quality and effectiveness of the use of new pedagogical technologies in teaching geography, 17/1 group (3rd year students) of the "Methods of teaching geography" direction of Chirchik State Pedagogical Institute of Tashkent region was selected for the experiment. this group was divided into 2 subgroups, 1 subgroup was selected as the control group, and 2 subgroups were selected as the experimental group. Practical training in these groups on 3 topics: "Climatic factors" (1), "Inland waters and water resources of Central Asia" (2) and "Soils of Central Asia" (3). The schools were organized on the basis of this technology. Tests were used to determine effectiveness during the experimental work.

Results of experimental work (in percent).

On topic 1		On topic 2		On topic 3	
control group	experimental group	control group	experimental group	control group	experimental group
68,7	74,3	71,2	78,8	73,4	81,5

Experimental data show that the efficiency of students' mastery of the topic in the experimental group increased by an average of 7.1% compared to the control group. It should be noted that the use of new pedagogical technologies, in particular, the case-study technology, in the organization of practical training in the course "Natural Geography" to some extent increases the effectiveness of the course.

Conclusions and recommendations: When a student completes practical assignments based on new pedagogical technologies, firstly, fully understands the content of the assignment, secondly, completes the assignment quickly and easily, and thirdly, achieves high results in mastering the topic. Students will also develop the skills of independent thinking, analysis, and comparison. The use of modern pedagogical technologies in the organization of practical classes in natural geography courses increases the effectiveness of lessons, strengthens and deepens students' knowledge, teaches curiosity, responsiveness, contributes to the expansion of the scientific worldview. Therefore, it is advisable to use the opportunities of new pedagogical technologies in the organization of practical training in natural geography courses in higher education institutions.

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CRITERIA OF SELECTION AND ADAPTATION OF AUTHENTIC MATERIAL FOR ENGLISH LESSONS

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Annotatsiya: Ta'kidlash kerakki, ingliz tilida o'qish, gapirish, yozish, tinglashni o'rgatish uchun asl materiallarni tanlash talablari universitet talabalari uchun professional ma'lumot sayohatlari bilan bog’liq. Ommabop universitet dasturlariga muvofiq ingliz tilini o'qitish maqsadi bir qator vazifalarni, mutaxassislik bo'yicha asl adabiyotlarni o'qish qobiliyatini va kasb sohasidagi suhbatlarni aniqlaydi.

Kalit so’zlari: asl material, moslashuv, kognitiv, kommunikativ, kelishuv, mezonlar, kasb maydoni, mahorat, o'quv dasturi.

Аннотация: Следует отметить, что критерии отбора аутентичных материалов для обучения чтению, устной речи, письму, аудированию на английском языке с профессионально-информационными экскурсиями для студентов вузов. В соответствии с востребованными университетскими программами, цель преподавания английского языка определяет набор заданий, умение читать оригинальную литературу по специальности и передавать разговоры в профессиональной сфере.

Ключевые слова: аутентичный материал, адаптация, когнитивный, коммуникативный, конгруэнтность, критерии, профессиональная сфера, умение, учебный план.

Annotation: We should mention that criteria of selection authentic materials for teaching reading, speaking, writing, listening in the English language with

professional- informational sightseeing for the students at the Universities. In according with the demand of university programs, the aim of teaching English defines set of tasks, skill to read original literature on the specialty and pass the conversation in a professional field.

Key words: authentic material, adaptation, cognitive, communicative , congruence, criteria, professional field, skill, syllabus.

Introduction: our way of thinking, criteria of selection and adaptation of authentic material for English lessons is the main part and important device of teaching foreign languages.

In this article we should mention that criteria of selection authentic materials for teaching reading, speaking, writing, listening in the English language with professional- informational teaching for the students at the institutes and universities. Learning foreign languages both in universities and institutes are the basic part of professional training for future specialists. Foreign languages have great and the highest of educational potential and successful possession which can work at the level of world standards and be one of the essential item. In according with the demand of university and institute programs, theaim of teaching English illustrates set of tasks, skills to read original literature on the specialty and pass the conversation in a professional field. [9; www. pedagog.uz]

Literature Review: There are different views by scientists and researchers who are scrutinizing this sphere. All in all, one of important problems which we can meet in teaching English is reading. We have a lot of popular scientists who have contributed for developing foreign languages. One of them is Jacobson and as he told that chosen teaching materials should suggest communicative and cognitive interests and requirements on the participants and correspond to the levels of challenging in speaking skills both in native and foreign languages and the material should keep interesting information for every student. [2; 45-51] Certainly , teaching foreign languages in the educational spheres is required strong selection of the material. It is signed in psychological and methodic literature that selected material can demonstrate interest in the strength of content novelty and professional asking on the students.

Selected materials should correspond with teaching English which consist of students' interests and they have to try to get the most satisfied information. In this case we should orientate on the text and topics . With this way we pay attention students' learning and adopting materials. Criteria of selected materials must pay attention on the structure of specialty and its connection with future professional activities and tasks. The first criteria is professional activity which showed the special information of authentic text. This criteria defines future spheres of activity (practical and theoretical), in professional communication.

As Harmer mentioned, teacher should pay attention that fact that a great of students use English not only for specialty but also for their own purposes. And it is fact that texts should be more difficult for the students. Why? Because, they should work with new vocabulary and learn it. We also know that teacher is not "narrow specialist" in this field. In other words, difficulty of teaching texts for reading in the English language should raise step by step, "from simple to difficult". With such way, students begin learn English more and more in 1st and 2nd courses. It should signed that choice of passed criteria depend on teaching methodology of foreign languages at the faculties. [3; 78]

Selected materials are used in the process of conversation on practical and theoretical matter in the field of professional communicative sphere.

The second criteria of selected material in the foreign language is connected with authentic materials. In this position we understand such text which created by native speakers. These texts will be given without any changing. In the plan of language parts selected texts should correspond with modern lexis (vocabulary) and grammatical norms of English. And of course such texts are "natural" and are not produced for teaching aims. But we can see a great of useful parts of authentic materials. In the process of teaching reading English authentic texts increase the degree of participating students' cognitive process in their speech. Here, the special point is thinking and especially such thinking operations as analysis and synthesis. All such authentic materials give the base of confirm. [2; 45-51]

Research Methodology: This study is modern and qualitative research which is based on criteria and types of adaptations. Criteria of functional- stylistic and genre demand special literature and oral communication on the specialty in the English language. This given criteria influences significantly on the choosing of special literature for learning reading, listening, writing and speaking. In addition to our words, we can put different videos in the process of teaching. And such matters interest the students more and more and help the students to get more information, learn English effectively with results. The most important (in our point of view) thing is a such criteria which gives professional and language preparation of the student. From this criteria we can define successful teaching the English language. It is indisputable, and the fact that the study of literature is also very important motivation. Students will read with interest the literature and the texts that meet their educational needs. For example, they correspond to their professional interests. However, the university students often begin with a specialization from 3rd year, for instance, at the time when the course of study to the foreign (English) language have already passed. These discrepancy terms of teaching and the timing of specialization create additional difficulties in the selection of texts on specialties. [5; 17]

Analysis and Results: We should also know about the following. Criteria of selection and adaptation of authentic material for English lessons are one of the main issues. Adaptation is a process which involves certain criteria to become effective in learning. Researchers have identified a number of them in this regard. But in this article, it has been tried to list six criteria that are regarded as working enough to follow in adapting authentic materials. For analyzing , we must know the following types of adaptation:

1. Adaptation should facilitate instruction.

Teachers sometimes find their authentic materials difficult and unsuitable to teach due mostly to lack of harmony in subjects, incongruity of subjects and given teaching methodology, etc. Materials should, thus, be instructionally easy to implement. The pedagogic presentation of materials, as one of the key factors that can underscore the effectiveness of materials in foreign language settings, can enable teachers to adapt the suitable teaching methodologies, models and techniques to them in a variety of learning situations. Teachers can employ them to facilitate the learning process by consciously choosing what is theoretically and practically true and apt to teach. It is in this criterion that teachers reword instructions as to materials in order to make them more accessible or acquirable, manageable, understandable, analyzable, digestible and communicable to learners.

2. Adaptation should encourage learning

Sometimes learners complain that they cannot learn what they have studied during the term. Authentic materials seem to be richly-structured, replete with lots of passive and unfamiliar words and complicated discourse. Thus, they should be developed according to the level of students. They should be designed unambiguously so as to boost learners' comprehensibility as well as their self-confidence. They should enhance the learners' learning awareness. They should also inform learners of how well they have performed and how they have progressed.

3. Adaptation should focus on learners.

Because authentic materials are not designed according to learners' needs most often, learners give no special care towards what the materials convey, or it is difficult for learners to communicate with the content. Since the notion underlying the currently-favored teaching models and methodologies have stressed the role in the learning process, students' needs, interests and views should be included in designing the materials. Pedagogically, there are two types of materials development. The first is the Negotiated *syllabus* which is internally generated or the product of the negotiation between teacher and students, and the second is *externally imposed syllabus*, which is the syllabus imposed by an external body such as the teacher, an institution or any other administrative authority. In authentic materials, everything is infused into the learners. They are imposed by authorities in charge which carry their thoughts, demands and decisions, degrading the active role of the learners. According to the current studies, the development of a language course curriculum should be adapted to the learning preferences and expectations. So the focus is supposed to be on the materials designed as result of a negotiation or a mutual understanding between both parties, i.e., the learners and the teacher. In this case, the materials and learners at the center of the learning process and make them the main input providers.

4. Adaptation should ensure relevance

Materials should be relevant because they should be worth teaching. They should be aligned and suited with the planned course objectives or with what is expected of.

5. Adaptation should prompt flexibility

Authentic materials are not as flexible as expected as the learner styles, needs and learning environments are sure to change. Materials should be flexible so that teachers will be able to easily adapt what they teach to agree with a particular setting and a particular group of learners. In other words, teachers should provide learners with "the possibility of choosing different activities, tasks, projects and approaches, and therefore of adapting the materials to their own preferred learning needs" .

6. Adaptation in terms of motivationality.

The issue of whether the materials are motivating is not easy to decide on by itself. The materials can motivate learners when all of the aforementioned criteria are taken into account. The lack of any one of the above will result in learners' de-motivation, not necessarily in the lack of motivation but in a state in which learners gradually feel that they are losing their motivation because any one of the given criteria fills in *part* of the learners' needs.[10; www.teachingenglish.org.uk]

So, we suggest to know about drawbacks of materials adaption in the English lessons. Many findings have stressed the ineffectiveness of authentic materials in especially foreign language contexts and identified a number of shortcomings they have and this trend prompted the researchers to take into account the issue of *adapting* the published materials to the learners' local context.

This process has offered some great advantages, but the researchers and educators haven't identified its limitations and drawbacks and left behind the consequences it may bring about. In the following article, we have introduced certain limitations of materials adaptation.

1. Adaptation is a time-consuming process. It calls for in-advance and afterward case studies, action research, surveys, etc. It is not claimed to be a day's task. Such contextual variables as age, social status, gender, ethnicity, race, as well as students' background knowledge, learning needs, learning styles, course objectives, and students' levels are to be put into careful and adequate consideration and study in relation to a specific learning context.

2. Adaptation needs professionalism. Evaluation in order to adapt the materials to the students' learning context is not an undertaking to be carried out by anyone with any expertise. The people must be skilled in developing materials and have a diagnostic and analytic view of the local learning contexts. Even the teachers must be experienced, knowledgeable and qualified.

3. Adaptation cannot be universally and equally appealing.

Adaptation is a process which needs to be of local interest. Because of such factors as cultural differences, ethnicity, educational systems, peculiar environments of learning, etc., materials appealing to one learning context may not be similarly attractive to another.

4. Adaptation may be affected by the flexibility.

Sometimes the people in charge of adapting materials go to extremes due mostly to lack of enough knowledge of the given materials, unfamiliarity with learning contexts, psychological concerns, fatigue, lack of enough time, personal, political, religious, bias, gender favoritism, etc.

5. Adaptation fails to take into account all learners' needs equally.

There is no denying that learners differ in needs. Therefore, these needs must be analyzed in making pedagogical decisions especially materials development. Although needs analysis is an indispensable part of curriculum/materials development, can we adapt the materials by considering all the individual needs of EFL learners in all the learning contexts? Can adaptation take into account all the given learners' psychological, social, affective and learning variables in different learning contexts equally? Of course, no.

6. Adaptation cannot establish congruence between learners, teachers, methodologies, administrators, publishers' expectations, as well as those of course objectives at the same time.[4; 17] [8; www. Google]

1. Adaptation seems to have different meanings. For learners, it means facilitation of language learning. For teachers, it is the facilitation of teaching process. Based on the teaching methodologies, it should correspond to pedagogical principles. For administrators, it often means "ease of standardization". [www. pedagog.uz]

For publishers, it is a matter of making profits. And the course objectives require that adaptation fulfill what has been planned for the given course. Therefore, it seems to be almost impossible to match all these attitudes in order to make an effective process of materials adaptation.

For example:

Read the article and tick (✓) A, B, or C.

The best shopping cities which are the best cities to shop in? Writer, Ellie Clare, has been to five cities around the world to find out. This week, she writes about Paris.

I went to Paris in June. It's a lovely city for sightseeing that time of year, but it's also a great place to find high-quality fashion. I started in the boutiques and visited all the top names, including Cartier, Chanel, Christian Dior, and Yves Saint Laurent. I've never seen such beautiful things, but they are, of course, expensive. I bought some perfume and moved on to the hugedepartment stores of Paris. Two of the most famous are Printemps and Galleries Lafayette and they are definitely good places to visit. One place I found disappointing was The Champs-Elysées. In the old days, it was a great place for fashion, but now there are too many fast-food restaurants, banks, airline offices, shopping centers, and cinemas aimed at tourists. Don't waste your time there! After the shops, I tried the markets. One of the most famous places to find treasures in Paris is the flea market. There are three main flea markets and they are situated around the old gates of the city. I spent hours walking around these fascinating places and while I was there, I discovered the meaning of the name flea

market. Hundreds of years ago, the royal family gave away their old clothes, but they were full of little insects – fleas, of course! One stall holder told me that the best time to find treasures at the market is before the crowds arrive, usually between 5 a.m. and 6 a.m. But that was a bit early for me. I was enjoying Paris night life too much! There are also open-air markets all around the city where you can buy flowers, clothes, pets, food, and many other things. And if you want to buy a book, visit the rows of bookstalls along the River Seine. You can find some great bargains there, or you can spend hours just looking. If you want to buy half of Paris or if you just want to walk around and look, you'll love the experience. Paris is a great place to shop. [6; 32] [6; 468]

Example: This is the first article in the series.

A True B False C Doesn't say ✓

1 Ellie didn't go sightseeing.

A True B False C Doesn't say

2 She bought one item from a boutique.

A True B False C Doesn't say

3 She didn't visit any of the department stores in the city.

A True B False C Doesn't say

4 She mentions two department stores.

A True B False C Doesn't say

5 She thinks the Champs-Elysées has improved.

A True B False C Doesn't say

6 You can have a meal on the Champs-Elysées.

A True B False C Doesn't say

7 Ellie spent most of her time at the flea markets.

A True B False C Doesn't say

8 A long time ago, kings and queens sold their old clothes in flea markets.

A True B False C Doesn't say

9 Ellie visited the flea markets in the afternoon.

A True B False C Doesn't say

10 The book stalls by the river are very expensive.

A True B False C Doesn't say

2. **Read the text again and answer the questions.**

1 What does Ellie think is a good thing to do in June?

2 Where did she start shopping?

3 How did Ellie feel about the Champs-Elysées?

4 Where did Ellie find the flea markets?

5 Why didn't she start shopping early in the mornings?

It is clear that the given material and activities are authentic materials and the students, participants should them with given adaptations. In this case, reading will learned and scrutinizing in all other three skills.

Conclusion and Recommendation: As a result of our research, the following inferences and suggestions can be done:

a) The research can be point to study deeply foreign languages with all skills. There are explanations and criteria which help the learners to obtain more.

b) For all activities and to understand any material the participants should learn rules, texts, IELTS activities (foreign languages) using the demonstrated adaptations and criteria.

c) For scrutinizing in a high level, the learners should study any kind of material from easy to difficult as it has been mentioned on the top.

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APPROACHING STUDENTS FROM THEIR PSYCHOLOGICAL STATUS IN THE PROCESS OF LANGUAGE TEACHING

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Annotatsiya - nafaqat chet tilini o'qitish, balki barcha fanlarni o'qitishning yangi usullarini topish va sinab ko'rish uchun ko'p ishlar qilinmoqda. Bu bugungi kunda ta'lim uchun eng muhim masalalardan biridir.

Kalit so'zlar - chet tili, o'qitish usullari, ta'lim, psixologiya, nutq, til materiallari, lug'at.

Аннотация - Проделана большая работа не только для обучения иностранному языку, но также для поиска и опробования новых методов преподавания всех предметов. Это одна из важнейших проблем образования сегодня.

Ключевые слова - иностранный язык, методика обучения, воспитание, психология, речь, языковой материал, словарный запас.

Abstract – There is a lot of work being done not only to teach a foreign language, but also to find and try new methods of teaching all subjects. This is one of the most important issues for education today.

Key words – foreign language, methods of teaching, education, psychology, speech, language material, vocabulary.

Introduction: If in the past foreign language teaching was considered to be the study of this language system, in recent years the main focus of teaching has been to develop these students' foreign language skills. It should be noted that these goals in foreign language learning are not set by oneself or by others or individuals, but are closely related to changes in the sciences of linguistics and psychology and the social development of society. For example, consider the audiolingual method. The development of this method was influenced by changes in linguistics, that is, the structural flow[2].

It includes the following factors:

- Teaching a foreign language should start with speaking;
- Language learning is based on different structures, patterns of speech;
- Exercises should also be language-based exercises that require repeated repetition of language material;
- The choice of grammar patterns and vocabulary should depend on the results of the comparison of the native language with the foreign language;
- Great attention to pronunciation is required.

Litarature review: The main disadvantages of the audio lingual method are the large number of mechanical exercises and the lack of real speech exercises. The founders of this method are Methodist scholars Ch. Fries and R. Lado. For example, Ch. Fries says that the main content of the initial stage should be the study of structures. It is important that grammar skills are based on this[4]. According to Ch. Fries and Lado, students must first remember the set of structures (sentences) used in oral speech[3]. It is then required to construct new sentences based on these structures. This is done through training exercises.

Later, a new method began to take shape in the West. It was an audio-visual method. Its founders are the Yugoslav Methodists P. Guberin and the Frenchman Pierre Rivon, L. Gugeneim and others. This method is based on quick memorization of language (language material) by hearing and seeing[5]. The main advantage of this method is that it requires the study of the language material in relation to real-life situations. Language learning is based on seeing, listening and understanding. According to the authors of this method, the aim is to study topics that are common in everyday life (for example, apartments, furniture, trade, etc.)[6]. They are mastered mainly on the basis of perceptual perception and extensive use of technical means.

Analysis: Intensive teaching is the initial meaning of the word - to teach students to speak in a foreign language in a short period of time. This is based on the students' internal psychological capacity and memory. (Leontev A. A. Kitaygorodskaya)[1]. Thus, the following two characteristics of intensive (or intensive) teaching can be identified: Study a certain amount of educational material in a short period of time and carry out the corresponding speaking activity in a foreign language; Maximizing the use of all the resources (psychological capabilities) of personal memory, i.e. increasing the activity of students. In recent years, much needs to be done to increase student engagement in the classroom. One of the most important tasks is to create an environment of verbal communication in order to increase the activity of students in the classroom, using the internal capacity of personal memory[5]. The methods used by the teacher and the various visual aids should be aimed at this goal. The psychological state of speech communication is one of the most important tasks in increasing the activity of students. E.I. Passov, a well-known Methodist scholar, says that the communicative approach used in modern foreign language teaching is a form of intensive situation-based teaching.

It is known that the organization of the learning process in a foreign language, taking into account the age characteristics of students, is the key to success. The most important thing here is that the task assigned to the student should be in accordance with their abilities, that is, it should not be too difficult for the student. It is well known in psychology that students (in the middle stage of learning a foreign language) grow up fast at this age, as a result of which they quickly become tired, irritable and stubborn[7]. Therefore, in grades 4-5, it is advisable to replace active learning in language with less active activities. This is especially important at the end of the lesson. Grades 7-8 foreign language lessons are thematic and intensive in the study of language material. At this stage, students do not like to move and stand still. Therefore, in grades 6-7, a foreign language should never weaken the subject of the lesson. Some scientific studies have shown that by the 8th grade, students develop the ability to memorize foreign language material (of different content), to learn (not verbal memory, but observational memory). curiosity fades. Many students are bored and inactive in class and are indifferent to the task at hand. When students of this age do not have enough willpower to self-govern, and they have strong traits such as internal resentment, irritability, resistance, which leads to a sharp decline in interest in a foreign language. They lose confidence in their own strength and abilities. This has an impact on the learning process, and one of the reasons for the decline in interest in learning is that the overall activity and mobility of these students is disproportionate to the learning requirements[9]. For example: in grades 4-5, confidence is a natural desire to learn a language, assess norms, and do what adults say, and etc.

Discussion: If we measure the age characteristics of students in grades 4-5 with students in grades 4-5, then it becomes clear that reading is important for students in grades 4-5. For students in grades 6-7, speaking a foreign language. At this age, students have a strong desire for independence and self-governance. Sometimes there is a strong desire to put oneself in front of the whole class, to show oneself in front of others, and in some children to show one's abilities in front of other children. It is here that children begin to think about their future and develop an interest in a profession. All of the above makes it difficult to teach a foreign language and control student activity. Special work is needed to prevent this[8]. Aggression is especially strong in grades 7-8. Strict control over them, increased control, and increased aggression in them can lead to various conflicts between the student and the teacher. Therefore, Alkazishvelin A.A. at the same time, a slight easing of demands suggests the elimination of elements that create tension in the learning process, i.e. competition. At this age, the most important thing is to succeed in your career (at work, at home, at school). Therefore, the foreign language teacher should also show the students' small achievements in learning a foreign language. Embarrassing a student in front of other peers for a mistake makes them feel disrespectful to the teacher and aggressively seek revenge. Students in grades 7-8 try to compare themselves to others, regardless of their type of activity, and want to excel[10].

This desire is manifested in their ability to withstand various difficulties, to show their willpower, and to overcome their fears. They have a strong desire to express themselves, and in the middle stage of foreign language teaching, we need to organize the learning process, taking into account the specificity of the psychological and physiological feelings discussed above. It always seems to students that the language material they are learning is fully understood at first, but the fact that this mistake will not be repeated after a certain period of time will not be remembered and will not be an active component. It is said that a person learns only when the material is repeated. (Memory increases by 10-20%)[11]. Note: Active learning: Passive learning: For students, the external matrix is stronger than the internal matrix, so it is important to use both motives wisely. Exercises should be challenging for students and should be a stimulus for intellectual emotion. The lesson should be based on the principle of communication, in which it is important that each speech activity is based on a real situation. Let students feel their success in speaking a foreign language. Students in grades 7-8 do not even try to speak in a foreign language so as not to be ridiculed because the foreign language is so simple.

Conclusion: One of the main reasons for the failure of foreign language teaching is the fact that the learning process is psychologically adapted to a false situation. It is known that their speech in their native language is rich in information. Their foreign language speech is primitive and is not ready to express the wishes of students. Therefore, it is necessary to use real-life situations in the classroom, to play a variety of games in the classroom. But it is not possible to use games that are typical for grades 4-5, because students in grades 7-8 are afraid to be laughed at in front of other classmates.

The most important thing at this time is to use a variety of role-playing games. Children of this age should be widely involved in extracurricular activities. Unfortunately, this is not often the case in schools.

Communication between a teacher and a student in a foreign language also plays an important role.

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CHALLENGES IN THE ORGANIZATION OF THE LEARNING PROCESS AND THEIR IMPACT ON THE QUALITY OF EDUCATION

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Annotatsiya – Xalq ta’limi tizimini boshqarishning samarali mexanizmlarini joriy etish o’sib kelayotgan yosh avlodni ma’naviy-axloqiy va itellektual rivojlantirishni sifat jihatidan yangi darajaga ko’tarishning eng muhim sharti hisoblanadi, shuningdek, o’quv-tarbiya jarayonida ta’limning innovatsion shakllari va usullarini qo’llashga ko’maklashadi.

Kalit so’zlar – ta'lim usullari, o'quv muassasasi, boshqaruv jarayoni, samaradorlik, model, psixologik muhit, boshqaruv qarorlari, tashkilot.

Аннотация - Внедрение эффективных механизмов управления государственной системой образования является важнейшим условием поднятия духовно-нравственного и интеллектуального развития подрастающего поколения на качественно новый уровень, а также инновационного характера образования в образовательном процессе, формы и методы.

Ключевые слова - методы обучения, образовательное учреждение, процесс управления, эффективность, модель, психологическая среда, управленческие решения, организация.

Abstract – The introduction of effective mechanisms for managing the public education system is the most important condition for raising the spiritual, moral and

intellectual development of the younger generation to a qualitatively new level, as well as promoting the use of innovative forms and methods of education.

Key words – methods of education, educational institution, management process, efficiency, model, psychological environment, management decisions, organization.

Introduction: Management of pedagogical activity of an educational institution is a management activity carried out for the purpose of planning, organization, stimulation, control and analysis of results of pedagogical process according to the nature of activity of educational institution[11].

Today, the science of pedagogy is gaining new insights into the management of educational institutions, the essence of which is deeper than ever. For example, the concepts of "interaction", "cooperation", "reflexive management" are used instead of "influence"[1].

The theory of educational management has been enriched by the theory of educational management. Management theory is characterized by trust in employees, the creation of conditions for their productive work and mutual respect.

Literature review: The views of the teacher R.Akhliddinov, who conducted research in this area, are particularly noteworthy when we understand the essence of such concepts as management and manager, the pedagogical and psychological basis of public administration in the educational institution[2].

Management is usually understood as the work of individuals who have been formally appointed to leadership positions. The coaching job is also relevant to the management. Management is the process of influencing or collaborating with a particular employee or group to achieve maximum results from the minimum available[12].

Analysis: The indicators used to assess the effectiveness of the management of the institution can be divided into the following three interrelated groups.

1. A group of indicators that characterize the effectiveness of the management system, expressed in terms of performance and management costs of the institution[15]. Examples of educational institutions include an increase in the number of graduates (output), the effectiveness of indicators such as research, various grants, funding from

business contracts, the amount of capital investment in projects, the professional knowledge, skills and competencies of faculty and graduates[3].

2. The content of the management process and its organization, including a set of indicators that represent the direct results and costs of management[14]. Current costs of maintaining the administrative apparatus as the administrative costs of the educational institution, the use of teaching and technical aids, maintenance of educational and technical buildings, training and retraining of administrative staff, improvement of the management system, purchase of computer equipment and other means and their installation costs are taken into account[3].

   Both quantitative and qualitative indicators are used to assess the effectiveness of the management process. The efficiency, economy, speed, reliability of the control apparatus can be included in the list of such indicators. For example, when the work of the educational department of a higher education institution is automated, it is easier for professors to distribute workloads, schedule the learning process, create lesson schedules[13], set control periods, monitor and analyze student learning outcomes. At the same time, it improves the efficiency, economy, speed, flexibility, reliability of the control apparatus[4].

3. Organizational structure of the institution, a group of indicators characterizing the appropriateness of its technical and organizational level. This group includes organizational units, centers, departments, such as departments and divisions in the educational institution, equilibrium etc. can be included[4].

Discussion: Critical analysis of the state of affairs in the field of public education. There are a number of problems and shortcomings in the organization of public education management, practical coordination of public secondary education, funding for measures to improve their material and technical condition. Including: first, the insufficient role of public education authorities in the implementation of state policy in the field of general secondary and extracurricular education, the selection and placement of heads of general education institutions, the effective use of the property of departmental organizations[5];

Second, the imposition of non-specific tasks and functions on the heads of general education institutions, the lack of a clear division of powers between the director of the institution and his deputies, the lack of clear criteria and parameters for evaluating the effectiveness of their activities[6];

Third, the lack of in-depth research on current issues of general secondary education and the implementation of their results in practice, the low level of cooperation between departments of public education and general education institutions in the methodological support of the educational process[7];

Fourth, the ineffectiveness of protection mechanisms against unwarranted interference in the professional activities of principals, teachers and other staff of general education institutions, and the excessive number of inspections of schools by regulators and other government agencies[8];

Fifth, insufficient level of openness and transparency in the activities of general education institutions in ensuring the quality of education, raising the level of knowledge and pedagogical skills of teachers, the lack of effective public control over the educational process[9];

Sixth, the imperfection of the mechanism of financing and logistics of public education institutions, the low level of introduction of modern architectural solutions, innovative developments and information and communication technologies in their activities[10].

Conclusion: In short, scholars point out that education management has a number of unique characteristics. Among them, the following features are key:

Firstly, education management has a moral dimension that is defined by the word ‘expediency’;

Secondly, education management is a science and an art (because human relationships play a big role in this);

Thirdly, the mutual dialectical unity of the interests of the individual, the state and society, which is reflected in the content of management; active public participation in education management.

From the above, it is clear that the transition from state control of the education system to public administration. The purpose of public administration is to address pressing issues of educational institutions in the state and public partnership, to expand the rights and freedoms of teachers, students and parents in choosing educational programs, types, educational institutions.

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TEACHING PROGRAMMING TECHNOLOGIES IN GENERAL SECONDARY SCHOOLS

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Annotatsiya - Maqolada quyidagi ma'lumotlar ta'kidlab o'tilgan, Dastur bu berilgan algoritmga asoslangan biror bir algoritmik tilda yozilgan ko'rsatmalar, ya'ni buyruqlar yoki operatorlar to'plamidir. Algoritmlarni to'g'ridan-to'g'ri kompyuterga kiritib yechib bo'lmagani sabab ularni biror bir algoritmik tilga o'tkaziladi.

Kalit so'zlar: dastur, algoritmik til, operatorlar, kompyuter, dasturiy ta'minot, dastur kodlarini yozish, dasturchi, dasturlash texnologiyalari.

Аннотация - В статье освещается следующая информация, Программа написана на алгоритмическом языке на основе заданных инструкций алгоритма, то есть набора команд или операторов. Алгоритмы Одним из них является то, что они не могут быть загружены непосредственно на компьютерном алгоритмическом языке.

Ключевые слова: программа, алгоритмический язык, операторы, компьютер, программное обеспечение, написание программных кодов, программист, технологии программирования.

Abstract – The article highlights the following information, A program is written in an algorithmic language based on a given algorithm instructions, that is, a set of commands or operators. Algorithms One of them is that they can't be downloaded directly to a computer algorithmic language.

Key words: program, algorithmic language, operators, computer, software, writing program codes, programmer, Programming technologies.

Introduction: Programming is the process of creating a program, and the following steps are required to create it will be printed:

- Check if the problem can be programmed;
- Select or process the algorithm of the problem;
- Writing commands;
- Check software errors;
- Testing [22].

Programming is the process of creating a program, which consists of the following steps consists of [12]:

• program requirements;

• selection or development of a problem algorithm;

• writing program codes (texts, commands);

• Software editing and testing.

The word program is also a separate block of commands (given code) a descriptive word that identifies both the executable software product as a whole used as a word. This diversity can be confusing for the reader. So clarity to him we enter. That is, commands written by a program or programmer a set, or a computer product that performs actions[1].

Literature review: Programming technologies in response to software crises are emerging programming technologies [2]. This is the cause of the crisis that is, the degree of complexity of structural programming methods unable to create software for growing issues remained. As a result, plans for various projects have been disrupted the costs exceeded the established budget, the functionality of the software broken, errors increased[13].

One of the most important aspects of software is its complexity degree. A programmer should take into account all the features of the system can not. Therefore, the programmer and others in its development a large team of experts will participate. So that's the problem to the complexities that are directly related to the work of this team purposeful management is also included[3].

Developers have studied a particular area and its specific objects separated. It can be used to solve problems for objects features have been identified. Perform on each feature as needed possible actions have been identified. Then there are the realities of the industry under study developed a software object that is compatible with the object[4].

Analysis: As you know, for every problem that can be solved with the help of a computer special software development is required. Such a class of issues expansion will inevitably lead to the creation of new programs, new "old" programming languages do not have the ability to create programs or new to improve the application creation process programming language is needed[14]. This issue is definitely qualified and experienced solved by programmers or groups of programmers. That's the programmers Cultivation is one of the most important issues for computer science teachers today calculated[5].

What do you need to focus on to become a good programmer?

Over time, the challenges facing programmers change. Twenty years ago, programs processed large amounts of data were salts for. In this case, both the author of the program and its user required to be a computer professional. And now a lot has changed. More with his computer people who have no understanding of hardware and software working. The computer is not a tool for people to study it in depth, more concerned with their own affairs has become a problem-solving tool[6].

Let this new generation of users work with applications simplification increases the complexity of these programs themselves. Modern applications - a high level of user-friendliness a large number of windows, menus, dialogs, and visuals must have an interface consisting of graphical environments[7]. Changing the demand for programming is not just about changing languages, it's about changing it technology has also changed. This begs the question: what does it take to be a good programmer?

Here are some things to look for when selecting yours:

1. Must have a thorough knowledge of mathematics;
2. Must be able to work as a team;
3. Must be fluent in English;
4. Must be able to sit still and be patient[8].

What resources should be used to learn programming?

We need to use the following resources to learn programming:

1. Textbook or lecture notes on programming;
2. A set of programming problems[24];
3. Video course on the basics of programming;
4. The person or source who answers your questions;
5. Applications that check the correctness or incorrectness of the created program.

Discussion: *Object-oriented programming technologies.* Object-oriented programming is so new that is, the software system as a set of interconnected objects and each object belongs to a specific class and each class is thought to form some kind of tree. Separate class as a set of data and a set of actions to be performed on them considered[23]. To the elements of this class only through the actions defined in that class can apply. The information in the program and what to do with it the interrelationships between operations relative to traditional programming languages ensures the reliability of software systems. Object-oriented the most basic concept of programming is object and class[25].

Object. In terms of apricot programming terminology in front of us let's see, in traditional programming, we have studied it in parts: S-apricot the surface of the skin, J is the volume of apricot juice, F is the fruit between the skins weight, D-grain weight, etc. Now to that apricot through the eyes of an artist let's see. The picture of the apricot is not a fruit, but a flat apricot is an image in the plane. It is something that is separate and unrelated consisted of several pieces of data located in the data segment cannot be abstracted in appearance[9]. Apricot components are always together and while maintaining the interactions between these components considered. An object is everything that belongs to an element in the apricot tree in which we live information and behaviors that could be performed on that element represents actions and consists of complete abstraction of data will be This information and behavior is object-oriented programming in terminology, respectively, is called a property and a method. Feature also called the area of the object. [18] Of objects structure represents their relationship.

Class. Each object belongs to some class. Class - this is a complex structure that includes data, procedures, and functions in addition to expressions, execution on objects that represent classes also takes possible actions. Class information, fields, procedures and functions are called methods[22]. The structure of the class, The concept is also important. It demonstrates the richness of tools within the system does. As you know, this is to study the process of photosynthesis in a leaf it is enough to see one cell in a leaf, because the rest of the cells are the same behaves like this studied cell. We also belong to a class, type or department when we look at an object that belongs to us, we can assume that it is its behavior will be the same as for other objects of the same type [21].

Object-oriented programming is similar to our behavior represents the programming method. He is in the development of programming languages is a natural evolution of innovation. It's all previous programming trying to abstract data in a more structured way than languages is more abstract and modular.

Object-oriented programming has three main features characterized by [21]:

1. Encapsulation - operations on records on the fields of these records together with the functions and procedures to be performed goes Encapsulation also has the principle of concealment. This means that is, to perform actions that can be performed on the object tools are hidden from the eyes of programmers who use this object. The programmer can only work with certain methods and fields of this object[10]. In other words, all fields and techniques are divided into internal and external groups will be divided. The internal members of an object are "invisible" to the programmer, and the behavior of the object and identifies capabilities, and external members are "visible" to the programmer, and object management. Appears to the object programmer, methods and fields (properties) to help manage the object is called the interface of the object. The programmer has to work with the object it is enough to know the interface. For example, learning to drive a car for the principle of operation of its engine, turning the wheels, brakes no need to study the mechanism, turn the steering wheel, pedal or gearbox it is enough to know how to press the lever[12].

2. Inheritance - in advance when there is a need to identify a new object use of known objects. Participate in the creation of objects themselves can inherit the characteristics and behaviors of adult objects. The OYD concept introduces new fields

into existing classes, new fields, also allow you to create by adding features and techniques. New such a method of organizing classes is called generating. In this case the resulting new class is a feature of its base parent class and inherits techniques. For example, you can take the class of insects. It is divided into two groups: winged and wingless. To winged insects butterflies, flies, butterflies, etc. are included. Therefore, flies needless to say, it was a winged class inherits from the class of winged insects[13].

3. Polymorphism is the naming of an action and its associated objects use in the lower and upper parts of the tree. In this case, each of the trees the object performs this action in a way that is unique to it. Polymorphism is this is the ability to use the same names for methods that fall into different classes[20]. This is when the concept of polymorphism is applied to an object provides the use of a method that corresponds to the class of the object. The Object Pascal programming language is specific to object-oriented programming can provide all the tools[17]: structuralism, modularity, great abstraction. This all the features are very simple and easy to maintain had a stronger structure that could be adapted to other situations is reflected in the codes[14].

Object-oriented programming has been traditional for many years aside from the typical assumptions of standardized programming requires As a result, object-oriented programming is much simpler, high visibility and many software development issues becomes a very great tool for solving[15].

Given the above points, it is object-oriented programming technologies can solve the following problems:

• Troubleshoot traditional programming languages;

• Cannot be solved using traditional programming languages or is too large solve problems that may be difficult to solve[16];

• The range of data that can be processed and their types is traditional much broader than programming languages;

• Create a user-friendly communication interface;

• different types of input and output data[19];

• Easily organize new types of data, classes and modules, and data control;

• Different levels of sound and using multimedia and animation tools generation and processing of motion effects;

• Perform operations on the database and its contents, SQL[10,11]

Conclusion There are a lot of issues like searching for information using surveys

Easy to solve;

• Designed for the WINDOWS environment using the work with objects in applications;

• To use user-generated software creation of auxiliary reference system;

• Software installer to transfer software to other computers creates disks;

• Possible errors in the organization of the program text performance problem solving, etc.

Apparently, traditional programming languages solve problems to the object a large gap that can occur when solving using complemented by state-of-the-art programming technologies and modern meets many programming requirements.

So, higher education abandoned traditional programming languages in their home countries and focused on the object it is recommended to switch to training in programming technologies.

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TEACHING BADMINTON TECHNIQUES AND ORGANIZING THE PROCESS IN PHYSICAL EDUCATION CLASSES

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Annotatsiya – maqolada quyidagi ma’lumotlar ta’kidlab o’tilgan, badminton - bu dunyoda futboldan keyin ikkinchi mashhur sport turi. Sayyoradagi har elliginchi odam badminton o'ynaydi. Bu, shuningdek, eng ko'p energiya talab qiladigan sport va kosmonavtlarni tayyorlash dasturiga kiritilgan. Badminton - bu kaloriyalarni yo’qotishning ajoyib usuli. Bir soat davomida o'ynash har qanday sport turidan eng yuqori bo'lgan 480 kaloriya miqdorini yo’qotadi. Bundan tashqari jismoniy tarbiya darslarida badminton o’yini texnikasini o’rgatishda yuzaga kelishi mumkin bo’lgan muammolar, qo’yiladigan talablar yoritilgan.

Kalit so'zlar - badminton, volan, qoidalar, raketka, kortlar, tezlik, to'r, chidamlilik, chaqqonlik, moslashuvchanlik, o'yinchi.

Аннотация - В статье освещается следующая информация, бадминтон - второй по популярности спорт в мире после футбола. Каждый пятидесятый человек на планете играет в бадминтон. Это также самый энергоемкий вид спорта, который включен в программу подготовки космонавтов. Спортивный бадминтон - отличный способ сжечь калории. Игра за час сжигает 480 калорий, самый высокий из всех видов спорта. Кроме того, занятия по физическому воспитанию охватывают проблемы и требования, с которыми можно столкнуться при обучении технике бадминтона.

Ключевые слова - бадминтон, маховик, правила, ракетка, корты, скорость, сеть, выносливость, ловкость, гибкость, игрок.

Abstract – The article highlights the following information, badminton is the second most popular sport in the world after football. Every fiftieth person on the planet plays badminton. It is also the most energy-intensive sport and is included in the astronaut training program. Sports badminton is a great way to burn calories. Playing for an hour burns 480 calories, the highest of any sport. In addition, physical education classes cover the problems and requirements that can be encountered in teaching badminton techniques.

Keywords - badminton, flywheel, rules, racket, courts, speed, net, stamina, agility, flexibility, player.

Introduction: Badminton is the fastest racket sport. The flight speed of the flywheel reaches 270 km / h[21]. If all the movements of an athlete are combined in one game, he “runs” for 10 kilometers in length and jumps for 1 km in height; the stroke rate of high-class masters of sports during the game is 0.7 beats per second. The maximum number of shots recorded during a match is 19725[1]. Badminton sharpens the eyes, sharpens the brain and improves heart function. Badminton improves eyesight because the eye muscles work during the game. The eye is engaged as it watches the flywheel, which changes direction frequently. It improves the ability to see far and near. Badminton is also useful for strategic thinking as well as quick reactions. By tracking the flight path of a flywheel and estimating its landing location, a person forces his brain to make quick decisions, which can then be used to work under stress[20].

Literature review: Some rules of badminton B.I. Sakhnov, I.F. Fedorishev, M.M. Polevshikov, A.V. Petrunin in the category of country (Russia) by the judging panel in May 2006 at the BWF (formerly The Badminton rules of the game. These include multi-layer synthetic badminton strings. There are some basic rules of badminton and some tips for referees[2]. In this:

Player - Anyone who plays badminton;

Match -Put against each other by opponents held individually or in pairs main badminton tournament;

Singles - Two opponents compete against each other match;

Pairs - A match in which two pairs of athletes from each side compete against each other. The booster side is the side that performs the flywheel boost. The receiving side is the return side of the raised flywheel[18]. Game - Starts after the flywheel is raised and continues until he leaves the game sequence of strokes. The blow is aimed at the racket flywheel movement.

Analysis: It is important to note that the movement skills of each sport both in their specifications, dimensions, and performance based on a specific technical procedure. In other words, participation in competitions as a result of regular training of the athlete and a certain position due to the level of his technical skills and gradually updates its technical passport. The modern game of badminton is also very popular and specializes in practitioners' strength, speed, endurance, agility, flexibility, will, perseverance, sharp wit, ingenuity, "cunning" (good in the sense of sports) and the formation of other similar qualities requires. The only way to win badminton today is to win continuous and targeted large-scale training can be done in return. The body of the trainee, The possibility is not even unlimited, and therefore the loading and work ability to recover (relieve fatigue and restore organs) through the ability of this organism to work, its functional activity will need to be shaped regularly. Lesson due to such an approach the athlete's technical skills can be formed effectively, so that in different game situations a tactical or strategic issue that needs to be addressed will be able to solve.

I. Court and equipment.

1.1. Singles and doubles courts (area) is marked with lines 40 mm thick should be right-angled[17].

1.2. The lines are easily distinguishable, white or yellow.

1.3. All lines define their own boundaries are part of the playing field.

1.4. The reticulated columns are 1.5.5 cm above the court, tighten the net as described in 1.10 and should be strong enough not to bend. Column supports should not be on the playing field[3].

1.5. Columns, singles or doubles regardless of the side lines intended for pair discussions will be installed.

1.6. The net is the same thickness of dark and elegant yarn, holes are made from 15x15 mm to 20x20 mm[4].

1.7. The net is 0.76 m long and 6.1 m wide should not be less.

1.8. The top of the net is 75 mm wide and split in two a white ribbon is folded and pulled through[5].

1.9. The strap is enough to hold the net tight to the poles should be of sufficient length and strength.

1.10. The top of the net is in the center of the court 1.524 m above the side lines for doubles matches must be[6].

1.11. Make sure there is space between the side of the net and the column not allowed. If possible, fill the net to the brim need to connect.

1.12. If there are both couples and singles on the court at the same time if you can't draw lines for your game it is only possible to draw a line for solo debates. The back of the court the lines will be the rear lines of the flywheel lift, 40 mm wide columns or cloth strips that replace them the materials are placed vertically on the side lines of the grid[7].

1.13. The net of the referee tower is in the middle of the court will be installed as a continuation. In this case, 0.5-1 meters from the referee's post must be at a distance. The height of the tower seat is from the ground not less than 1.55 meters and not more than 1.70 meters[8].

Discussion: Flywheel. The flywheel is made of natural and (or) synthetic materials. No matter what material the flywheel is made of flight characteristics are elegant leather-covered foam the head feathers should be almost identical to those of a natural flywheel.

Feather flywheel:

- Must have 16 feathers attached to the head;
- The length from the tip of the feather to the head is the same, that is, from 62 mm to 70 mm[9];
- The end of the pattern is a circle with a diameter of 58-68 mm should be formed[16];
- Feathers with yarn or other suitable material hardened;

- The diameter of the head is 25-28 mm, the flywheel should weigh 4.74-5.50 g[10].

Unattended flywheel:

- Natural feathers are replaced by patsy synthetic materials;
- The head, dimensions and weight of the flywheel must meet the above requirements. The density and characteristics of synthetic materials are natural due to differences in materials, 10 of the specified dimensions percent[15].

Check the speed of the flywheel:

- The back of the court (platform) to check the flywheel straight forward from the line parallel to the side line shock is given.
- The game-friendly flywheel is on the opposite side of the court less than 530 mm from the back line, more than 990 mm should be at a distance that is not[11].

Racket. The racket measures 680 mm in length and width and should not exceed 230 mm. The handle is used to hold the racket special section. The wire surface of the racket is to strike the flywheel[14].

Part of the purpose. The head holds the wire surface. The rod is tied to the head with a handle. The conductor (if any) connects the rod to the head.

Wired surface. The surface is flat, intersecting must consist of intertwined wires in place; it's the same, the center should be the same as elsewhere. The length of the wires is 280 mm at the height of the racket head, and the width should not exceed 220 mm, but the wires in some cases, under the following conditions, even in the conductor field can be extended:

- This gap should not exceed 35 mm in width[12];
- The total length of the wire surface exceeds 330 mm should not go[13].

Prevent the wires in the racket from being eaten or broken take, reduce vibration, change balance, lever from special parts designed to be fastened to the player's hand and having the right size and location free of other extras and protruding objects should be, player changes the structure of the racket should not have any devices that serve.

Conclusion: First of all, badminton also trains the cardiovascular system and makes it more resilient. Badminton is especially useful for children who spend time staring at a computer screen or smartphone. Because the eye muscles are active during the game.

It is also important to note that badminton training develops agility and endurance. The child begins to develop physically.

In conclusion, the game enhances the reaction and quick decision-making skills, badminton has the ability to develop a child's character, teach him to compete and win every day.

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THE POSSIBLE METHODS TO BE IMPOSED ON THE WAY OF PROMOTING THE SPEAKING SKILL AND THE IMPLEMENTED TECHNIQUES TO INTRODUCE

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Abstract: The article demonstrates how one can hone the speaking skill and get a chance to possess a perfect way of using English while building a conversation with native speakers and how to overcome psychological and linguistic barriers.

Key words: presentation method, interviewing, dialogues, CV method, accept, learner, priority, an array of techniques, to swop the ideas, atmosphere, structure

Аннотация:Мазкур мақоладагапириш тил кўникмасини мукаммал эгаллаш ва она тилида сўзлашувчилар билан суҳбат қурганда инглиз тилидан мукаммал фойдаланиш имкониятига эга бўлиш ва психологик ва лингвистик тўсиқлар ва қийинчиликларни қандай енгиш мумкинлиги доирасидаги масалалар ёритилган.

Калит сўзлар: тақдимот усули,интервью олиш, диалоглар, резюме усули, қаъбул қилиш, ўрганувчи, устунлик, бир қатор техникалар, таълим бермоқ, муҳит, структура

Аннотация:В статье демонстрируется, как можно совершенствовать навыки разговорногоречаи получить возможность владеть идеальным способом использования английского языка при построении разговора с носителями языка и как преодолеть психологические и языковые барьеры.

Ключевые слова:метод презентации, собеседование, диалоги, метод CV, принимать,ученик, приоритет, совокупность методов, обучение, атмосфера, структура

Introduction: Although the English language is becoming common and well-spread across the holistic world, mastering it and becoming a natural speaker are tough enough yet. People are creating a range of methods to apply it in both learning and teaching processes. Retaining the authentic way of acquiring the language, some scholars have put forward a new and modern techniques that help learners understand the language in better way. [2]

According to Samer Al Zahin who is doing some research on English and its aspects raises an array of ways to support learners have a clear glance at the language:

1. *Presentation method*

The presentation method which was carried out among 20 students and progressed with 2 of them (7.14%) is still applied to English classes. Before teachers mostly used to give a presentation on an arranged topic to their students explaining each detail to them clearly with the examples. But, currently, students are gradually taking this responsibility. Teachers give the topics beforehand and provide the learners with enough directions, materials. Finally, students learn the topic fully on their own together with a chance to learn how to present their ideas with confidence in front of others.

2. *Interviewing*

Interviewing people or being interviewed may also give a way towards a progress in mastering the languages. The principal reason why is concerning a set of questions. Interviewing requires being either factual or someone who could prove what he or she claimed. And the language-learning process demands the learners to approach it in the way that they could freely prove each content they say. The aforementioned method was carried out among 20 students and 2 out of 20 could achieve the priority (7.14%)

3. *Dialogues*

It should be admitted that making dialogues and playing a role play by using those has being used for many years. But, why? This might be because people have a tendency to impose or use what they are going through in a real lifetime which means it could be better way of memorizing the grammar structures or vocabulary on the ground that these aspects can be acquired with much higher efficiency once they are connected with a life experience.Dialogues and stating examples out of the life could hit 3 students out 20 which accounts for roughly 3.57%

4. *CV method*

How does curriculum vitae help students learn the language more productively?

The answer is once learners could describe themselves with every single detail about them, the possibility of having a conversation with ntive speakers of the language they are acquiring can be higher than before.

Literature review: Some assumptions given by Martin Hinton are also put forward in this process:

1. *To forget what fear is*

Many candidates find it hard to copy with their inner fear to make a mistake. But they do not know that fear is the most damaging and terrible enemy on the way of fulfilling their priority. As the name suggests, failure is an open door to success. We should not be afraid of making mistakes – everyone makes it but one may win who rectifies one's mistake and tries not to make it again. If you pay attention to our daily life, we can remember our mistakes more than other events and these memories always make us alert about future mistake that we might to do. These all we mentioned above are some definitions of FEAR given by experts. If so, for what should we be afraid of making mistake when we are speaking foreign language. It is perceived as common case that a budding learner makes grammar, spelling, pronunciation mistakes which are wrong in a reality, but after passing some period of time, it starts improving and he /she begins conquering zenith. At that time, they may realize that mistake they made are the first step toward their goals and without them, they could not be who they are now. One should keep in mind that one(foreigner) with whom you are speaking is not for punishing you, they are for listening to you, communicating with you.

2. *Putting aside the structures*

Most candidates are so eager to swot up on new vocabulary as well as fixed structures. One can give a question at this stage: What is the structure in speaking part? And here are some of them:

- *… and I think I would have to choose …*
- *… and I would probably select …*
- *… and the one I would pick is …*
- *…I would have to go for …*
- *… and what I would like to add here is that …*
- *… and what I need to emphasize here is that …*
- *… and the thing that needs to be highlightened here is that …*
- *… and what I ought to stress here is …*
- *… and what I have to mention here is that …*

Research methodology: Why should you use these words? If you utilize them, it means that you can not make up sentences in your mind and so you are using them. See the discrepancy between 2 answers:

a) *"Can you tell me what you engage on when you have free time?"*

"When I am given this question, I have to say that"

b) *"Can you tell me what you engage on when you have free time?"*

"Well, to be honest, I do not have enough time to engage in my lovely pastime…"

When you have a wish to take a speaking exam to show your ability, power to speak a particular foreign language and use these structures when you sit in the exam, you might be given the following answer:

– *Can you tell me what you engage on when you have free time?*

– *When I am given this question, I have to say that…*

– *No, you do not have to answer. It is not obligatory to answer and even to take this exam…*

The exclusive reason for this event is that actually, it is not compulsory to take exam and it is not your duty. Because of having wish to show your latent ability, you are intending to sit in the exam. [5] So, using these kinds of words might be wrong when you are asked a common question which might be answered coming out from your life experience.

It is clear that learning by heart a particular structure in writing part is beneficial and one of the reasons to get higher mark in the exam. But most of the experts on language say that it is only minus for one's mark in speaking if one use them in this part. It makes lose natural speech and you may seem to read something in front of the examiner.It is worthy remembering that you are one of hundreds who are taking a speaking exam and you are one of hundreds who are trying to obtain an expected score in this section. [7] For these reasons you should try to draw the examiner's attention. If you behave as you are reading something without tension, without gesture, it makes the examiner bored and give you lower mark than you are wishing to get.

3. *Bouncing the ideas off with the friends*

Hanging out with loved ones who are learning something the same with yours might be beneficial to promote what you are studying. When you have a get-together, you might feel free to express your opinions and ideas among friends. And this triggers to build self-esteem for your ability and step by step, you forget all of burden you have on your shoulder- fear for making mistakes, stress, feeling isolated in front of foreigners and degrading situations.One more useful side is to get extra ideas from people around you. As the name suggest, 2 heads are better than one.

Analysis and Results: Additionally, from our perspective, it could be claimed that they might exist others methods, too like the followings:

1. *Changing the atmosphere time to time*

While teachers are too willing to introduce a language atmosphere into the classroom, at first, ted sign and every single décor should correspond on the account for the fact that if students can not depict the imagination depicted by learning the language, they can't dive into that. The usual methods of teaching vocabulary like making a list on a board and forcing each student learn by heart them or writing down the whole text on a blackboard and underlining each unknown word is out of date and should not be applied. When we have a passion to teach vocabulary of grammar, students should not realize that actually you are teaching them but, everything should be done in an indirect way like sticking some pictures with words under them on walls and changing them every time or hanging posters of texts decorated with depictions on doors could be more appropriate.

2. *Accepting every single learner as a whole*

When you give a chance to your students feel n important part of the class, they start acting seriously and their attitude towards learning the language can be changed totally because they try to do their best to be visualized as a role model to the rest of the class. Punctuality or the discipline that is needed on preparing for the lessons or exams together with homework may not achieved in a normal class atmosphere. But, when students regard themselves overrated, they try to deserve for the new position.

Conclusion: To conclude, one can state that taking students' potential to master the language into consideration, the ability of teachers to change the students' viewpoint regarding the language totally should be focused since it also might give a rise to nurture the linguistic skills of a learner.

On the way of honing the speaking skill, we can come to one conclusion that this process may entail both individual and group work. While one as a teacher applies a new method, she or he should think of the potential level of the progress whether it helps when it is worked for an individual student or group work. If they make a mistake in terms of using it, the possibility of attaining the high level of efficiency can be too low.

All the things considered, a teacher who has a craving to boost the ability of their students to speak a foreign language should take the students' age and level of knowledge into consideration. If a teacher applies an interview method to kids or teenagers who have no clue what the interview is or if a teacher uses a singing method to students who are over 25, it might look childish and not so serious. In a class, students may differ by age or the level of knowledge, however, they mostly have something in common and a teacher should spot that mutual thing.

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DEVELOPING WRITING SKILLS AT ELEMENTARY LEVEL

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Annotatsiya: Ushbu maqolada kichik yoshdagi til o'rganuvchilarga yozuvni o'rgatishning samarali strategiyalari yoritilib, bu borada muayyan tavsiyalar berilgan. Yosh til o'rganuvchilarning yozuv ko'nikmalarini rivojlantirishda e'tiborga molik jihatlarni taklif qiladi.

Kalit so'zlar: yozuv, mahorat, talaba, o'quvchi, o'ziga ishonch, aloqa, rivojlanish, fikrini bayon qila olish, yodlash, rivojlanish, mashq qilish, muvaffaqiyatli yozuvchilar, mashqlar, to'g'ri yozish, ruhlantirish, talaffuz, lug'at, qo'lda yozish, gap tuzish, strategiya, baholash.

Аннотация: В данной статье описывается плодотворность стратегии обучения письму изучающим иностранный язык в младшем возрасте, в этом направлении даны определённые предложения. Также предлагаются стоящие внимания стороны развития умений письма.

Ключевые слова: Ключевые слова: письмо, умение, студент, ученик, вера в себя, связь, развитие, заниматься, успешные писцы, упражнения, правописание, вдохновлять, правильное письмо, произношение, словарь, рукопись, составлять предложения, стратегия, оценивание

Abstract: This article highlights the strategies of writing and recommendations about teaching writing skills at early stages of learning foreign languages. And there have been offered some clues on developing writing skills of young learners.

Key words: writing, skill, student, child, self-confidence, communication, developing, self-expression, learning, develop, practice, effective writers, successful writer, spelling, activities, encourage, pronounce, dictionary, handwriting, sentence construction, strategy, evaluate,

Introduction: "Writing today is not a frill for the few, but an essential skill for the language learner [1.p96]. Writing is a process in which writer composes a text. Writing is not a straight process as going out or walking. It is variable in style.Writing is a priceless and very important tool for communication, language learning and self-expression of thoughts and ideas. People who do not have excellent writing skills may have some troubles in education and employment as well.The language learners should develop an early foundation in writing in order not to have such problems. A student who has good writing skills can communicate with self-confidence and express his ideas effectively and efficiently.

Literature overview: According to some authors, students who develop strong writing skills at an early age acquire a good tool for communication, self-expression and learning. Such skills will be developed by practicing writing constantly. Writing either can be started from kindergarten time or at school from the first grade [2. p25].

Choosing adequate time to write is one of the essential clues of effective writing. But, according to surveys, nowadays most language learners spend little time for writing. They need to learn this skill in order to become effective writers in the future. Teachers usually check and observe the way their students write, they can find difficulties of this skill for students and certainly they can help to correct mistakes and developing their writing skills.

According to the facts, at least 30 minutes should be devoted to writing and developing this skill for children in kindergarten. In order to become successful writer in the future the students should be taught from their early grades, exactly from kindergarten, when they begin to play with the pen or pencil [3. p53].

In kindergarten, firstly, teachers should start to teach their children how to hold pen and pencil comfortably between their fingers. Although many teachers do not pay attention to this instruction it should be taught at that time, since it may discourage children from writing [4. p71].

Likewise, teachers should show efficient ways of forming letter and how to write them easily.Children should practice each letter for 5-6 times in order to save it in their memory.

Additionally writing exercises should be practicedtogether with spelling in kindergarten. Spelling is as important as writing. But young learners may have some difficulties with spelling. In this case, teachers may use some useful activities. They can encourage the young learners to invent spelling at first, and then they correct misspelled words. Here the teacher can use very simple activity for spelling: a teacher shows some pictures, pronounces the sounds and describes targeted sound, then a teacher names each letter in turn and then writes them on the board. Students copy out the word onto their paper and repeat it many times. By this way children both see the picture and learn new word and spelling of that word as well. If the teachers can develop children's writing and spelling skills at kindergarten by making activities or anyhow, this will help them at school in their near future and they will continue without any difficulties of writing and spelling. Since, at their early age children tend to learn quickly. So that the teachers should be attentive and sensible! [5.p106]

"The schoolchildren at the 1stand 2nd grades should be informed some strategies of writing [6. p49]. Teachers should begin the course with basic skills such as reading aloud, which forces the student to focus on each word and draws attention to errors. Then teachers may move on teaching with other targeted strategies. At the 3rd grade, students may learn how to use dictionaries in order to determine the spelling of the words that they do not know. The learners may create their own dictionaries that are full of the words they found from dictionaries in order to learn and to spell correctly.

Research methodology: The learners need clear instructions as well, about how to form correct sentences and use them in their writing. Sentence instructions should move students from simple sentences to complex ones. In order to simplify to make complex sentences, the teachers can make some excerptions from children's life or children's newspapers or magazines. [7. p63]

Analysis and results: The sentence frames can be used there to start with the simple sentences and move to complex sentences step by step, here is a sample activity for **the sentence framing**:

Sample activity: Sentence framing

Have students use the sentence frame to construct their own sentences and then share with their peers fulfilled sentences. Discuss their word choices.

I love____________________ .

I love_____________ and my ______________ .

When my teacher_______________________________ , I _______________________.

My friend was ______________________________ , but he _____________________ .

I am going _________________________ , and in the future ___________________ .

Sample Activity: Sentence expanding

Add words to the sentence using different parts of speech.

I like apples. I like red apples. I like red, big apples. I like red, big, tasty apples.

My cat is small. My cat is small and cute. My cat is small, cute, and white female cat.

Sample Activity: Sentence combining

The learners are to combine the simple sentences as one sentence and compare with others which sentence sounds better.

Lucia was playing a ball on the road. Lucia was careless. The car was coming.

When the car was coming, Lucia was playing a ball carelessly.

The three things: handwriting, spelling, and sentence construction are the most important and basic skills that teacher must pay attention while teaching writing

[8. p38]

As in handwriting the students are taught how to form letters, in spelling part, pronunciation of words and letters, and in sentence construction part the effectiveness of sentence making instructions.

The learners should know that writing can be used for variety of purposes such as letter to someone, sharing an idea, providing with information or providing with entertainment etc. Learning how to write for different purposes can be useful not only at school but also for active participation in social life.

We have observed some strategies and practices for kindergarten and schoolchildren above to develop writing skills at this stage. Since writing is a complex process, it is separated into 2 sections, such as teaching how to apply the writing process, and teaching writing for variety of purposes.

The strategy is planned in series of actions for achieving something. It can be either physical or mental actions or both of them. These strategies of writing are the tools which can help students to understand the components of writing process. Many strategies can be used to help students with more than one part of the writing process. For example, if student is going to write a letter, at first he may set goals from his writing with some reasons.

Some strategies of writing:

In POW (pick, organize, write) strategy – students decide about what they are going to write. They should brainstorm their ideas, opinions and make a plan. Then write it down according to your plan.

In drafting: make your sentences orally before writing it to your paper. Make many variants of your sentence and choose the most appropriate one. Pay attention to your topic sentences.

In sharing part: read your letter aloud to your partners, peers and listen to theirs too. Ask them what they liked on your letter and give your feedback to them too.

Evaluating: evaluate your letter yourself! Answer these questions:

Are your ideas clear? Does it acquire a good beginning, ending and middle part? Is there connection in your writing with the reader?

Revise and edit: Put punctuation marks, commas, end-of-sentence marks, question marks where necessary.

Check spellings of all your words!

When the students learn to use writing strategies, the teachers should discuss when and how to use the strategies throughout the writing process, as well as why the strategies are helpful. The teachers should help the students understand how to select appropriate strategies and use them across a range of writing tasks.[9. p125]

There can be different purposes for writing. A student should understand the purpose and then can select the way of the writing to the given task. For example the purpose of a complaint letter to complain about something or someone. Or purpose of information letter to provide you with the information that you may be needed. A letter can be written to persuade someone to do something, to narrate an event to a friend, or to inform a family member about an upcoming event.

Purposes of writing:

*Describing*a person, place, or process with detailed description;

Narrating about a story that you have experienced; it can be real story or you may create yourself, fairytales that you know or heard from someone, poems and short stories.

Informing about something; new information or examine previously learned information. It can be about newspaper articles, science, letters, instructions or directions.

Persuading: giving strong opinions in order to catch the reader's attention and to convince the reader.[10. p83]

Conclusion: As concluding the theme, I can say that**,** Writing is a basic skill that can be developed by practicing over and over, without pausing . Every human skill gets better with constant, repetitive practice. With the help and enhance of teachers students may become better practitioners as the time passes. The teachers play a great role in the developing and education process of their students as the basic knowledge is given by them. Especially teaching writing from the early grades is important at school. As in future our society needs professional writers in every sphere. I have given my recommendations about writing and my personal advice , from my point of view, besides some useful activities related to writing as well. I hope, all these instructions will help you in education sphere, while teaching writing. The points below are most applicable to teachers in the humanities:

1) Encourage your student

2) help them to understand the purpose of writing

3) teach them to become fluent with spelling and sentence construction

4) give them feedback

5) explain them about their errors and mistakes

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DEVELOPING SKILLS FOR RECOGNIZING AND PRODUCING FIELD-RELATED TEXT TYPES IN ENGLISH FOR SPECIFIC PURPOSES (GENRE IN ESP)

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Abstract: This article suggests a method that helps ESP students learn how to recognize field-related text types and how to construct similar texts based on text structures and genres. The article also proposes the steps of the method with an example using an authentic material.

Key words: English for Specific Purposes, genre, text type, a text, language features, templates**.**

Annotasiya: Ushbu maqola nofilologik yo'nalish talabariga sohaga oid matn turlarini tanib olishni va matn tuzilishi ya'ni janr asosida o'xshash matnlarni qanday qilib yozishni o'rganishga yordam beradigan yondashuvni taklif qiladi. Maqola shuningdek, autentik materialdan foydalangan holda misol bilan metodning bosqichlarini taklif qiladi.

Kalit so'zlar: Muayyan maqsadlar uchun ingliz tili, janr, matn turlari, til hususiyatlari, andoza

Аннотация: В этой статье предлагается метод, который помогает студентам нефилологических направлении научиться распознавать текстовые типы, и создавать аналогичные тексты на основе текстовых структур и жанров. В статье также предлагаются этапы метода на примере использования аутентичного материала.

Ключевые слова: Английский для особых целей, жанр, текстовые типы, языковые особенности, шаблон.

Introduction: English for Specific Purposes (ESP) students often face different types of problems with learning because they are often expected to learn a lot of grammar and vocabulary in a limited number of class hours. In addition, it is expected that ESP students will have to read, understand and even to produce certain types of texts in English related to their professional and academic context, which is considered a rather difficult task. Laurence Anthony states that ESP is about offering language support so that people can successfully accomplish current and perhaps future tasks in their studies or work that have a language component [4]. One method to tackle this issue and achieve this goal in a short period of time can be taking into account the genres of texts of the target audience, and classes should aim to improve effective ways of recognizing and using these genres. In ESP genre work, the term 'genre' refers to a class of communicative events, such as, for example, a seminar presentation, a university lecture, or an academic essay [1].

Literature review: What is 'genre'? Genre' is a recognizable communicative events characterized by a set of communicative purposes identified and mutually understood by members of the professional or academic community in which it regularly occurs [8]. 'Genre' has become one of the main concepts in English for Specific Purposes (ESP) and Hyon defines genre as different type of spoken and written text. We recognize it as a type, or category, because various instances of it share similarities in purposes, content, form, and/or context [7]. Why is genre important in ESP? Hyon tries to present one reason of its importance in ESP and states that 'genres are related to ESP's core mission of preparing students to use English in their target contexts – that is, the situations in which they hope to study, work, and/or live' [7]. In other words, students will study the structures of various texts often used in their future professional or academic life, and by analyzing the texts to find out the structures of these texts, students will be able to independently create their own texts. According to Dudley-Evans, this approach provides students with knowledge of the organizational and linguistic features of genre that they need to have command of in their academic disciplines and professions [3]

A text is any piece of writing. It could be a letter, an email, a novel, a poem, a recipe, a note, and instructions for D.I.Y (Do It Yourself), an article in a newspaper or a magazine, writing on a webpage or an advert. All of these examples can be called **texts** [10]. This definition of a text implies that texts can be in different forms and can be written for different purposes. Different types of text types are usually written according to certain genres and structures, and in most cases these structures and genres tend to remain unchanged. According to Douglas Biber and Susan Conrad, variability is inherent in human language: people use different linguistic forms on different occasions, and different speakers of a language will say the same thing in different ways. Most of this *linguistic variation* is highly systematic [2]. Another feature of texts is the fact that texts often use the same grammatical structures and vocabulary to express the same meaning, and knowledge of these grammatical structures and vocabulary will save students time and will give the opportunity to create similar texts without knowledge of a wide range of grammar structures and vocabulary. Randi Reppen, Susan M. Fitzmaurice and Douglas Biber emphasize the importance of linguistic variation in the study of language use. They state that it is impossible to study the language forms used in natural texts without being confronted with the issue of linguistic variability. Variability is inherent in human language: a single speaker will use different linguistic forms on different occasions, and different speakers of a language will express the same meanings using different forms. Most of this variation is highly systematic: speakers of a language make choices in *pronunciation, morphology, word choice,* and *grammar* depending on a number of non-linguistic factors. These factors include the speaker's purpose in communication, the relationship between speaker and hearer, the production circumstances, and various demographic affiliations that a speaker can have [6]. If ESP teachers learn about the types of text that students will surely encounter in their professional or academic context, they can devote more time to the grammatical structures and vocabulary that are often used in these texts.

Research methodology: When we read a scientific article, brochure, food label, instruction or email, grammar structures, vocabulary, writing styles are very different from each other. This means that each type of text has its own characteristics that distinguish it from other types of texts. The ability to recognize these features and the ability to distinguish one genre from another has several advantages, for example [10]:

1. It helps you understand the purpose of the text;

- The purpose of an advertisement, for example, is to persuade the reader to buy or do something.
- The purpose of an email to a friend is often to inform.
- The purpose of a research article is to examine an issue fully, and to argue a particular point with the support of evidence.
- The purpose of an advert is to persuade you to buy something.

2. It helps you locate information you are searching for more easily, because you will be familiar how different texts are structured;
3. It helps you develop a shared understanding about how to communicate effectively in different situations;
4. It helps you construct similar texts using appropriate formality and structure;
5. It helps ESP learners recognize and produce similar texts with low level of English.

When it comes to text recognition, there are various language features that are common to certain types of text and which therefore distinguish one text from another. There are a wide range of language features, but learners do not have to learn all of them. Recognizing how different language features are used to meet the goals of different texts will master students' ability to read and write similar texts. When teaching ESP, teachers should take into account those linguistic features that are often used when creating certain types of texts in both professional and academic contexts.

Here are some common language features [10];

- Use of time connectives to sequence events in the story
- Verb (actions, feeling, thoughts and speech)
- Generally written in the present/past/future tense
- Written in the first/third person
- Everyday language
- Common use if conjunctions/linkers (and, then, but, because, after, when)

- Causal connectives for reasoning (therefore, so)
- Different degrees of modality (perhaps, may, should, must)
- Timeless present days
- Technical/Subject-specific terms
- Formal language
- Occasional use of passive verbs
- Factual statement
- Paragraphs with topic information, headings, subheadings
- Mainly in the imperatives
- Words that refer to time and place
- Contains dialogue
- Generalized non-human nouns and etc.

Various types of texts can be developed using several or more of the language features presented above. An ESP teacher can develop a list of language features necessary for certain learners based on needs analysis carried out before the beginning of a course.

Analysis and results: Liza Nazarenko from University of Applied Sciences Technikum Wien suggests three stages to develop awareness of various text types [5].

Stage 1 – Pre-writing stage. This stage involves selecting a text type that students will have to write. A text can be chosen by negotiating with learners so that to find out their language or professional needs. Take a look at this text that I chose to demonstrate a text type that can be used for this purpose.

Dried potato

- Size – 6*6/10*10
- Color – light yellow
- Fraction – cubes
- Packaging – polyethylene bag
- Packing – 15-20 kg

Dried potatoes contain vitamins – E, D, P and group B vitamins. There are many minerals in it. Among them there are salts of potassium, magnesium, iron, calcium, phosphorus and chromium. Dried potatoes have a high calorie content – almost 2-3 times higher than that of other vegetables. The main energy material of the potato is carbohydrates, which are mainly starch. The protein contained in the dried potato due to its composition is close to the proteins of animal origin. Its amino acids are well balanced and therefore are easily absorbed by the human body. Moisture of dried potatoes is up to 8%. When reconstituted with cooking, 1 kg of dried potatoes corresponds to 6-8 kg of fresh potatoes.

[9]

Stage 2 – Analyzing the text. This stage involves noticing and identifying various language features of a text including its genre, grammar and vocabulary. When students are shown how to analyze special-purpose texts, they learn to notice features of text types. This awareness leads them to write the same text type more effectively [5] The following language features can be found when analyzing the text;

Verbs: *contain, have (generally written in the present)*

Conjunctions and connectives for reasoning: *and, due to, therefore*

Timeless present times: *(there) is/are*

Subject specific terms: *dried potatoes, vitamins, minerals, slats of potassium, magnesium, iron, calcium, phosphorus, chromium, calorie, vegetables, carbohydrate, protein, amino acids.*

Passive verbs: *are well balanced, are easily absorbed*

Paragraphs with topic information, headings, subheadings: *size, color, fraction, packaging, packing*

Words that indicate the amount of a product: *to have high content, 2-4 times higher than, is close to, correspond*

Stage 3 – Writing. After identifying language features, students are shown the same text by removing the topic-related vocabulary and formulating a template of a certain text type [5] In our case I have formulated a template as follows:

Size:

Color:

Fraction:

Packaging:

……… contain ……… / There are many …… in it /Among them there are ………………………….. /… have a high …… / The main energy material of …… is ………… / ………. contained in ………..due to its composition is close to ………… / Its …… is well balanced and therefore ……… / Moisture of ……… is up to …… %.

Conclusion: Various types of field-related texts that are built based on certain language features would provide ESP teacher an opportunity to teach those texts types with formulas and by improving those language skills that participate to build certain text types. This method helps students build confidence in understanding and producing texts used in their both academic and professional context.

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THE "NEW" IMAGE OF MOTHER IN THE NOVEL "THE GATHERING" BY ANNE ENRIGHT

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Annotatsiya: Ushbu maqolada Irlandiyalik yozuvchi Ann Enrayt tomonidan taqdim etilgan "The Gathering" romanidagi onaning suratini batafsilroq o'rganishni o'z oldimizga maqsad qilib qo'yganmiz. Maqolaning maqsadi asarni san'at asari darajasida aks ettirish usullarini, shuningdek, muallifning milliy adabiyotdagi mavqeini ochib berish uslublarini ko'rib chiqishdir. Enrayt milliy adabiyotda jamoat ongiga xos va "an'anaviy" ona obrazidan farq qiladigan, muqaddas Bokira Maryam obrazi bilan bog'liq onaning "o`zgacha" obrazini yaratadi va qayta talqin qiladi.

Kalit so'zlar: onaning an'anaviy qiyofasi, Enrayt asaridagi ona surati, "o`zgacha" siymo, vakillik usullari.

Аннотация: В этой статье мы поставили перед собой цель более детально исследовать образ матери в романе «Собрание», представленном ирландской писательницей Анной Энрайт. Целью данной статьи является рассмотрение способов представления имидж матери как произведения искусства, а также способов раскрытия позиции автора в национальной литературе. Энрайт переосмысливает и создает «иной» образ матери в национальной литературе, который характерен для общественного сознания и отличается от образа «традиционной» матери, ассоциирующегося с образом Пресвятой Девы Марии.

Ключевые слова: традиционный образ матери, образ матери в творчестве Энрайта, «иной» образ матери, методы изображение.

Annotation: In this article, we've been investigating the image of the mother in the novel "The Gathering" in more details, presented by the Irish writer Anne Enright.

The aim of this article is to consider ways of representing this image in a work of art, as well as the ways to disclose the author's position in national literature. Enright reinterprets and creates an "new" image of the mother in national literature, which is characteristic of public consciousness and differs from the image of the "traditional" mother, associated with the image of the Blessed Virgin Mary.

Keywords: traditional image of mother, the image of mother in Enright's work, "different" image, methods of representation.

Introduction: The fourth novel by Irish writer Anne Enright "The Gathering", title of the winner of the 2007 Man Booker Prize, refers ostensibly to the assembly of a large family for the wake and funeral of one of its members, but we might also consider the book, as a gathering of powerfully unpleasant images involving the superimposition of grief, death, and decay [1].

The image of mother, so long inherent in world literature as a whole, deserves, of course, a more detailed study as a special literary phenomenon having deep roots and occupying an important place in both classical and modern literature. Anne Enright, Irish English-speaking writer, often addresses the topic of motherhood in her works, presenting her heroines in an unusual and new aspect, not only for sophisticated circles of literary critics, but also for ordinary readers. The name Enright is still little known to the Uzbek reader, her work is not so detailed studied by foreign and domestic researchers, therefore, the study of the creative path of the writer is a huge scientific interest for us.

Literature review: On the pages of her books, in particular in the novel "The Gathering" (2007), Anne Enright embodies the image of a mother full of contradictions and unfamiliar to the reader, and thereby contrasts it with the image, rooted in the literature of many countries as "traditional" or "classical". For example, in Uzbek literature, the mother woman is courageous, selfless, devoid of egoism and advocates all family. We can see real Uzbek mother who is kind, gentle, suffering, humble and tolerant at Utkir Khoshimov's work "The world affairs". Besides that, we can see the same image of mother in the novels of many foreign writers. It may be the work of the Russian writer M. Gorky, in particular his novel "Mother" (1906), poetry of N. A.

Nekrasov, S. Yesenin, in the poems of which one of the main images stands “the sufferer of the earth Russian”, that is, a woman-mother. Similar psychotype we find the defenders of the family in the image of Ursula, the heroine of the Colombian writer G. G. Marquez in the novel "One Hundred Years of Solitude" (1967). Should note that in the works of many Arabic writers, for example T. Hussein, N. Mahfuza, the mother’s image is one of the main and determining their aesthetics. The collective image of a woman-defender of the family hearth, which can be found in the literature of the peoples of the countries abroad, can arbitrarily be called "traditional", since it is one of the main world’s literature and the most familiar to the reader society.

The main deconstruction of traditional patriarchal hierarchies happens in Enright’s privileging of the body rather than the mind in her literary works. In one of her novels, The Gathering, Enright’s protagonist, Veronica Hegarty, demonstrates an awareness of the relationship between the body, mind and history: “History is only biological – that’s what I think. We pick and choose the facts about ourselves – where we came from and what it means. What is written for the future is written in the body, the rest is only spoor”. In this passage, Enright’s protagonist displays a discussion around the importance of the body when talking about history. Veronica denies the veracity of a verbal history because she says that “We pick and choose the facts about ourselves”, whereas bodily history cannot be erased or changed, it is eternal and true. Pregnancy is one of the most remarkable and visible bodily changes in a woman’s life (and its lack is also meaningful culturally speaking). Hence, discussing it in the work of this contemporary female Irish writer is key to our understanding of the history and the whole of women at the beginning of the twenty-first century [2].

It is important to note that the destruction of the mother’s image has been traced since the 1980s in English (Tony Morrison), American (Amy Tan, Sue Townsend) and other Western literature. Enright, like the aforementioned writers (which undoubtedly unites them), continues this tendency of contrasting and / or denying the ideals of the past, which characteristic of postmodern literature in whole. Anne Enright, given ethnic (Ireland) picture of the world of modern society, represents “new” image of mother in his novel, which is, of course, a fundamentally new phenomenon for Irish literature.

Research methodology: In the collection, Enright tells the story of the lives of several generations of the Hegarty family. The plot of a realistic saga is built in the main character's diary Veronica in order to restore in memory the main events in the life of the Hegarty family, which led to the death of her beloved brother Liam. The Enlightenment "The Gathering" is characterized by fragmentation, a non-linear narrative, this contributes to the fact that it is often extremely difficult for the reader to indicate reality and fiction. It should be emphasized that the writer introduces sleep and dreams, i.e., images (for example, skeleton of fish on the shore, black shadow silhouettes gravestones, which recalls the death of a family member) that occur during sleep, as artistic technique conducive to better understanding of the inner world of heroes, what can characterize the novel as psychological. Sleep and dreams, retrospection, the motive of the heroine's mental disorder, inability to remember which of the events happened in reality, and which one appeared in a dream, also erase the line between real reality and fictional in the work [3].

In this article, we aim to learn more about the image of mother in the novel "The Gathering", presented by Anne Enright in the Irish literature, consider ways of representing this image in a work of art, as well as ways to disclose the author's position.

Analysis and results: So, the novel tells the story of the Hegarty family, which originally had twelve children, more than half of whom died due to a mother's oversight, according to "survivors" children. Heroes of Enright, Veronica and Liam (when he was still alive) the cause of all misfortunes, who have fallen upon their family, they see it in their mother, "always pregnant and careless". An unusual circumstance here is that the fact that children perceive the image of the mother negatively because of her "rounded belly again". In other words, her image is certainly interpreted through the image of a pregnant and therefore unhealthy woman. Remembering the funny childhood stories, Liam and Veronica begin talk about his little brother Steve who died at the age of two for some obscure reasons. Veronica describes her as: "…… *my mother was too gentle, or busy, or absent, or pregnant to bother"* [4].

Veronica blames her mother's carelessness and negligence on the various deaths and misfortunes of her brothers and sisters and says she does not forgive her: *"I have not forgiven her for my sister Margaret who we called Midge, until she died, aged forty-two, from pancreatic cancer. I do not forgive her my beautiful, drifting sister Bea. I do not forgive her my first brother Ernest, who was a priest in Peru, until he became a lapsed priest in Peru. I do not forgive her my brother Stevie, who is a little angel in heaven. I do not forgive her the whole tedious litany of Midge, Bea, Ernest, Stevie, Ita, Mossie, Liam, Veronica, Kitty, Alice and the twins, Ivor and Jem"* [4].

Mourning the death of his brother, Veronica notices that she feels this pain the most, corroding soul, because no one can replace Liam's special and beloved by her, but Mom "has still many children". In this way, the abundance of gravestones of the Hegarty family, each of which is a symbol of death and sorrow, as well as a particle of the mother's soul, pursues Veronica in reality and in a dream. In the novel "The Gathering" there is often a change of reality, real and fictional, there is also a gloomy atmosphere that Enright skillfully creates through psychological parallelism through natural phenomena, such as rain, which paints a picture of the "assembly gravestones, once living mother's children, whose name is never mentioned in the novel". They are all washed by raindrops, i.e. tears heroines whom the author undoubtedly deeply empathizes with.

Enright, focusing on the names of heroes, great and unusual, in children and, most likely, the most ordinary, common among mothers, secretly expresses her attitude towards each of them. Proprietary system Enright names, in particular the technique referred to in literature as a "speaking name," contributes, undoubtedly, a better knowledge of the character of each of the heroes in her novel.

Speaking of seven miscarriages, the heroine Veronica's family saga bitterly suggests that unborn babies most likely did not wear names, but were named over the years (for example, 1962, 1964, etc.) when they should have appeared on shine. In Veronica's dreams to already existing gravestones are added nameless that are associated with brave fighters who fell in battle. The author reveals his position, sympathetically calling children of "innocent warriors", that is, "innocent soldiers", and this oxymoron (soldiers still kill, albeit in the name of their homeland, people) Enright was not chosen by chance. [5]. This proves the presence of another important method interpretations of the image of the mother of the heroine, who manifested through the image of a monster, an enemy, not terminating its already numerous the killings.

As we can notice, Anne Enright in his novel raises the issue of maternal indifference and even cruelty to one's own children in conditions of extreme concern or depression. The state of mind of the mother, which is in doubt and which caused genuine terror in children, could become the reason that they repeated the phrase from childhood: *Don't tell Mammy!* [4].

The psychological problems of women are only one, but the most important of the reasons influenced the formation of a different image of the mother. Indirectly, the mental state of Veronica's mother was influenced by the environment, in particular the economic crisis that erupted in Ireland in 2007. Without going into details, since there are a huge number of works devoted to this topic, we note that this circumstance had deep destructive consequences for society as a whole when the banking sector collapsed because of what increased unemployment, housing prices, etc. [6].

Of course, the problem of the relationship of mother and children, being a crosscutting theme in the novel "The Gathering" for centuries worried researchers' different scientific fields: psychologists, philosophers, literary scholars, etc. Enright considers this issue, focusing on the psychological component of the problem, representing an unplanned pregnancy and motherhood causes mental crisis, the result of which is indifference and cruelty of a mother own children. This mother woman, which should be highlighted, becomes a prototype "Mammies" in the "The Gathering" by Anne Enright.

The writer, therefore, introduces a new, "another" image of the mother, so different from the usual for us and causing condemnation on the part of society, although it is its creation. Researcher R. Parker notes that society's unwillingness to recognize and adopt a different image of the mother due to the fact that traditional image of the mother of the Irish is associated with the image of the Holy Virgin Mary. Parker also focuses on the fact those that, although in modern Irish society the theme of religion, of God, often becomes the object of jokes and even sarcasm, the image of the mother is remains untouchable [7]. This image of the mother is “traditional”, it is close to the images of mother-defenders of the family, about than we mentioned earlier.

Since the cult of the Virgin Mary, who sacrifices everything and humbly endures all the vicissitudes of fate for the sake of the child and in the name of love for him, is the coordinator of behavior and attitude to the period of pregnancy of any average statistical modern Irish, such topical issues like postpartum depression, fear of the responsibility placed on motherhood on a woman, the impact of the environment (economic, social factors), etc., are deliberately hiding [7].

Conclusion: The writer urges society to try to understand women who are experiencing a difficult period in their lives and lend a helping hand, allowing them openly and without fear of censure talk about their inner fears, related to pregnancy and motherhood. Given external factors: financial crisis in the country and its detrimental consequences, attitude family and society to a woman in a position where it is perceived only by a certain submissive and silent creature who is not entitled declare ourselves, firstly, we can conclude both internal (psychological) and external (economic, social, etc.) factors contributed to the emergence and formation a new, “another” image of a mother in struggle with herself, in particular with her negative emotions in modern Irish literature. Enright addresses yet another forbidden topic for Irish society - the existence of a psychological a factor of weakening or even loss of her personality by a woman during the period when she is waiting baby and when she became a mother.

So, having examined the image of the mother, his interpretation in the work of the writer Anne Enright, and also identifying the author’s position on posed problem, secondly, we conclude that for Irish literature this image was a fundamentally new phenomenon. Depicting in the novel “The Gathering” the mother who has ambivalent feelings for her child and suffers from mental disorders, Enright leaves this burning problem open for discussion, taking her out of the category “forbidden topics” of a society subject to the power of stereotypes. The writer, continuing the postmodern tendency to deny and destroy the habitual image (in a number of literature this happened earlier), is attempting rethinking the image of the "another" mother in national literature, thereby introducing it into one row with the "classic" image of the Virgin Mary, so characteristic of Irish consciousness of society.

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GENDER STUDIES IN LINGUISTICS

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Annotatsiya: Tadqiqot sohasi sifatida tilshunoslikdagi gendershunoslik fanlararo nisbatan yangi hisoblanadi. Tilshunoslar, tarixchilar va antropologlarning ilmiy ishlarida shu narsa yaqqol ko’rinib turadiki, ular asrlar davomida va bir nechta mamlakatlarda tilshunoslikdagi gender masalasiga alohida to’xtalib o’tishgan va buni yaqqol misollar orqali o’z asarlarida keltirishgan. Ushbu maqola zamonaviy tadqiqotlar qanday qilib tillardagi gender tafovutlarning tabiati, ularning sabablari va oqibatlarini aniqlashga intilayotganligini aniq ko'rsatib beradi.

Kalit so’zlar: gender stereotiplari, gender tilshunosligi, gender va frazeologiya

Аннотация: Как область исследований, языковые и гендерные исследования в лингвистике являются междисциплинарными и относительно новыми. В научных работах лингвистов, историков и антропологов были рассмотрены некоторые аспекты, а письменные отчеты различных видов свидетельствуют о том, что на протяжении веков и во многих странах у людей были сильные убеждения и отношение к приемлемым способам различий в способах решения вопросов, касающихся гендера. Эта статья наглядно демонстрирует, как современные исследования пытаются выяснить природу гендерных различий в языке, их причины и следствия.

Ключевые слова: гендерные стереотипы, гендерная лингвистика, гендер и фразеология

Annotation: As a field of research, language and gender studies in linguitics are interdisciplinary and relatively new. Academic papers by linguistics, historians and anthropologist had dealt with some aspects and written records of various kinds provide evidence that for centuries and in many countries people have strong beliefs and

attitudes about acceptable ways of differences in the ways in which matters relating to the genres are expressed verbally. This article vividly shows how contemporary research seeks to discover the nature of gender-related differences in language and their causes and effects.

Key words: gender stereotypes, gender linguistics, gender and phraseology

Introduction The actuality of this article has been undertaken in line with the modern trend of linguistics, which is gender linguistics. In this way we analyze and compare the concept of gender features in English and Uzbek languages.

The concept *a gender* was included into a modern linguistic paradigm much later, than in other humanities, namely in the second half of the XX centuries. Originally works in the given area were done in the West and the first system description of man's and female features of speech and language been made on the basis of languages of the German and Romance language groups In the Russian linguistics the first systematized researches on these subjects were done only at the end 80-the beginning of 90's years and from the middle of 90's began the rapid develop. And as a result in linguistics appeared a new direction -gender linguistics. In Uzbek linguistics the first systematized only from 1993-1994 researches on these subject were done with working on English , Russian scientists.

The concept "gender" has come from English language (gender) and means a grammatical category of gender. This term has been entered for distinction of concept of a social and biological sex.

In the given work *gender* refers to social categories based on sex but encompassing behaviour , roles and images that, although not biologically determined, are regarded by a society as appropriate to its male or female members.

There is a definition of gender - "a construct of three groups characteristics: a biological sex, gender stereotypes and the so-called gender displays – connected with norms of male female interaction" [1]

Literature review: Gender researches take their beginning in feminism - the alternative philosophical concept of social-cultural developments, established on concept of patriarchy. Simona de Bovuar in her book " the Second sex " has put a problem of suppression feminine in culture. She has shown that society characterizes man as positive cultural norm, and female as negative , as a deviation from norm , as “Another”

That is why feministic linguistics insists on reconsideration and alternation of language norms, including conscious normalization of language and the alternation language policy as the purpose of their researches.

The great attention in feministic researches is given to existence of cultural-symbolical marks that include female and male elements and based on opposition of “nature-culture’. Thus male is considered as positive, dominating, significant, and female - as negative, subordinated, secondary.

Let’s look through a group of synonyms: *«humanity»* - *«mankind»* (but not *«womankind»*). Its known , that the world «man» can place those words in any sentence, context without changing their value, but the word «woman» cannot replace.

«man’s great achievements» = «humanity’s great achievements» = «mankind’s great achievements» > «woman’s great achievements»

Thus, the woman is generally excluded from mankind. The mankind becomes a man’s prerogative. Compare: *«human being»*, but not «woman being». In the language asymmetry of the words «woman » and «she» have more limited reference, than «man» and «he».

Androcentric, the sight at the world through a prism of man’s vision, is expressed in representations of people. N.Telija emphasizes, «in ordinary consciousness female mind is opposed to man’s, as «not human» mind [2] Dominating andocentric of the language display in the naïve picture of the world, verbalized in the language, is presented through recognition of human-man.

Therefore it is possible to draw a conclusion, that the gender factor considering a natural sex of the person and his social representation, is one of the major characteristics of the person and during all his life not only motivates acts, defines strategy and tactics of all behaviour , but only in the certain image identifies him as a member of this or that socially –language community.

When we talk about an estimation of a situation in which communicant determines his attitude to a subject , using known language means, to submit his estimated statement as extremely intensive or on the contrary , as smoothed, softened , leveled. Categories of estimation is a category pragmatically bases on social roles of participants of the communications and their specific features.

In a lot of communicative situations there is a necessity to transfer the cautious statement, to express some share of doubt, to express some share of doubt, incomplete confidence of validity informed.

The analysis of pragmatically characteristics of separate language units is closely connected not only with consideration of internal laws of language, but also with studying the extra linguistic factors influencing process of the communications.

Research methodology: Among social determinants of speech behavior great value have such as the social status of communicants, their social installations, orientation to the certain social values and norms, and also sexual distinctions which are fixed in speech of characters in the works of art.

The gender differentiation divided into three aspects:

1.Pragmatically – assumes, that a principal cause of gender distinctions is realization by men and women of opposite communicative strategy which is expressed in such features of speech as prevalence of initiative retors at men, the frequent use by women of references, the polite forms, allowing to avoid the conflict, to smooth antagonism.

***2. Strucurally* -** man’s speech differs from female from the points of view of structure of the statement.

3. Emotively – prevalence in female speech emotive formations (at a lexical and syntactic level).

«Verboseness and a triviality» are considered as traditionally attributes of female style of dialogue. It reflects the stereotype that has affirmed in a society according to which silence is the best communicative policy for the woman. It is obvious, that at such approach any degree of her participation in speech activity is regarded as excessive garrulity. Moreover, on statistical data, « most cases it is men who tend to dominate the talk » [3]

Being a dominant of female style of dialogue, deintensificated the statement is expressed by various ways. Let's list some of them: use of introduction designs, dividing questions, modal operators of the assumption (perhaps), predicates of opinion (I think, I suppose), words (sort of, kind of), adverbs of probability (probably) and interjections (well, er, uh) which carry out some functions:

1) they allow to soften a categoriality of the statement and by that to prevent possible threat of the person of participants of dialogue;

« I don't think , sir , you have and right to command me »

(Ch. Bronte , Jane Eyre)

Heroine Charlotte Bronte is known for the independent character, she does not presume to anybody ,even to the person standing much higher above her on a social ladder "to operate" her actions. However , being the educated person, the real woman with thin , feeling soul, she expresses her attitude to actions of Mr. of Rochester as much as possible politely and tactfully – the use of a predicate of opinion smoothes her categorical estimated statement.

2) similar forms serve for expression of modal values of confidence/ uncertainty;

«Margaret might have been very patient and constant in her attachments»

(Gibson, Old Photographs)

One of heroines tells to the young man about the character of the girl he likes but as girls are familiar short time the characteristic did not sounds categoritically, with some share of the assumption.

3) they are used for maintenance of conversation when absence of duly reaction from the interlocutor breaks a normal course of the communications.

« At present I know him so well, that I think him really handsome»

(J. Austin, Sense and Sensibility)

In a woman style of communication there is a criteria of cooperation («collaborative floor»- term G.Coast) [3] that assumes equality and mutual support of participants of the communication. The given features can be interpreted also, as aspiration to protect the person of the interlocutor from probable negative influence of the transferred information.

Thus, gender differences determine not only the difference in views of men and women towards the reality, but also the difference in the choice of language means and constructions by the communicants of different gender.

Gender and phraseology. The present chapter deals with word-groups consisting of two or more words whose combination is integrated as a unit with a specialized meaning of the whole, such as *play the woman, to feel like a queen, the Iron Duke, a walking lad*, *Miss Nancy* and so on. Stability of such word-groups viewed in terms of statistical probability of co-occurrence for the member words has been offered as a reliable criterion helping to distinguish set expressions from free phrases with variable context [4].

The word "*phraseology"*, for instance, has very different meanings in this country and in Great Britain or United States. In Russian linguistic literature the term has come to be used for the whole ensemble of expressions where the meaning of one element is dependent on the other, irrespective of the structure and properties of the unit (V.A. Vinogradov) [5]; with other authors it denotes only such set expressions which, as distinguished from idioms, do not possess expressiveness or emotional coloring (A.I. Smirnitsky) [6], and also vice versa: only those are imaginative, expressive and emotional (I.V. Arnold). N.N. Amosova overcomes the subjectiveness of the two last mentioned approaches when she insists on the term being applicable only to what she calls fixed context units, i.e. units in which it is impossible to substitute any of the components without changing the meaning not only of the whole unit but also of the elements that remain intact. O.S. Ahmanova has repeatedly insisted on the semantic integrity of such phrases prevailing over the structural separateness of their elements [7]. A.V. Koonin lays stress on the structural separateness of the elements in a phraseological unit, on the change of meaning in the whole as compared with its elements taken separately and on a certain minimum stability. In linguistics phraseology describes the context in which a word is used. This often includes typical usages/sequences, such as idioms, phrasal verbs, and multi-word units. Phraseological units are (according to professor Kunin A.V). [8] stable word-groups with partially or fully transferred meaning.

All these authors use the same word '*phraseology*' to denote the branch of linguistics studying the word-groups they have in mind.

Continued intelligent devition to the problems of phraseology of such scholars as N.N. Amosova, A.V. Koonin and many others has turned phraseology into a full-fledged linguistic discipline.

In English linguistic the situation is very different. The term *'phraseology'* is a stylistic one, meaning "mode of expression, peculiarities of diction, i.e. choice and arrangement of words and phrases characteristic of some author or some literary work" [9]

Throughout the 1980s and into the 1990, there has been a quickening of interest among theoretical linguists, and among specialists in lexicography, discourse analysis, language acquisition, and foreign language teaching, in what were traditionally known as 'idioms', and are variously called 'word-combinations' (Zgusta, 1971), 'fixed expressions' (Alexandr, 1987) [10], and 'phrasal lexemes' (Pawley, 1985; Lipka, 1990). The interest reflects a keener awareness than before of the pervasiveness of ready-made memorized combinations in written and spoken language and acquisition and in speech production (Paters, 1983). The notion that native-like proficiency in a language depends crucially on knowledge of a stock of prefabricated units, varying in complexity and internal cohesion, can also be seen as a necessary corrective to the atomistic view that the workings of the language can be explained by a system of rules of general applicability, a lexicon largely made up of minimal units, and a set of basic principles of semantic interpretation (Fillmore, et. al. 1988).

This shift of perception is partly the outcome of a steady accumulation of descriptive studies throughout the 1970s and 1980s, and questions of analysis and classification will be the chief focus of this survey. Phraseology, as the study of the structure, meaning, and use of word-combinations, is not a commonly recognized field of activity among British linguists (Arnold, 1986); but that it has become a significant focus of research, especially perhaps in Europe, is apparent from the attention given to word-combinations in text-books on lexical semantics (Cruse, 1986), lexicology (Carter, 1987), and vocabulary in Language teaching (Carter and McCarthy, 1988) and from the publications of a number of phraseological dictionaries (Benson, 1986). It is noticeable, too, that despite the continuing influence in collocation analysis of neo-Firthian lexical theory (Sinclair, 1987), with its emphasis on observed frequency of co-occurrence within stated distances in large computerized corpora, the dominant influences in work are a more directly Firthian strain (Mitchell, 1971) and East European (specifically Soviet) phraseological theory, first mediated to non-Russian-speaking students through the work Klappenbach, 1978 and Arnold, 1973.

This current phraseology boom undoubtedly has a great deal to do with the development of Corpus Linguistics research, which has both demonstrated the key role of phraseological expressions in language and also provided researches with automated methods of extraction and analysis with which to study them. And the field of Phraseology itself has also expanded greatly. From encompassing the study of the most fixed and opaque multiword units, Phraseology now includes the study of a much wider range of lexical units, with varying degrees of fixedness and opacity (collocations, recurrent expression, pragmatic locutions, colligation etc).[11]

The great interest to investigation of gender factor in phraseology is caused by inexhaustible potential fund of language allows to keep and transfer the information matrixes which open a national-cultural valuable picture of this or that nation.

Researchers have already paid attention to the gender mark of English, Uzbek and Russian phraseology in the way of the contents and pragmatists. Ability of phraseological units of different type, is usually marked, to give negative portrait of the woman by eyes of the man *(It vafo, Xotin jafo; Sochi uzun, Aqli kalta),(Курица не птица, женщина не человек; У бабы дорога – от печи до порога)*, less often – on the contrary – a negative portrait of the man by eyes woman *(Xotin bo'yin, Er bosh; Er- quyosh yo'ldoshi, Xotin- umr yo'ldoshi; Сила есть –ума не надо; Муж – голова ,жена – щея).*

Today, however, it is early to speak about gender phraseology as a separate section in gender linguistics. It is possible only to plan a circle of problems that will make a subject of this science:[12]

- Types of gender phraseological nominations and predications;

- Ways of expression of grammatical values of masculinity and feminity in phraseology;
- Phraseological parameterizations of men and women; gender marked phraseological fields;
- Nominations of men and women, including anthroponomy, in structure of phraseological units as an element of the internal form;
- Reflection of a gender in phraseology, etc.

L.I.Rojzenzon was one of the first researchers who paid attention to gender marks of several phraseological units. Developing a problem of phraseological paradigmatic, i.e. abilities of phraseological units to change the grammatical form (are allocated zero, full and incomplete phraseological paradigmatic).[13]

Analysis and results: Ideographic parameterizations of phraseological units has allowed to allocate the semantic groups naming and describing the person to following attributes:

1. **The social origin;**

oq suyak, голубая кровь – the person of a noble, aristocratic origin;

белая кость- the person of a notable origin or belonging to exclusive estate in pre-revolutionary Russia;[14]

2. **The marital status and related relations:**

jufti halol – the husband or the wife, more often - about the wife;

qondosh – the native child, about consanguity;

qari qiz – the elderly woman who was not married;[15]

седьмая вода на киселе- very distant relative, etc.

3. **The social status:**

qo'li uzun, keng imkoniyatli inson - the influencial person occupying visible position in a society;

важная птица- the person occupying high service or a social standing, possessing in the weight, authority, big influencial.[16]

4. **Features of character, mainly negative:**

cunning, hypocrisy – *ikkiyuzlamachi*;

shyness- *o'zini chetga oladigan, tortinchoq*;

recklessness – буйная голова дубина, стоеросовая;

5. **Mental ability :**

positive - *peshonasi yarqiragan;*

negative – *aqli kalta*.

Conclusions and recommendations: The analysis of linguistics materials has revealed following lexical and grammatical transformations that are most often used for adequate transfer of gender features of language:

- Full replacement of the lexical unit expressing gender specificity of the original (especially in case of impossibility of use of original metaphors);
- Partial replacement;
- Generalization or a concrete definition;
- Semantic development, etc.

This problem needs further research and in this regard the next investigations and articles will be devoted to the analysis of gender marked phraseology in English, Uzbek and Russian languages.

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ISSUES OF CREATING A DATABASE OF LEXICALLY AND SEMANTICALLY RELATED UNITS OF THE UZBEK NATIONAL CORPS

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Аннотация: Мақолада синонимлар, уларнинг ўрганилиш тарихи, синонимик парадигма ҳамда ўзбек тили миллий корпусини яратишда синонимлар масаласига доир қарашлар илгари сурилади.

Калит сўзлар: Корпус лингвистикаси, синонимлар, антик даврда синонимлар тадқиқи, ўзбек тили миллий корпусини яратиш муаммолари.

Abstract: The paper presents opinions concerning synonyms, history of search synonyms, synonymic paradigm and item concerning to synonyms in creating national corpus on Uzbek language.

Keywords: Corps linguistics, synonyms, research synonyms in classical times, the problems creating of national corpus on Uzbek language.

Аннотация: В статье излагаются взгляды по поводу синонимов, истории изучения синонимов, синонимической парадигмы и вопроса касающихся синонимов в создании национального корпуса узбекского языка

Ключевые слова: Корпусная лингвистика, синонимы, изучение синонимов в античные времена, проблемы создания национального корпуса узбекского языка.

Introduction: In the second half of the twentieth century, a new field in world linguistics emerged - Corpus linguistics. This area has promised to address linguistic issues that are very relevant to language owners. Although the development of corpus linguistics has been for some time, it requires an answer to the question of what the corpus should be, to whom it is intended, and in what areas it can be applied. V.A. Plungyan responded that “the corps is necessary, first and foremost, for professional linguists. They need proof of language. This means that linguists must compile and systematize this evidence.”[1] Second, it is extremely useful for programmers. Third, the corps is a unique support for teachers in schools, secondary and higher education institutions[2]. Therefore, today the interest in this field is growing. The emergence and development of the corpus consists of two stages: the pre-computer age and the computer age corpus. The first period corpus consists of a collection of card indexes, which, although not in the form of today's corpus, served as material for linguistic research. In the computer age, they have been programmed into electronic form. Literary corpus linguistics was founded by the authors of the English corpus (Brown corpus) in the 1960s. The English language has more than 100 different-purpose corps for its variants. The cornerstone of corpus linguistics in Russian linguistics was laid in the 1980s at the University of Uppsala in Sweden. The Uzbek language is based on the achievements of Uzbek linguistics and is based on this.

Literature review: Any language works on the basis of research done so far in the early stages of the process of gaining its own national corpus. Although a lot of work has been done in Uzbek linguistics on the study of synonyms, the famous linguist A. Khojiev said: “Synonyms have been studied at different levels in different languages. While this issue has been studied in more detail in some languages, it has hardly been worked out in some languages, including Uzbek linguistics. The ideas expressed in linguistics are often inconsistent. This is first of all reflected in the definition of synonyms.”[5] However, the study of synonyms in Uzbek linguistics has its own historical development.

In the formation of the lexicon of the Uzbek language the following works was of great importance such as "Lexicon of the Uzbek language" under the heading "Materials from the course of modern Uzbek language" by Fakhri Kamal and Ya. D. Pinkhasov's pamphlets "Modern Uzbek lexicon" and "Modern Uzbek language", which includes all the pamphlets published under the heading "Materials from the course of modern Uzbek language"[3].

In particular, on the eve of the 70s of the XX century, linguist Ya.D. Pinkhasov paid serious attention to the”semantic features of synonyms in the Uzbek language and divided them into two in terms of meaning: 1. Idiographic synonyms - synonyms that are always used equally in any text, interchangeable: great *(буюк)/ huge (улуғ),* world (*дунё)/* universe, (*жаҳон/олам),* sky */ (кўк, осмон),* speak / talk, *сўзламоқ/гапирмоқ.* etc. 2. Stylistic synonyms are synonyms that are not used equally in any text, the subtleties of meaning are used differently: great /enourmous, huge / big / giant (great buildings, huge buildings, big buildings, great buildings, giant buildings).

The scientist also divides the structure of synonyms into three, depending on the form in which they are used: 1. Individual synonyms like: necessary / *керак/лозим*; fast / (quick / *тез/(чаққон/илдам*; dear / kind *азиз/меҳрибон*. 2. Double synonyms like: health - *соғ-саломат*, el-yurt - *эл-юрт*, happiness - *бахт-саодат*, anger - *қаҳр-ғазаб*. 3. Compound synonyms (synonymous phrases): black face / no honor - *юзи қора/ бети қора, ори йўқ/номуси йўқ*; early / without waking the bird - *эрта билан/ қуш уйғонмай*; till late / until dark - *кеч киргунча/қош қорайгунча*.

Ya.D. Pinkhasov emphasizes the connection of word groups to synonymy and gives examples of synonyms formed from: noun, adjective, rhyme, form, auxiliary, connecting, modal words. The scholar also says that synonyms (lexical synonyms) in language are formed in three main ways. These are: 1. The equivalent of a word in the vernacular (a word common to all dialects) passing through local dialects; 2. The transfer of words from one language to another; 3. Synonyms formed as a result of semantic similarity of words [7].

Similarly, the well-known linguist R. Kungurov in his monograph "Descriptive words in the Uzbek language", published in 1966, explained the phenomenon of synonymy in descriptive words. The scientist gives the concept of looking in the Uzbek language with different shades and notes the use of units such as *аланг-жаланг, жовдир-довдир қарамоқ, ола-кула, довдир-жовдир, мўлт-мўлт, ғилт-ғилт; жовдираб, аланглаб, бақрайиб, анграйиб, ҳўмрайиб, иишайиб, тикрайиб, адрайиб қарамоқ*. Therefore, the scholar of Uzbek stylistics says: “In the modern Uzbek literary language, a few synonymous figurative words are used, such as *“ув тортиб йиғламоқ, уввос тортиб йиғламоқ, ув-в..., пиқ-пиқ..., ҳўнг-ҳўнг.., ҳўнгир-ҳўнгир.., ўкраб, инга-инга.., бағ-бағ, пих-пих, чир-чир йиғламоқ” [8]*, scientifically proving the infinity of the possibilities of the Uzbek language.

Research methodology: In the 1980s, on the basis of a serious study of the methodological features of the Uzbek language, many linguists put forward specific definitions of synonyms. For example, E. Kilichev said that words in the synonymous series: 1. In terms of emotional-expressive color; 2. In terms of which style it belongs to; 3. Explains the differences between literary language and dialect, and distinguishes between synonyms and poetic synonyms [6]. (As for the 90s of the XX century, the scientist in his book "Practical stylistics of the Uzbek language" states his views on grammatical synonymy [10].) It should be noted that such a description" is also given in A. Hojiev's "Explanatory dictionary of synonyms of the Uzbek language"[5].

As noted above, the science of the 90s and beyond accelerated the analysis of synonymy with all the subtleties of meaning. In particular, a well-known representative of Uzbek lexicology B. Yuldashev [11] examines the phenomenon of synonymy between phraseological units, noting that their synonymy differs not only in the subtlety of meaning, but also in the methodological color, scope. Linguist H. Shamsiddinov also notes that synonyms have the same meaning that unites them, but also have distinctive features. "Synonymy is not formed on the basis of the meaning that takes place in the context" [12].

Similarly, the work of Odiljon Bazarov on the study of grading in the Uzbek language is a serious study that reveals the scientific facts on this issue. At the same time, the scientist revealed the laws of grading in the Uzbek language through natural-ontological, philosophical, logical, epistemological-methodological essence [13].

It is obvious that from the second half of the XX century in Uzbek linguistics the attitude to synonymy in words (syntactic constructions) has developed, and the researches on this subject have not diminished in the Uzbek linguistics of the XXI century. However, the textbook "Modern Uzbek literary language" created by R.R. Sayfullaeva, B.R. Mengliev, G.H. Bakieva, M.M. Kurbanova, Z.Q. Yunusova, M.Q. Abuzalova semantic relations and in the section "Lexical-semantic relations"of the textbook " Modern Uzbek language "authored by professor B.Mengliev valuable ideas on synonymous relations. Professor M. Mirtojiev in his monograph "Semasiology" and Professor S. Karimov in his monograph "Artistic style of the Uzbek language" also expressed interesting views on synonyms. Researcher G. Rakhmonov, who studied the relationship between lexical synonymy and graduonymy in the Uzbek language, asked Uzbek linguists Sh. Rahmatullaev, R.Yunusov, E.Qilichev, E.Begmatov, H.Ne'matov, A.Nurmonov, R.Rasulov, S.G'iyosov, R.Safarova, O.Bozorov, D.Khojaeva, Sh.Orifjonova, H.Shamsiddinov, Recognizes the research of L.Khudoyberdieva, N.Shirinova, J.D.Jumabaeva in this regard.

Analysis and results: It should be noted that during the first decade of the XXI century in Uzbek linguistics serious attention was paid to the development of linguistic thinking in society. In particular, the publication of the "Dictionary of word grading of the Uzbek language" [14] to develop the creative thinking of schoolchildren is a significant achievement in this regard. Similarly, in the textbook "Modern Uzbek literary language" by Professor B. Mengliev [15] the question of the relation of synonyms to the paradigm is a novelty for today's higher education.

However, to be fair, dictionaries dedicated to the interpretation of synonyms in the Uzbek language will not be able to fully serve the lexical-semantic classification of synonyms in the future. Because the creation of lexicographic works on synonyms of the Uzbek language is not so perfect. However, foreign linguistics is much more advanced in this regard. For comparison and consideration we take the "Dictionary of synonyms of the Russian language."

The lexicon (ideographic dictionary) of Russian synonyms is a relatively new phenomenon in lexicography. It shows, for the first time, how many synonymous series belong to a group of meanings (ideographic). The dictionary describes 7,528 synonymous series of 40,000 words, representing a total of 39,246 expressions. These synonymous series are divided into 16 semantic domains, 430 ideographic groups, and subgroups according to a hierarchical representation of concepts. In addition to the synonym of the word being searched, the alphabetical index of words helps to quickly and easily find synonymous rows that are comparable to the common ideographic characters with the synonymous series to which the word belongs.

Naturally, this dictionary is based on the principles of structural linguistics, and there are no such dictionaries in the Uzbek language (except for the "Dictionary of synonyms of the Uzbek language" [16], "Dictionary of the classification of words of the Uzbek language"). The existing ones are also of a purely educational nature and cannot express an analytical approach to a scientific problem in themselves. However, synonymous words are a definite (concrete) system of lexical units connected on the basis of a definite semantic connection (relationship). Lexical paradigms connected on the basis of the same precise semantic connection, in turn, form a coherent microsystem. Which is manifested on the basis of the interaction of each element with the existing meanings within the microsystem [17].

Also, the analysis of synonyms in exchange for distinguishing integral and differential signs in dictionary annotations is useful in clearly defining synonyms and their series. At the same time, the issue of defining the core and semantic boundaries among the synonyms becomes more relevant.

The core of a synonymous series consists of several semaphores and is equally important for the members of the series. However, in increasing the effectiveness of speech, the weight of the base word (dominant) and words close to it in this line is large. In particular, the meaning of the lexical dominant corresponds in whole or in part to the general meaning of the synonymous series. Consequently, it defines the boundary of the dominant synonym series and the approximate boundary of the scale of development to which the whole paradigm can apply [18].

Conclusion: It seems that research in the field of synonymy in Uzbek linguistics is not enough to create an Uzbek national corps. Nevertheless, we can create and slowly enrich the national corps on the basis of synonymous dictionaries and theoretical views created so far in our linguistics today.

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THE ROLE OF LEARNING ENGLISH IN NON-LINGUISTIC UNIVERSITIES

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Annotatsiya: Maqola tilga ixtisoslashmagan universitetlarda kommunikativ ko'nikmalarni rivojlantirish, mutaxassislik bo'yicha chet tilidagi matnlarni o'qish, tarjima qilish, tahlil qilish va qayta ishlash qobiliyati, chet tilida so'zlashish qobiliyati, tadqiqot ko'nikmalarini rivojlantirish, ijtimoiy-madaniy bilimlarni o'zlashtirish, kasbiy yo'naltirilgan o'qitishning amaliy maqsadi og'zaki monologik nutq ko'nikmalarini shakllantirish kabi masalalarni o'z ichiga oladi.

Kalit so`zlar: tilga ixtisoslashmagan universitetlar, kommunikativ ko'nikmalar, tadqiqot qobiliyatlari, chet tillari, ingliz tilini o'qitish, kasbga yo'naltirilgan o'qitish, madaniy bilimlar.

Аннотация: Статья посвящена развитию коммуникативных навыков и умений в неязыковых вузах, умению читать, переводить, анализировать и обрабатывать иностранные тексты по специальности, умению говорить на иностранном языке, развитию исследовательских навыков, социальному приобретению. Что касается культурных знаний, то практическая цель профориентационного обучения включает такие вопросы, как формирование устных монологов, говорящих на слух.

Ключевые слова: неязыковые университеты, коммуникативные навыки, исследовательские навыки, иностранный язык, преподавание английского языка, профориентация, культурные знания.

Abstract: The article focuses on the development of communicative skills and abilities in non-language universities, the ability to read, translate, analyze and process foreign texts in the specialty, the ability to speak a foreign language, the development of research skills, social the acquisition of cultural knowledge, the practical purpose of career-oriented teaching includes issues such as the formation of oral monologue speaking skills.

Key words: non-language universities, communicative skills, research skills, foreign language, teaching English, career-oriented teaching, cultural knowledge.

Introduction: In the context of deepening international cooperation, the need to establish strong economic, scientific and cultural ties, the role of a foreign language as a means of interethnic communication and dialogue is significantly increasing. Currently, one of the most widely spoken languages of international communication is English. An integral part of vocational training in a higher educational institution is the study of English. Practice shows that students of non-philological specialties often face difficulties in mastering the language they study, since they have a lower level of language training. In addition, students with mixed abilities (type of memory, learning style, etc.) study in the same academic group. Thus, the purpose of our article is to highlight the problems of teaching English to students of non-philological specialties and offer methodological recommendations that contribute to their solution.

Literature review: In the methodology of teaching foreign languages, there are at least two points of view on the essence of the concept of “group with mixed abilities”. So, S. Bremner (Susan Bremner) believes that such a group consists of students with their own advantages and disadvantages and studying at different speeds [1, p. 3 - 4]. According to P. Ur (Penny Ur), the term “heterogeneous class“ ”should be used to designate a group of students, since the term“ mixed ability class отражает reflects the students ’ability to use language skills and skills and does not affect other aspects of language training [2, p. 302 - 303].

In our opinion, a group with mixed abilities should be understood as a group of students with various abilities that affect the process of mastering the language being studied. We believe that the term we have proposed takes into account the learning style (the type of information perception, the prevailing type of motivation), the speed of learning, and other aspects of language training.

Research Methodology: Studying the problems of teaching English to students of non-philological specialties requires determining the stages of training and the tasks of each of the stages. We believe that the process of language preparation consists of 3 stages, namely[4]: 1) organizational and preparatory stage (setting the goals of the didactic process, choosing the methodological support for the discipline, dividing students into subgroups); 2) the didactic stage (the implementation of the goals of language training); 3) the final stage (summing up and adjusting the educational process).

The first problem that arises at the organizational stage is the problem of the formation of training groups (subgroups). As rightly notes D. Hicks (Diana Hicks), the formation of training groups, as a rule, is carried out according to the results of tests, often consisting of grammar exercises and reduced to filling in the gaps [3, p. 28]. In our opinion, the formation of training groups involves testing both receptive and productive skills. Let us offer a number of guidelines for the formation of study groups[5]: a) you should not give preference to grammar tests and multiple choice questions; b) texts for listening and reading should relate to the professional orientation of students, be small in volume and not contain highly specialized vocabulary; c) priority is given to speaking on a situational topic.

No less acute at the preparatory stage is the problem of choosing the educational and methodological support of the discipline. The solution to this problem, in our opinion, is that the teacher makes the choice of textbooks and manuals in accordance with the following criteria[6]: a) the professional orientation of the textbook; b) feasible difficulty of the textbook; c) authorship of domestic scientists and practitioners; d) the novelty of the textbook.

Analysis and results: At the didactic stage, the teacher also faces a number of problems, the first of which is the low motivation of students. The solution to this problem, in our opinion, is to establish a strong relationship between the level of

English language proficiency and professional growth (it is advisable for the teacher to give examples from life of people who are significant for students).

No less relevant is the problem of the mismatch of the phonetic and grammatical structure of the language being studied with the system of the native language. We see ways to solve the problem in the following actions of the teacher[7]:

1) appeal to the emotions and experience of students (when studying the phoneme [w], students can imagine that they are greeting a long-time friend);

2) differentiation of the ways of representing language material (when choosing, one should take into account the abilities of students; the use of algorithms and dramatization of form are effective);

3) the use of various creative tasks for practicing phonetic and grammatical skills.

The effectiveness of teaching English is also hindered by the problem of low foreign language speech activity of students, dictated by the small vocabulary of students and the fear of making a mistake. In our opinion, the problem can be resolved if the teacher adheres to the following recommendations[8]:

1) evaluate not only the presentation of speech, but also the content of the statement;

2) to encourage students to use lexical units at times (if they don't know a certain lexeme);

3) correct errors only after utterance;

4) first of all, pay attention to gross errors (leading to misunderstanding or distorting the meaning of the statement).

The reasons mentioned above act as a catalyst for another problem that manifests itself in the process of teaching English to students of non-philological specialties. The essence of the problem lies in the small volume of written statements (compilation of written works of students). In our opinion, the following guidelines will contribute to solving this problem[9]:

1) the priority of the content of the work (especially at the initial stage);

2) the possibility of fair processing of the written statement (the version with errors is considered as a draft);

3) attracting students to discuss and evaluate written works (students act as producers of knowledge);

4) correction of gross errors (distorting the meaning of the statement).

The final stage of training involves evaluating the effectiveness of the didactic process and adjusting the teaching strategies. At this stage, the teacher faces the problem of forming students' motivation to learn the language. The teacher faces a certain dilemma: on the one hand, it is necessary to objectively evaluate the progress of students' language training, pointing out aspects that require additional attention; and on the other hand, it is important to motivate students to further work on learning English. The dilemma can be resolved if a good psychological microclimate is established in the group and students are involved in determining strategies for further language learning.[10]

Conclusion/Recommendations: English proficiency is an integral part of the professional culture of a modern specialist. As the practice of teaching English in higher education shows, students of non-philological specialties encounter certain problems in the process of learning English. The article provides a number of guidelines that, according to the author, will contribute to the solution of the above problems. Of course, the material in the article does not exhaust all aspects of the problem under consideration. We see the prospects for further scientific research in this direction in the development of the content of the educational methodological complex for teaching English to students of non-philological specialties of higher educational institutions.

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ON THE LINGUISTIC ANALYSIS OF THE TEXT OF JUDGMENT

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Аннотация: Мақолада ҳукм матнининг типологик тавсифи кўрсатилади. Ҳукм матни таркибий қисмлари таърифланади, шакл ва мазмуний тузилиши лингвистик таҳлилга тортилади.

Калит сўзлар: матн типлари, муҳокама матни, расмий матн, нобадий матн, ҳукм матни, аниқлик, қолип, айблов ҳукми, оқлов ҳукми, айбсизлик презумпцияси, адолат, суд қарори, ҳукмнинг қарор қисми.

Аннотация: в статье приведено типологическое описание текста судебного решения. Описаны компоненты текста суждения, проанализированы его форма и семантическая структура.

Ключевые слова: типы текста, дискуссионный текст, формальный текст, невербальный текст, текст решения, ясность, шаблон, осуждение, оправдание.

Annotation: The article provides a typological description of the judgement text. The components of the judgment text are described, its form and semantic structure are analyzed linguistically.

Keywords: text types, discussion text, formal text, non-verbal text, judgment text, clarity, pattern, conviction, acquittal, presumption of innocence, justice, judgment, part of the judgment.зумпция невиновности, справедливость, решение, часть решения.

Introduction: The text is a device with a multifaceted, complex structure, therefore, when describing it, it is necessary to take into account its inherent structural, semiotic, communicative, pragmatic, cognitive features. In particular, the analysis of the court verdict in the category of text typical of the formal style revealed a number of valuable and unique aspects.[7]

The inside of the text is united by the integrity of the content, and the outside by various forms of links, syntactic means. When it comes to text and its typological classification, texts are grouped into different types depending on the content and purpose of the expression. In this case, the nature of the transmitted information and the purpose for which it is expressed serve as the main measurement function. From this point of view, it has become a tradition in linguistics to divide texts into narrative, descriptive, and debatable texts in accordance with the main forms of oral communication. Another factor in determining the types of text is the functional style of the main speech. According to the functional and methodological essence of the text, such as a scientific text (thesis, article, lecture, reviews), literary text (prose and poetry), official text (link, decision, order, description, protocol), popular text (article conversation, congratulation) are divided into networks. [1.40] It is necessary to distinguish between two opposing types of text, based on which of the two important functions of the language in the text is a communicative or aesthetic task, the text in which the communicative task is the main goal is non-artistic, and the text in which the main goal is the aesthetic task is artistic. [1.41]. Therefore, the text of the proposal in accordance with the above characteristics: 1) the content and purpose of the expression, the nature of the information and the purpose for which it is expressed is the discussion text; 2) on the functional and methodological essence of speech – the official text; 3) because the main goal is to head the communicative task – it is advisable to include it in the list of non-existent texts.

Literature review: While the text of the judgement appears in the form of the official style of the Uzbek language, it is, of course, surrounded by strict norms and rules. First, clarity. As mentioned above, in the texts formed in this style, ambiguity and explanatory cases should not be allowed. Thoughts and content should be simple and clear. Second, the standard. The idea, the comment, the statement, is basically expressed in one standard.[8]

In the text of the judgement, the semantic structure of the introductory, descriptive and decision parts is specific. For example, in the introductory part of the judgement:[9] 1) when and where the judgement was issued; 2) the name of the court that rendered the judgement, the content of the court, the secretary of the court session, the parties, the interpreter; 3) name, patronymic and surname of the defendant, year, month, day and place of birth, place of residence, place of work, occupation, education, marital status and other information of the defendant which relevant to the case; 4) which article of the Criminal Code the charge against the defendant is provided for (Article 466 of the Criminal Code of the Republic of Uzbekistan [4]).

The verdict text is structured around the sentences “Let him be found not guilty” or “Let him be found guilty”, while the semantic structure of the text appears in a unique way. "The court may issue an indictment or acquittal." (Article 462 of the Code of Criminal Procedure of the Republic of Uzbekistan). In this sense, the opening part of the judgment set out in article 466 is one and the same criterion for conviction and acquittal.

Articles 82,84,421,463,467,468 of the Code of Criminal Procedure of the Republic of Uzbekistan shall be the basis for the descriptive part and the decision part of the indictment. “The indictment cannot be based on assumptions and will only be issued if the defendant is found guilty of the crime during the trial. The indictment should be based only on solid evidence gathered as a result of the investigation of all possible circumstances of the crime in the case, to fill in all the gaps in the case file, to eliminate all doubts and contradictions. (Article 463 of the Code of Criminal Procedure of the Republic of Uzbekistan).

Research methodology: The operative part of the indictment contains forms of speech expressing the conviction of the defendant, which can be traced in the texts of the verdicts issued in various criminal cases. "... to be found guilty of the intended crime", "each of the punishments should be executed separately", "to impose a correctional judgement", "to impose a fine", "to take into account the full compensation of material damage caused by the crime", "to impose a fine in favor of the state", "to leave the precautionary measure unchanged", "To take into account the absence of a claim for material and moral damage caused by the crime", "to be transferred to other places determined by the penitentiary authorities", "... to be taken into account", "... to be taken into account", "... shall be deprived of the right to work in office," "the precautionary measure shall be revoked after the judgement enters into force," "the term of imprisonment shall be calculated from the date of entry into force of the sentence," "the term of imprisonment shall be calculated from the date of execution of the sentence", “to determine the compensation for moral damage caused by the crime", "to explain the right to compensation for material damage caused by the crime "," ... to forbid to leave the house (except in cases of need for medical care in the hospital), "The period of restriction of liberty shall be calculated from the date of registration in penitentiary inspections", "the measure of restraint shall be left unchanged", "the punishment shall be served in colonies", "the punishment shall be served in special colonies", "the right to re-appeal shall be explained", "explain the right to recover the rest of the pecuniary damage in civil proceedings with the relevant documents", "explain the right to recover material damages in civil proceedings", "cancel the precautionary measure", "explain the right to apply to the court in civil proceedings for material and moral damages", "Obligations imposed by the court in case of non-compliance, the court may replace the unserved term of imprisonment with another type of punishment", "each punishment is executed separately”, "the punishment should be served in a maximum security colony," "imprisonment should be imposed," "the measure of restraint should be changed, and he should be arrested immediately in the courtroom."

Djorayev Djurabek Djorayevich (name is amended) *to be found guilty of committing a crime under Part 2 of Article 266 of the Criminal Code of the Republic of Uzbekistan. Under the Article 266 (2) of the Criminal Code of the Republic of Uzbekistan, Djuraev Djurabek Djuraevich was deprived of the right to drive a vehicle for a period of 2 years and recovery of 20% of the monthly salary to the state revenue to impose a penalty of 3 years of correctional labor according to Article 61 of the Criminal Code, each penalty should be executed separately”* (from the text of the judgement).

Analysis and results: Articles 83,301,421,464,469,470 of the Criminal Procedure Code of the Republic of Uzbekistan are the basis for acquittal and its description and part of the decision. A verdict of acquittal shall be rendered in the following cases: 1) if no criminal case has occurred; 2) there is no criminal element in the act committed by the defendant; 3) the defendant is not involved in the commission of the crime. If it is established that the crime was committed by another person, as well as if the accusation against the defendant is not convincingly confirmed after a thorough investigation of the case, the court shall acquit the defendant on the grounds provided for in paragraph 3 of part one of this article. If the perpetrator was not identified at the time of acquittal on that basis, the court shall refer the case to the prosecutor after the entry into force of the sentence in order to identify the person and take measures to involve him in the case as a defendant. (Article 464 of the Code of Criminal Procedure of the Republic of Uzbekistan). The operative part of the acquittal contains forms of speech indicating that the defendant has been found not guilty. "... to be found not guilty of committing the intended crime", "to be acquitted on the grounds that he was not involved in the commission of these crimes", "to be acquitted on the grounds that his actions did not constitute a crime", "justify the reason", "cancel the precautionary measure applied in this criminal case", "explain the right to appeal to the court with a claim for compensation for property damage caused to him in connection with rehabilitation [2] and the consequences of moral and other damage in the manner prescribed by Articles 304-312 of the Criminal Procedure Code of the Republic of Uzbekistan", "release from punishment", be released from prison in the courtroom" and others. *Juraev Jurabek Juraevich (Djuraev Djurabek Djuraevich)* (name is amended) *to be found not guilty of committing the committed crimes and to be acquitted on the grounds that his actions did not constitute a crime under the Article 167, part 3, items "a, v, g" of the Criminal Code of the Republic of Uzbekistan,* and the Article *209, part 2, items "a, b",* Komilova Komila Komilovna (Komilova Komila Komilovna) (name is amended) *to be found not guilty of committing a crime under Article 168 (3) (a) find, prosecute and investigative actions as well to be acquitted on the grounds that no criminal incident occurred in the case in which the trial took place. The precautionary measure against K.Kamilova should be revoked. Explain the right of K.Kamilova to claim compensation for property damage caused to her in connection with her rehabilitation, as well as the consequences of moral and other damage in the manner prescribed by Articles 304-312 of the Criminal Procedure Code of the Republic of Uzbekistan.*

Articles 468,470,471 of the Criminal Procedure Code of the Republic of Uzbekistan are the basis for the operative part of the judgement.

When deciding on the type of sentence against the defendant, the court must comply with the requirements of the principle of the presumption of innocence provided for in Article 23 of this Code (Article 462 of the Code of Criminal Procedure of the Republic of Uzbekistan). A suspect, accused, or defendant shall be presumed innocent until proven guilty of a crime in the manner prescribed by law and determined by a court judgment that has entered into force. The suspect, accused, or defendant does not have to prove his or her innocence. All suspicions of guilt must be resolved in favor of the suspect, accused, or defendant if the possibility of resolving them is exhausted.

Doubts arising from the application of the law should also be resolved in favor of the suspect, accused, defendant (Article 23 of the Code of Criminal Procedure of the Republic of Uzbekistan). Any person accused of committing a crime shall not be considered guilty until his case is examined in court in a lawful and transparent manner and his guilt is established (part 1 of article 26 of the Constitution of the Republic of Uzbekistan [3]). The accused in court is called the accused, and after the judgement he or she is called the convicted or acquitted (article 45 of the Code of Criminal Procedure of the Republic of Uzbekistan). The accused may not be required to testify, as well as to prove his innocence or any other circumstances of the case (Article 46 of the Code of Criminal Procedure of the Republic of Uzbekistan). Crime, punishment and other legal consequences of a committed act are determined only by the Criminal Code. No one can be convicted of a crime and convicted illegally without a court judgement (article 4 of the Criminal Code of the Republic of Uzbekistan [5]).

Conclusion: The text of the judgment reflects an attempt to protect the interests of the defendant within the law on the basis of a substantive structure aimed at the administration of justice.[10] "First of all, the opinion that best suits the interests of the defendant will be put to the vote. If a judge or judges who have voted in favor of acquittal are in the minority and other judges have differing opinions on the description of the crime or the penalty, the vote or votes for acquittal shall be added to the vote cast for the relevant article of the Criminal Code. Article 460 of the Code of Criminal

Procedure of the Republic of Uzbekistan). “Democracy in the Republic of Uzbekistan is based on universal principles, according to which a person, his life, freedom, honor, dignity and other inalienable rights are the highest value. Democratic rights and freedoms are protected by the Constitution and laws ”(Article 13 of the Constitution of the Republic of Uzbekistan). "... The rights and freedoms of citizens, enshrined in the Constitution and laws, are inviolable, and no one has the right to deprive or restrict them without a court decision" (Article 19 of the Constitution of the Republic of Uzbekistan). It should be noted that the same "court decision" is in the text of the judgement and fully reflects its essence.

Based on these criteria, very important psychological factors are important, such as the role of the sentence text, its content, the fact that it is aimed at deciding the fate of a person (in a sense), who is considered the highest being. “After the court signs the verdict, he returns to the courtroom, and the presiding judge or people's adviser announces the ruling part of the verdict. Everyone present in the courtroom, including the panel of judges, must issue a verdict (article 473 of the Code of Criminal Procedure). Failure to comply with a court decision in a timely manner or in full entails liability in accordance with the law (the Code of Criminal Procedure of Republic of Uzbekistan. part 4 of article 531).

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[2] Article 83 of the Code of Criminal Procedure of the Republic of Uzbekistan states “Grounds for Rehabilitation”.

[3] The suspect, accused, defendant shall be found not guilty in the following cases and shall be rehabilitated:

1) there is no criminal case on the case in which the case was initiated and the investigative actions or court proceedings were conducted; 2) his act does not contain criminal elements; 3) he is not involved in the crime committed.

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FEMINISTIC FEATURES OF L.TOLSTOY'S AND J.GALSWORTHY'S MAIN CHARACTERS

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Annotatsiya - Maqolada L.Tolstoyning "Anna Karenina" va Jon Galsvorsining "Forsayt Saga" romanlaridagi asosiy qahramonlarning xarakteristikalari aks etgan. Tolstoyning "Anna Karenina" romanida ayol obrazlari Anna Kareninaning qahramon obrazi atrofida birlashtirilgan, bu esa uni boshqa qahramonlar bilan o'zaro aloqada maksimal darajada ochib berishga imkon beradi. Kichik belgilar biroz boshqacha ma'no kasb etadi. Anna obrazi Betsi, Varenka va Madam Staxl, Agafya Mixaylovna - Kittining xususiyatlarini o'zida mujassam etgan va ular murakkab tarzda o'zaro munosabatda bo'lib, "oilaviy fikrni" aks ettiradi.

Kalit so'zlar - belgilar, ayol tasvirlari, roman, ayollik, qahramonlar hayoti, oilaviy fikr.

Аннотация - В статье отражены особенности характеров главных героинь в романах «Анна Каренина» Л.Н. Толстого и «Собственник» Джона Голсуорси. В романе Л.Н.Толстого женские образы сгруппированы вокруг образа-персонажа Анны Карениной, что позволяет максимально раскрыть его во взаимодействии с другими персонажами. Второстепенные персонажи имеют немного другую зависимость. Образ Анны заключает в себе черты Бетси, Вареньку и мадам Шталь, Агафью Михайловну - Кити, и, взаимодействуя в комплексе, они отражают "мысль семейную".

Ключевые слова - персонажи, женские образы, роман, женственность, жизнь героев, мысль семейную.

Abstract - The article reflects the characteristics of the characters of the main characters in the novels "Anna Karenina" by L.N. Tolstoy and the "Owner" of John Galsworthy. In the novel by L.N. Tolstoy, female images are grouped around the character image of Anna Karenina, which allows him to be revealed as much as possible in interaction with other characters. Minor characters have a slightly different addiction. The image of Anna contains the features of Betsy, Varenka and Madame Stahl, Agafya Mikhailovna - Kitty, and, interacting in a complex, they reflect a "family thought."

Key words – characters, female images, novel, femininity, life of heroes, family thought

Introduction: Galsworthy, in the preface to his novel, very definitely spoke out in defense of Irina. It is clear that in Irina, he intended to embody the very beauty beyond the control of the world, not knowing obstacles, free, bewitching, and loving those who obey her. Irene, love, beauty, gentleness, passivity, aroma of irises, music, defenselessness, and not only. When comparing the works of “Anna Karenina” and “The Forsyte Saga”, it is concluded that the poetics of female images in them have both similarities and differences.

Galsworthy, in the preface to his novel, quite definitely spoke out in defense of Irene. It is clear that in Irene, he intended to present that very worldless Beauty, free of barriers, free, bewitching, merciless to blinded inhabitants and loving those who obey her. Irene, love, beauty, gentleness, passivity, aroma of irises, music, defenselessness, golden hair - all this is wonderful, but it turns out to be just the outside of the matter. Who are Galsworthy and some who follow him called the symbol of femininity? Most of the characters in Galsworthy are people doing something[15]. We see their thoughts and actions, some spiritual impulses. Each of them rotates in its own wheel, strives for something, is passionate about something, and as a result comes to some goal. They have their own unique features.

Literature review: The older generation of Forsyte by the beginning of the novel retired and is engaged mainly in contemplating the world, comparing it with its past. James Forsyte worries about family[5]. Emily Forsyte takes care of the house and James. George Forsyte is witty. Val Darty is rearing horses. Holly takes care of Val and writes books. Winifrid Darty brings up children and drags the cross of an unhappy marriage, and after the death of her husband begins to live for her pleasure. Monty gets drunk, plays and ends up badly. Soames decides in general all family matters and tries to arrange his own life. Fleur seeks his place in society and fights for love. Michael takes care of Fleur and tries to save England[7]. Even Annette - a minor character - and she is remembered for his patriotism in disputes with Soames. Concerns, interests of each are the essence of the life of heroes.

Analysis: What does Irene do? All her studies are mostly decorative, short-term in nature. She waters the flowers, play the piano, walk or just silently sit on the couch (especially if Soames is at home). In the period after her departure from Soames and until her second marriage, as we know, she sews dresses, translates and helps fallen women, and is also culturally entertained in theaters and museums. With marriage, creative activity (sewing and translations) ceases, and her main occupations are again walks, travels and music, occasionally a son[6]. Whether she has a goal, what she is going to, what she wants, what these classes are given to her is unknown. So uncertain, it floats into the shadows with the death of Soames.

Irene, if you think about her, is very passive. The author himself emphasizes this passivity, but probably for a different purpose. In fact, Irene goes from under one wing to another. She grew up in her aunt's house (and hated this house, which slips in Soames's memoirs). Then she moved to Soames's house, which she also hated. Then follows the stage of independence and its lonely life (a bit artificial, in my opinion, since it is not clear what prevented her from leaving Soames earlier if, having left, she could easily find a place to live and even money. She would have done so illegally). Then she marries Jolyon and bathes in comfort and adoration. After Jolyon's death, John takes care of her[4]. Irene unobtrusively relieves herself of any responsibility and transfers unpleasant responsibilities to someone else. In her first marriage, she lets

Soames take care of everything, from the very beginning showing her indifference and unwillingness to compromise. She easily succumbs to Jolyon's obligation to tell John about her past. After the death of Jolyon, all the formalities are settled by his daughter June, and not by Irene. A tiny episode from the first book, where James asks Irene why he and June stopped communicating, is indicative. In response, the typical phrase for Irene is: “Ask her about it,” and it sounds rather cowardly, no matter what the author has in mind. Finally, the most interesting thing Irene creates with her main men: Bosini, Jolyon and John. After all, it was Irene who became the indirect cause of the death of Philip Bosini. Having met with him and having poured out offended feelings in connection with the assassination of Soames, she apparently did not notice the state in which Bosini left her. I didn’t understand how he felt. I was not afraid that he could do stupidity. She simply informed him and went home[9]. Who is imbued with Bosini's situation without even knowing it? George, the brother of Soames, who takes a few minutes to understand what danger is ex-fiancé June. George follows him, trying to make sure that he gets home safely and doesn’t do anything, but he almost gets under the wheels in the fog and loses Bosini from sight. George Forsyte from the breed of "owners" instantly felt the critical condition of an almost stranger, unlike his own lover[10].

Discussion: D.S. Merezhkovsky believes that the most charming thing that Anna has is her hands: “in the hands of Anna Karenina, as well as in the hands of other actors (maybe because the hands are the only one always naked and close to elemental nature, the animal-unconscious part of the body), even more expressive than in the face - in Anna’s hands the charm of her whole being is the combination of strength and tenderness ”[Merezhkovsky, 2000. P. 96]. The critic cites Anna’s leitmotif portrait: “we find out when she is standing in the crowd at the ball that she“ always keeps herself extremely straight ”, when she gets out of the car or walks around the room - that she’s“ a quick, decisive gait, strangely lightly wearing her rather full body”; when dancing, - that she has “distinct grace, fidelity and ease of movement”; when, on a visit to Dolly, he takes off his hat - that black, for all her clinging hair, “curl everywhere”; and another time, that “masterful short rings of curly hair are always knocked out at the back of the head and temples."[3] There is such tension, "excess of something" ready for passion in these rebellious curly hair, as in the too bright shine of the eyes, in the smile involuntarily playing, "worrying between the eyes and lips". And finally, when she goes to the ball, we see the nakedness of her body: "A black, low-cut velvet dress revealed her chiseled like old ivory, full shoulders and chest and round arms." This accuracy, strength, roundness of the body, like Platon Karataev's, is very important for L. Tolstoy, and a deep, mysterious feature is a feature of Russian beauty "[Merezhkovsky, 2000. P. 96–97].

Conclusion: First of all, we can say, As for Kitty, for her, in the first chapters of the novel, "Anna Karenina" Anna is a wonderful socialite, admiring: "Anna was not like a socialite or the mother of an eight-year-old son, but would rather be like a twenty-year-old girl in terms of flexibility of movement, freshness and the revitalization established on her face , breaking out into a smile, then into a look, if not for the serious, sometimes sad expression of her eyes, which astounded and attracted Kitty. Secondly, Kitty felt that Anna was completely simple and did not hide anything, but that there was some kind of higher world in her inaccessible to her interests, complex and poetic". But Kitty's admiring attitude towards Anna changes at the ball and the perception of her image naturally changes. After the ball, Anna gets the definition of "strange." The first one calls her that way, Dolly, the day after the ball: "how strange you are today." Then in St. Petersburg's circle Anna's friend says the same thing: "Anna has changed a lot since her Moscow trip. There is something strange in her ".

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INTERPRETATION OF ANTONOMASIA IN THE TRANSLATIONS OF ABDULLA KADIRI'S NOVEL "DAYS GONE BY"

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Аннотация. Ушбу мақоланинг объекти – Абдулла Қодирийнинг "Ўткан кунлар" романининг асл ва таржима матнларида яратилган қаҳрамонларнинг адабий қиёфаси. Яқинда у бир қатор бадиий таржималар муаллифи, малакали таржимон К.Эрмакова томонидан инглиз тилига таржима қилинди. Тадқиқот мақсади - аслият ва таржима матнларда миллий қаҳрамонлар образларини яратишда фойдаланилган алоҳида стилистик тропларни қиёсий таҳлили қилиш. Мақолада аслият ва таржима матнларда миллий образларни яратишда фойдаланилган стилистик воситалар қиёсий-тавсифий усулда тадқиқ этилди.

Калит сўзлар: бадиий таржима, миллий бўёқдорлик, қиёсий стилистика, антономазия, градация, метафора.

Аннотация. Объектом исследования в данной статье является лингвистический и национальный образ героев, выраженный с помощью языка в оригинальных и переводных текстах романа Абдуллы Кадири «Дни минувших». Роман недавно был переведен на английский язык квалифицированным переводчиком С. Ермаковой с широким спектром опубликованных литературных переводов. Целью исследования является сравнительный анализ использования различных стилистических троп для создания образов национальных героев на языке оригинального текста и его перевода. В статье сравнительно-наглядным способом изучены особенности использования стилистических средств, создания образов национальных героев в исходных и переведенных текстах.

Ключевые слова: литературный перевод, национальный колорит, сравнительная стилистика, антономазия, градация, метафора.

Annotation. The object of the research in this article is the linguistic and national image of heroes, expressed by means of the language in the original and translation texts of Abdulla Kadiri`s novel "Days Gone By". The novel has been recently translated into English by C.Ermakova, qualified translator with a wide range of published literary translations. The purpose of the study is a comparative analysis of the usage of distinct stylistic tropes to create images of the national heroes in the language of the original text and its translation. In the article peculiarities of using stylistic means, creating images of the national heroes in the source and translated texts were studied in comparative and descriptive way.

Key words: literary translation, national coloring, comparative stylistics, antonomasia, gradation, metaphor.

Introduction: Literary translation is closely linked with the problems of stylistics. The translator is always interested not only in the logical essence of the text, but also in its design and the way of conveying an expressive message. As we know, the issues of adequate translation of stylistic expressive means, as well as the preservation of style in translation, have always been the most difficult and controversial. Style as a system covers all aspects of the language. Therefore, transferring all its features in translation is not such a simple matter. It requires a great efforts and is faced with a number of difficulties.

The translator needs to convey various expressive means used in the source text more often than it might seem at first glance. Almost any text includes certain figures of speech, or other means of imparting expressiveness. The translation of various kinds of images, each of which performs its function in the work, requires great skill to preserve emotional and aesthetic information. [1] In other words, it is necessary to convey not only the form, but also the content with all the variety of meanings contained in it.

Literature review: The great Uzbek writer and founder of an Uzbek novel writing Abdulla Kadiri's novel "Days Gone By" was published in 1926. Its plot describes events of the XIX century and reflects peculiarities of Uzbek nationality. In the book, along with love story of two young hearts, the most important points and contradictions of Uzbeks` life and history in the XIX century are widely covered. The writer incorporates real material into the work and artfully illustrates the complexities of social life and human relationships.

“Days Gone By” is the first realistic novel in Uzbek literature, and at the same time the most popular and translated into several languages of the world. It was recently translated into English by Carol Ermakova MA, a British graduate in Russian Literature and qualified translator with over 30 published literary translations. It was edited by Julie Wickenden, this deluxe hardback edition is published by respected French publishing house *Nouveau Monde Editions* and includes specially-commissioned illustrations by acclaimed Uzbek artist Bobur Ismailov which capture the atmosphere of this historical novel. The translation of the novel was done from the Russian version translated by Muhammad Nodir Safarov.[10]

Analysis: The content of the book "Days Gone By" is very broad. It addresses a wide range of problems as human fate, socio-political, moral, and family matters. At the same time it is the book of traditional love story. It depicts the romantic adventures of Atabek and Kumush with a great skill. The romantic adventures in the work excite the reader, and the factors that undermine the fortune of Otabek and Kumush make him think deeply. Although the novel depicts and analyzes the character and fate of the writer in an intimate relationship with the environment, conditions, and social problems, he also draws attention to the strange, mysterious and magical strands of the human person, irrelevant to the environment.

Recent analysis of the translation of the novel investigates stylistic devices which are used by author to create the image of main heroine Kumush. [10] The author of the research pays attention to the problems of stylistic transformations and correspondences. However, no less important feature can be the analysis through decoding the literary devices serving to create heroes and heroines with national peculiarities in the aspect of their naming. The author presented the reader a deep meaning and thorough characterization through imagery, metaphorical language. The purpose of the given article is to investigate antonomasia and its role in the conceptual information of the work.

Traditionally there is a belief that a person's name carries a strong meaning and defines his fate. That is why people in most cultures try to choose attractive and significant names. Like in real life in literary works the names are given to personages not randomly. But unlike the real life, literary world highlights personages most characteristic traits and 'pours more content' into naming process. The purpose of writers is to illuminate exact characteristic features of the image.

In this case among stylistic techniques based on the relations of names and lexical meanings *antonomasia* can be emphasized. ***Antonomasia*** is a figure of speech in which some defining word or phrase substitutes for a person's proper name (for example, "the Bard of Avon" instead of William Shakespeare). In fiction, the practice of giving to a character a proper name that defines or suggests a leading quality of that character (such as "Squire Allworthy", "Doctor Sawbones") is also called antonomasia. Antonomasia comes from the Greek "*antonomazein"* and means "to call by a new name, name differently". [3, p.106] This device is known as one of the special cases when common nouns are used in the meaning of the proper names. I.R.Galperin defines the term in the following way: "The interplay between the logical and nominal meanings of a word is called antonomasia. So, this device is used by a writer to give concentrated characterization to the personage, as the name may provide clues to his personality.

In the novel "Days Gone By" the author used antonomasia to characterize his main heroes. Moreover this figure of speech served to show key national character traits of Uzbek nation. The analysis of it shows the deep implications and concealed meaning. The national Uzbek spirit and traditional values are conveyed by the images and names of main heroes.

One of the brightest images in the work is the image of Yusufbek Hodji. There was a deep pain in his calm, thoughtful eyes, as if they had sealed the pain had subsided. He never raises his voice, and never hesitates, and in every situation relies on his own convictions and conscience. The image of *Yusufbek Hodji*, *one of the most prominent* *citizens of Tashkent; Otabek's father is a self-sacrificing person who cares about the people and the nation.* [6, p.34] Moreover we can see depiction of these features in his name itself. As the title *"hodji"* is given to the most respectable, honorable person who has completed the hardest commitment in muslim world – Hajj pilgrimage.

Kadiri has elevated Yusufbek Hodji to a high status in his novel. The hero is distinguished by the social and intellectual abilities, wisdom, good manners and behavior. The quality of the hodji means that Yusufbek is an honest man who fully fulfills his religious duties. While wearing a badge of clothing, he saw the oppression of the people and disagreed with the bloodthirsty and cruelty: "*I have not done the duty of God for bloodshed; I have a son in front of me, I have a conscience, a religion, a religion that I can use to imprison the son of others*". This hero in the form of a perfect man does not want to betray the people or their beliefs. After all, "*the people have never heard of any evil or bad advice from Yusufbek Hodji ..."* Even enemies admit that he is "*very honest*" in his career and is "*a man who cares people's interests."*

The next character in the novel is *Uzbek oyim* - Yusufbek Hodji's wife. She is a mother of main personage Atabek and also mother-in-law of the main heroin Kumush. She is described as one of the typical Uzbek women in the story and plays a crucial role in the development of events. Her influence is great in the novel and she changes the course of events in the work. She made her only son marry the second wife to please herself. In the novel she is directly characterized in the following way: "… *rather dim-witted woman, but domineering, renowned for always getting her own way in discussions with her husband".* [6, p.37]

Uzbek oyim is very clever, can easily persuade and control his husband and son, the leading men of their time. In the novel we can see her as the woman strictly following national traditions, mother of the only child with whom all her hopes and life are connected. Her character combines all stereotyped features of traditional Uzbek mothers-in-law. So *antonomasia* is effectively used in the creation of this image too. It requires a great skill from the writer to create such an authentic character. The main reason for this is that the creator has a very high level of awareness and appreciation of the national spirit, customs and traditions.

Discussion: Every hero in the novel has a charm; we can easily imagine their cheerful eyes, spiritual appearance; their heartbeat is heard. The thoughts of main, secondary, and even episodic heroes are filled with wisdom. But the most kind and warmhearted image of the novel is *Oftob oyim* – Kumush`s mother. Her name also conveys implicit message depicting her character and behavior. As the name *"Oftob"* can be directly translated as *the sun* and there is a special purpose in choosing such radiant name for this personage. She was a moderate, beautiful white faced, soft-speaking, considerate woman. She makes her house bright and cozy. All people around her feel comfort and pleasure. She takes care and worries about each member of her family. And with this kind of characteristic features she really resembles the sun.

In the following extract describing her image we can find some stylistic lexical means undergoing some transformations in their translations:

Uzbek Original Language	***Russian Mediator Language***	***English Target Language***
…Юзидан мулойимлик, эрига итоат, тўғрилиқ маънолари томиб турган бу хотин қутидорнинг рафиқаси – Офтоб ойим…	*…одна из них – статная, красивая, с открытым, приветливым и кротким, выражающим полное повиновение мужу лицом – женщина…*	*…A shapely woman, her small face open and friendly, radiates devotion to her husband.*

We want to pay attention to the verb of the sentence:

- in the original text it is expressed with the verb *"томиб турган"*, if it were translated word for word it would be as "dropping";
- in the text of the mediator language it is given as *"выражающий"*, it means "expressing", and it can be accepted as a semantic translation;
- and in the target language it is translated as *"radiate";*

As we can see there is a great difference in word choice in the original and translated texts that should be analyzed thoroughly. In the original text the author uses a metaphor to convey his implicit message. The usage of such metaphorical phrase makes the given definition colorful and impressive. But in the Russian translation we can find semantic translation of this phrase and it is expressed by rather a neutral word.

It seems like the translator didn't invest much effort to deliver that expressive message. Not being alike with a mediator text the English translation conveys the implicit meaning of the text much better.

We can assume that such transformations in the target language serve to describe characteristic peculiarities of the image. The word "radiate" is chosen to illuminate the meaning of the name "Oftob", as it means the Sun. In this way translator wants to decode the main feature of the image's name. But neither in original nor in mediator languages this kind of delivery is used.

In the process of translation, a new text structure is created that is somewhat different from the original text, which can be seen when comparing the source and translated texts. In the extract taken from Otabek`s letter to Kumush, written with the filling of tender love and miss, we can analyze semantic gradation connected with the names of the heroes:

Uzbek Original Language	***Russian Mediator Language***	***English Target Language***
...Лекин ман ҳозир Кумушга ҳам қаноатланмай Олтинбиби деб атамоқ фикрига тушдим.	*...Вы говорите что вы уже не Кумуш, не «серебряная» для меня, а я хочу вас назвать золотая моя Кумуш.*	*...You say you are no longer Kumush, no longer "silver" for me, whereas I would now call you my golden Kumush!*

In the original text there is a play of words between names "Kumush" (silver) and "Oltinbibi" (golden) which also conveys the character of antonomasia. There is a semantic gradation between these names as well. As Atabek, deeply fallen in love, isn`t satisfied with "silver" Kumush and equals her to "golden". We can see in both mediator and target languages the proper name "Oltinbibi" is transformed into adjectives as "золотая" and "golden". In the translated texts this stylistic device is interpreted with the help of detached construction. This kind of transformation in both mediator and target languages helps to convey expressive message properly.

In her answer to Otabek Kumush also uses such technique, writing a letter of complaint expressing her discontent with Atabek`s getting married for the second time:

Uzbek Original Language	*Russian Mediator Language*	*English Target Language*
…Кумуш эмас, Тупроқбиби ёздим.	*…Это пишет вам не Кумуш, не ваша прежняя «серебренная», а Тупракбиби – топтаная в грязь, брошенная жена.*	*…These words are not penned by your Kumush, your previous “silver one” but by Tuprak bibi, a woman trampled in the mud, a woman discarded.*

Comparing this extract of the original text with its Russian and English translations we can analyze how antonomasia has been transformed into detached construction one more time. The aim of such transformations is to express the whole meaning of that play of words, expressed with one stylistic device with the help of another troop. Although the original essence and structure of the text is changed in the latest two samples given above, but expressiveness is transferred adequately.

In these last two samples of antonomasia we can witness impressive play of words around these names, gradation expressed very skillfully. In their Russian and English translations these devices are expressed mostly with detached construction. In spite of such transformation, it was possible to preserve original expressiveness of the context and national expressiveness. As a result the implicit message of the author was delivered to foreign readers, owing to the ability of skillful translators.

Conclusion: Literary translation is not such a simple process, it requires great efforts and is faced with a number of challenges. In this research we have analyzed peculiarities of translating stylistic devices, serving to express national characteristics of the main heroes. And we can assume that among various stylistic troops antonomasia also has played a paramount role in creation of the images of national heroes. In the process of translation, a new text structure is created that is somewhat different from the original text, which can be seen when comparing the source and translated texts. In the extracts, analysed above, we can witness antonomasia, play of words around the names of characters, semantic gradation connected with those names. Every hero in the novel is unique. They have a charm; we can easily imagine their cheerful eyes, spiritual appearance; their heartbeat is heard. The thoughts of main, secondary, and even episodic heroes are filled with wisdom. During research the following names of the heroes have been analyzed as a bright samples of antonomasia:

- *Yusufbek Hodji*
- *Uzbek oyim*
- *Oftob oyim*
- *Kumush*

All these names of the heroes carry notions describing, characterizing their owners and demonstrate specific features of the Uzbek nationality. And the main attention has been focused on the ways of transferring this expressive message in translation as well. In all cases antonomasia and the play of words around these names have been expressed in the target language. Moreover we should mention that in some cases a translated text properly conveys the emotions of the original text (in the description of *Oftob oyim*). So we may break stereotypes and state that translators are noticed not only when they are wrong but also when they have succeeded.

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THEORETICAL INTERPRETATION OF TERMINOLOGICAL PROBLEMS IN MODERN SCIENTIFIC LITERATURE

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Annotatsiya - tarjimashunoslik tarixiga nazar tashlasak, o'tgan asrlardan to hozirgi kungacha bo'lgan ilmiy ishda mutaxassislar tajribaning leksik, grammatik, stilistik va boshqa ko'plab dolzarb muammolari haqida o'ylashdi. Atamalarni o'rganishdan asosiy maqsad chet tillaridan so'zlarni bizning ona tilimizga mos keladigan so'zlarga almashtirish va tarjima qilishdir.

Kalit so'zlar - leksik, grammatik, stilistik muammolar, tilshunoslik sohalari, til madaniyati, lingvokulturologiya, lingvokognitologiya, terminologik tizimlar.

Аннотация - Когда мы смотрим на историю переводоведения, в научной работе, которая велась с прошлых веков до настоящего времени, эксперты думали о лексических, грамматических, стилистических и многих других насущных проблемах опыта. Основная цель изучения терминов - заменить и перевести слова с иностранных языков на слова, которые точно соответствуют нашему родному языку.

Ключевые слова - лексика, грамматика, стилистические проблемы, сферы лингвистики, языковая культура, лингвокультурология, лингвокогнитология, терминологические системы.

Abstract – When we look at the history of translation studies, in the scientific work that has taken place from past centuries to the present, experts have thought about the lexical, grammatical, stylistic, and many other pressing problems of experience. The main purpose of studying the terms is to replace and translate words from foreign languages into words that correspond exactly to our native language.

Key words – lexical, grammatical, stylistic problems, spheres of linguistics, language culture, linguocultural studies, linguocognitology, terminological systems.

Introduction: It is important to translate into Uzbek the terms of foreign languages related to the political sphere of international relations and to find alternative versions of the terms that have been mastered in the Uzbek language in order to overcome the problems encountered in the translation process. Many political terms have entered Uzbek from Russian, and Russian from Latin, Greek, English, French, and several other languages. The study of such terms is one of the most important issues in linguistics. In all spheres of our linguistics, bold steps are being taken to study theoretical issues more deeply and deeply, and a number of practical works are taking place[1]. The publication of different types, i.e. monolingual, bilingual or more, general philological or terminological dictionaries, can also vividly demonstrate the achievements of our linguists. Linguistics is at the forefront of learning about other languages and their terms in international relations, and their place in language culture. Through linguistics, we gain an understanding of the structure, semantics, cognitive, and conceptual analysis of English, Russian, and Uzbek terms.

Literature review: H. Bektemirov and E. Begmatov write in their book "Periods of Independence": "It is a mistake to think that it is possible to enter any word into the language, to exclude any word at any time. Knowing the place, norms, and extent of interference in language life and speech practice, and acting on that basis, is the best way to regulate and improve scientific terminology”[16,15]. The current level and scientific value of the Uzbek language in the field of terminology is directly related to the work of Russian and other peoples' terminologists. In this regard, the work of dozens of terminologists, such as N.A.Baskakov, L.A.Bulakhovsky, G.O.Vinokur, V.V.Vinogradov, A.A.Reformatsky, D.S.Lotte, S.A.Chapligina, T.L.Kandelaki, V.P.Danilenko, made a significant contribution to the formation of Uzbek terminology[14]. The works of Turkic linguists, including M.Sh. Gasimov, B.U. Oruzbaeva, R.A. Urekenova, F.S. Faseev, also made a great contribution to the development of Uzbek terminology[2].

Analysis: The peculiarity of the integral connection of terms with language culture is that the existing terms serve not only in their own sense, but also in a figurative sense under the influence of culture, and are also closely related to their etymology, illuminates the possibility of tracking. That is why many of our scientists today are doing research on this topic. In particular, linguistics has entered Uzbek linguistics as a new science. It should be noted that one of the most important tasks today is to connect the terms used in international relations with linguocultural studies[3].

Today, the system of social sciences and humanities, especially linguistics, literature, translation, is developing rapidly. Life itself shows that a comprehensive study of the lexical structure of the language has become one of the most important and topical issues of linguistics. New trends in linguistics have focused on issues such as language and culture, language and society, and language and man. Advanced disciplines in world linguistics, such as linguocultural studies and linguocognitology, which were formed and developed at the end of the twentieth century, deal with these problems[4].

Linguoculture is one of the newest and least studied branches of modern linguistics. Although the work on the relationship between language and culture, communication and language opportunities is popular in world linguistics, in Uzbek linguistics the focus on this issue is still in its infancy. This opinion is based on some works in our national linguistics, which are considered to be related to this topic[5].

The study of the relationship between language and culture, the study of the expression of ethnic culture in language, is related to the terms used in international relations. Although much work has been done in the field of terminology and their specific structural and semantic features, this field is not intended to specifically study language and the reflection of ethnic culture in it. Because to date, research on terms has focused on the lexical, morphological, and syntactic properties of terms[6].

The study of language and speech, taking into account both linguistic features, is shaping some new undiscovered aspects in the field of linguoculturology. The field of linguoculturology of linguistics is not yet fully formed in Uzbek linguistics. Nevertheless, our linguists are conducting various researches and studies in this regard. In this field, we will study the impact of terms in international relations on language culture and their use in the figurative sense[7].

Discussion: It is known that the issues of terminology include scientific and technical production, professions, vocabulary of various industries, words and phrases related to all aspects of social life, the history of these concepts is connected with the life of the people, its material and spiritual aspects. The study of language and all of them, the transformation of language into property, is one of the urgent directions of research facing modern linguistics[8].

T.S. Kogotkova further clarifies this point, stating that "the production of a set of dialectal words in a field of local production is what we call professional vocabulary."[10] The study of terminological systems in the Uzbek language is now of great importance. Due to the fact that our native language has been given the status of the state language and is beginning to appear on a global scale, the international prestige of our language is growing.

In general, terminological systems, unlike other language systems, occur in the process of classifying, systematizing, and defining scientific concepts. The systematic nature of terminology cannot be justified without going beyond language. The structure of terminology is primarily due to the fact that scientific knowledge itself is systematic and hierarchically structured. Based on the above, it is necessary to distinguish between the concepts of "terminology" and "terminal system"[3]. Indeed, it would be useful for experts and terminologists to work together on terms to ensure that the terms being modified or replaced are simple, concise and, most importantly, understandable to the public[11]. Preserving the linguistic riches of the native language, which embodies the centuries-old experience of each nation, their scientific analysis and transmission to future generations, is one of the most important tasks facing modern science, especially linguistics. From this point of view, as the first President I.A.Karimov said, the study of words and phrases, terms and lexical riches in the "Uzbek language as a means of expressing the national culture and identity of the people" and the linguistic heritage conducting scientific analysis is one of the most pressing issues today [15].

A.A Potebnya called the term "the next meaning" and stated that "it is not an object of study of linguistics, it is studied by other disciplines" [16] as a separate nominative unit, a term for a long time, has not been studied in linguistics. In relation to terms, it is very important to update, change and improve the terminological system in accordance with the laws of language development, the specific objective requirements of the standardization of its lexical system, criteria, scientific criteria and principles.

Doctor of Philological Sciences, G ’. Abdurahmanov writes: “The accuracy and firmness of the terms show the level of science, education and culture of this nation. The development and regulation of terms vary in different areas of science and depend on the development of a particular science[9]. As this development progresses, so will the emergence and regulation of new terms. In general, the elaboration and arrangement of terms in the mother tongue is a necessary resource for both textbooks and manuals, as well as for teaching in the mother tongue. The lack of elaboration and regulation of terms also affects the style of speech”[16]. This means that the regulation of terminology is an important issue not only in the scientific field, but also in social life.

Conclusion: As you know, the most relevant, very complex field of linguistics, both theoretical and practical, is terminology. Many terminological dictionaries of the Uzbek language were compiled and published in the 1930s. First of all, in the process, theoretical issues on the history of terms, meaning and subject groups of terms, grammatical structure and construction, the path of development and sources of enrichment were also developed.

We can say next, Ulug Tursunov was one of the first to try to clarify the issues of Uzbek language terminology and wrote works on this topic: "Against the bourgeois aspirations in language terminology", "Issues of Uzbek terminology", "Terminology issues", "Principles of choice of terms in the Uzbek literary language"[12].

So, these works reflect on different perspectives and concepts in the field of term formation, collection, arrangement, unification, and publication. It is also worth noting that the confusion in the field of terminology is becoming more and more apparent[13]. For example, the beginning of a concept in different terms and spellings; long explanations instead of clear and concise terms; underutilization of the native language in the creation of the term; One of the sources of enrichment of Uzbek terminology is the fact that there are different approaches to external factors.

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ON SOCIAL RESPONSIBILITY OF HIGHER EDUCATIONAL INSTITUTIONS OF UZBEKISTAN

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Аннотация: Узбекское общество претерпевает ряд трансформаций в отношениях между высшими учебными заведениями и обществом; в этом контексте университет, начиная со своей образовательной миссии, сфокусированной на обучении и исследованиях для развития знаний, способствует активному участию в удовлетворении потребностей общества, известной как социальная ответственность высшего учебного заведения (СО). Действительно, в последнее время мы часто приходим к теме «социальной ответственности» как этического измерения, которое каждая организация или учреждение должно принимать, интегрировать и продвигать в своей повседневной деятельности. Мир бизнеса, очевидно, давно приветствовал и развил эту идею, но в университетах, особенно в Узбекистане, размышления о социальной ответственности только начались. Целью данной статьи является изучение текущей ситуации интеграции практики СО в университетах страны на основе показателей, разработанных с использованием модели Pacto Global Red Colombia 2018 года. Результаты показывают, что, несмотря на усилия, предпринимаемые в этом направлении, университеты Узбекистана находятся в зачаточном состоянии по сравнению с европейскими университетами.

Ключевые слова: корпоративная социальная ответственность, устойчивость социальной ответственности университета, показатели, заинтересованные стороны, окружающая среда.

Annotatsiya: O'zbek jamiyati oliy o'quv yurtlari va jamiyat o'rtasidagi munosabatlarda bir qator o'zgarishlarni boshidan kechirmoqda; Shu nuqtai nazardan, universitet o'zining ta'lim missiyasini boshlab, bilimlarni rivojlantirish uchun o'qitish va izlanishlarga yo'naltirilgan bo'lib, oliy o'quv yurtining ijtimoiy mas'uliyati deb nomlanuvchi jamiyat ehtiyojlarini qondirishda faol ishtirok etishga yordam beradi. Darhaqiqat, yaqinda har bir tashkilot yoki muassasa qabul qilishi, birlashtirishi va kundalik faoliyatida olg'a siljishi kerak bo'lgan axloqiy mezon sifatida "ijtimoiy javobgarlik" mavzusiga tez-tez duch kelamiz. Shubhasiz, biznes olami bu g'oyani allaqachon ma'qullagan va ishlab chiqqan, ammo universitetlarda, ayniqsa O'zbekistonda, ijtimoiy javobgarlik haqida fikrlar endigina boshlangan. Ushbu maqolaning maqsadi - 2018 yilgi Pakto Global Qizil Kolumbiya modelidan foydalangan holda ishlab chiqilgan ko'rsatkichlar asosida mamlakatdagi universitetlarga SR amaliyotini joriy etishning hozirgi holatini o'rganish. Natijalar shuni ko'rsatadiki, ushbu yo'nalishda olib borilgan sa'y-harakatlarga qaramay, O'zbekiston universitetlari Evropa universitetlariga qaraganda o'zlarining yoshligida.

Kalit so'zlar: korporativ ijtimoiy javobgarlik, universitetning ijtimoiy javobgarligi barqarorligi, ko'rsatkichlar, manfaatdor tomonlar, atrof-muhit.

Annotation: Uzbek society is undergoing a series of transformations in relations between institutions of higher education and society; in this context, the university, starting with its educational mission focused on training and research for the development of knowledge, promotes active participation in meeting the needs of society, known as the social responsibility of a higher educational institution (SR). Indeed, recently we often come to the topic of “social responsibility”as an ethical dimension that every organization or institution should accept, integrate and promote in its daily activities. The business world, obviously, has long welcomed and developed this idea, but in universities, especially in Uzbekistan, reflections on social responsibility have only just begun. The purpose of this article is to study the current situation of the integration of SR practice in universities in the country based on indicators developed using the 2018 Pacto Global Red Colombia model. The results

show that, despite the efforts made in this direction, the universities of Uzbekistan are in their infancy compared to European universities.

Keywords: corporate social responsibility, university social responsibility sustainability, indicators, stakeholders, environment.

I. INTRODUCTION

It has now been established that corporate social responsibility has a significant impact on the structure of a business. Indeed, companies set their main goal of making profit, therefore, in order not to harm their image and social reputation, they should manage and inform that the achievement of this main goal does not create negative external consequences for citizens, in particular, and interested parties in general [1]. However this did not happen in the higher education system, where reflections on social responsibility are ignored or even absent, especially among local universities. The management of organizations cannot be separated from their influence on the social environment in which they operate. Thus, we are talking about its relevance and the various mechanisms used to improve its quality, improve management and accountability to society. In addition, meeting the needs of the population of a local or regional territory in terms of social life and culture, now this is one of the tasks of a socially responsible university.

Given the importance of an integrated university s Skog education and social commitment in professional practice, from the beginning of the XXI century the role of the university in promoting sustainable development is reflected in the fact that we have called the " university s Skye social responsibility" Thus, the task of higher education institutions is to develop and apply a model that meets various aspects of social responsibility, which combines learning, research, social knowledge management in a socially responsible campus (environment).

II LITERATURE REVIEW

Today's topic is corporate social responsibility and university responsibility to society. There is currently no single, dominant academic model of social responsibility. One reason is the very nature of this concept, which is flexible and changeable. Behind every word that makes up “ social responsibility ”, there are several meanings, contents and various conflicts, beginning with its definition and ending with the modalities of its application. In other words, this is a broad and free concept, which should not be considered as a special strategy, but as a long-term process. The concept of social responsibility defines new rules - economic, social and environmental, the application of which allows better coexistence among all participants in society.

A. Corporate Social Responsibility

The main function of a business is economic in nature, but the main goal of a business is social, because a business cannot be sustainable without interacting with consumers, customers, and others in general. Indeed, prosperity is unthinkable amid the deterioration that affects everyone, that is, every organization cannot have prosperity if the environment does not develop. Similarly, a company organization must necessarily consider its internal and external stakeholders, experimenting with social responsibility methods with all stakeholders in order to survive in a sustainable way over time.

Currently, companies devote significant resources to various social initiatives, ranging from working with the public and protecting the environment and ending with socially responsible business practices [2]. To this end, several organizations and institutions have been established that have defined standards, strategies and guidelines regarding the criteria that organizations must meet with regard to social responsibility and accountability to stakeholders (customers, shareholders, employees, suppliers, investors or other interested parties groups).

The business sector and the education sector, in particular, have changed, recognizing their role in sustainable development and based on the need to control the impact of their activities on the environment in which they work. Corporate social responsibility (CSR) can be understood as a set of actions taken by institutions to prevent, mitigate and compensate for the impacts caused by their activities, by promoting sustainable development where they operate [3].

Can we define the concept of "corporate social responsibility"? Without a doubt, this question is most often asked by all participants who have a direct or indirect connection with the concept of CSR. The answer to this question is not yet final.

Indeed, many definitions circulate around the concept of "organization", being neither harmonized nor standardized, and therefore do not always constitute a consensus among researchers, but we can essentially give several definitions in the following table:

Table 2.1. Corporate Social Responsibility Definitions

Authors	Definitions
Stepuk E.I. (2014) [2]	A socially responsible company maximizes the positive effect on society and minimizes negative consequences.
Bowen (1953: 6) [3]	This refers to the obligations of businessmen to pursue such a policy, make these decisions or follow those areas of activity that are desirable in terms of the goals and values of our society.
(European Commission, 2001) [4]	The concept that companies voluntarily decide to contribute to improving society and a cleaner environment
ISO 26000 (2010: 4) [5]	The organization's responsibility for the impact of its decisions and activities on society and the environment through transparent and ethical behavior that: • contributes to sustainable development, including the health and well-being of society; • takes into account the expectations of stakeholders; • complies with current legislation and international standards of conduct; • and integrated throughout the organization and implemented in its relationships.
WBCSD (1999) [6]	The constant desire of business to behave ethically and contribute to economic development, while improving the quality of life of workers and their families, as well as the local community and society as a whole

B. University social responsibility

In the World Declaration on Higher Education of October 9, 1998, UNESCO stated that " higher education and research are currently important components of the cultural, socio-economic and environmentally sustainable development of individuals, communities and peoples" Thus, the university is no longer perceived only as an organization that consumes resources, but, like business, as an organization that is a structure that creates social wealth. As a company that had to overcome the philanthropic approach to social investment (as additional costs) in order to fit into the new paradigm of social responsibility. The university should go beyond its central function of teaching students and producing knowledge in order to accept the real requirement of the social responsibility of universities. Higher education institutions around the world seek to introduce and develop assessment systems in order to ensure the quality of higher education systems. In other words, a system that can integrate environmental management (internal and external), as well as develop and implement actions in social and public projects in the interests of sustainable development.

The social responsibility of universities can be interpreted as the conscience of a university, which directs its actions to the categorical and necessary contribution to society, responding to global and fundamental problems that arise in the current conditions in which the university is located.

The inclusion and implementation of SR in universities is becoming important due to the role that these institutions play as actors generating new knowledge and professionals who should be able to stimulate social, political and social needs in the pursuit of sustainable human development.

Despite the importance of the topic of social responsibility of the university, there is currently no definite agreement between various authors, this is due, first of all, to the inconsistency of the concept, as well as to the novelty of its practice, since the conceptual definition of the term is not only more diverse than the term CSR, but and less developed than that. However, we will discuss some definitions that were introduced recently. Wiedman & Yoder presents this definition, “The policy of the quality of instruction in activities (students, teachers, administrative staff), through the responsible management of the educational, cognitive, labor and environmental impact of the university, in an active dialogue with society to promote sustainable human development ” [7]. Meanwhile, we define SR as: “ Obligations of university leaders to promote institutional policies for making decisions or following areas of activity that are desirable in terms of the goals and values of society” For [8], “the university bears social responsibility ” for the assumed and transformative potential that it has as a social organization, through the dissemination and implementation of a number of principles and values through intelligent impact management: organizational, environmental, educational, cognitive and social, produced through it key processes: management, training, research and the dissemination of knowledge, through a high-quality ethical policy, in a joint dialogue with the society with which it remitsya together the human and sustainable development and which defines the ethical requirements of fairness and social justice "

The various definitions given above have a general assessment of the impact exerted by the results of universities, which, with the help of a certain number of indicators, can be measured and evaluated to find out if they correspond to the goals set.

Responsible practice, which adds value to the brand and the profitability of the organization, is accredited for its employees, suppliers, customers, investors, etc. “As an organization voluntarily committed to socially responsible management, responsible within the framework of their organizational culture and their commercial strategy” These tools become indicators when they measure the achievement of project or program goals.

The introduction of the university’s social responsibility management system implies a clear commitment to interested groups of the university through continuous improvement of the practice of SR in all its aspects, training and research, the organizational structure of management and expansion of the university.

III. METHODOLOGY

The methodological approach can be qualitative or quantitative. This research consists of descriptive qualitative method which th used in the social sciences and humanities, this method of research is particularly relevant when the observed factors are subjective and difficult to measure. This is especially true because the social and environmental aspects included the indicators of social responsibility of universities in our case study, which is and which is not easy to calculate for the Tashkent Institute of Chemical Technology.

Qualitative research is a general term that covers many methods that are used in many disciplines [9]. He is a multi-dimensional and is used to study phenomena in their natural setting, using interviews, archive analysis, observations and interviews, as well as to the interpretation of events in terms of the meaning given to the subjects. It describes and explains the ways of relationships and data in the form of words, and not necessarily in the form of numbers, which makes it a more subjective approach compared to quantitative research. This allows the researcher to establish topics, models, and data categories based on the understanding and interpretation of the researcher. Qualitative research offers a holistic view leading to an understanding of phenomena, and is therefore suitable for constructing inductive theories. In this article, we will follow the progress of a descriptive, qualitative study based on a case study.

Many sources define a case study research method as an empirical study that studies a modern phenomenon in its real context; when the boundaries between the phenomenon and the context are not obvious; and which uses multiple sources of evidence; and the benefits of previous theoretical developments for data collection and analysis. This is especially true for our universities, since data collection is based on the consideration of documents (reports, annual reports, articles, etc.) of the universities that make up our case study. Also, it can be argued that the case study is appropriate when the question is asked "How" and "Why" of the contemporary set of events, in which the researcher has little control over our case, because the problem is this: how can you measure the university s ical social responsibility? You can allocate s four types of cases: an illustrative sample, test, unpublished or approximate. Our study is ideal for the type of test, because the object of study was chosen because it allows you to test theories formulated earlier. To this end, in this article we plan to apply a checklist of practices of social responsibility of universities, based on a number of indicators.

In this article we will introduce one university. The choice was made taking into account the classification of university ratings in 2019 by Uzbek universities, according to which the National University of Uzbekistan takes first place, followed by the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, and then Samarkand State University and, finally, Muhammad Tashkent University of Information Technologies al-Khwarizmi on the fourth. The choice of the Tashkent Chemical-Technological University is also explained by the activities of the author at this university and the information posted on his web page.

The method that was developed in 2018 by a number of experts was selected [11], this model represents advantages, in particular, it is a system that first allows you to determine the parameters and goals of management from the point of view of social responsibility within the educational institution, then the ability to choose the report level for development in accordance with the achievements in this practice and institutional interests, and, finally, the compatibility of these indicators with indicators developed by the most famous management systems.

This model follows very precise logic formulated in 5 stages: (1) determine the scope (2) set the level (3) collect information (4) prepare a report (5) present a report. As already mentioned, the purpose of this article is to determine the current situation in the selected university in relation to the implementation of the practice of social responsibility, for this we will go directly to the second stage. In addition, a system of social responsibility is being created at the Tashkent Chemical-Technological Institute, and therefore defining a goal and determining its stakeholders is important for this university.

IV. RESULTS OF SELF-ASSESSMENT UNIVERSITY

As we just mentioned from the point of view of the research methodology, we will compile an array of indicators developed as a result of theoretical and empirical work [10] and [11]. In addition, according to [10], best practices regarding social responsibility should be integrated into the following functions: (1) academic and pedagogical training, (2) research and dissemination of results, (3) organization management and (4) participation in public life through creating channels of communication and participation to meet the needs of interested groups of society. As was stated above that " the initiatives that can be taken socially responsible higher education institutions to promote sustainable human development, covering a wide range of proposals based on the four main areas of the university s tion works, which form the basis of SR: teaching, research, training, and social responsible management of the university.

And finally, expectations [11] indicate that the system of indicators consists of five basic elements that make up the basic functions of higher education institutions, namely, education, research, leadership and strategy, operational management and social expansion or projection. Each of these five functions consists of aspects that are necessary enough to be able to apply institutional management that meets the goals of sustainable development by 2030.

Table 4.1. Identification of the five areas of Pacto Global Red Colombia (2018)

Region	Definition
Leadership and Strategy	This component relates to the strategic direction and the presence of specialized control mechanisms to assess the advancement of social aspects in higher education.
Training	This component relates to the academic content, thematic methodologies, and learning processes that contribute to sustainability learning and promote responsible university leadership in society.
Research work	This component relates to assessing the availability of guidelines and policies that contribute to the acquisition of new knowledge and its application to address social and sustainable problems in the institution.

Extension or social projection of the university	This component determines the number of initiatives and formal frameworks that are assessed through social mechanisms and policies on social aspects and sustainability.
Monitoring and control of execution	This component examines the impact that the organization has through its administrative and operational processes on stakeholders and the environment.

Source: [11]

To report on the performance of components or areas of activity, they are divided into general views which, in turn, are divided into additional views, and finally, each additional view is divided into indicators.

- **General views:** they are defined as significant and important issues that each area or core function should consider when assessing its commitment to sustainability.
- **General views:** they are understood as a group of criteria that make up each of the topics of university sustainability (general aspects), and, of course, they can be assessed using indicators.
- **Indicators:** they punctually represent a set of data, qualitative and / or quantitative, with which the effectiveness of the relevant sustainability criteria is assessed in an objective and traceable manner.

The report [11] outlines five steps (determining the scale, setting the level, collecting information, preparing a report, presenting a report) that institutions should follow when they put into practice social responsibility criteria, which demonstrates the flexibility of the model. It begins with a basic level, then standard, then intermediate until reaching the most advanced level. In our case, given that the practice of introducing social responsibility at the level of Uzbek universities is relevant, we are going to put ourselves at a basic level. The report at this level states that the academic institution, in addition to providing basic data, establishes the formalities (policies, mechanisms, etc.) with which it supports sustainability efforts.

Table 4.2. Assessment of the implementation in practice of social responsibility at a basic level

Field of activity	Code	Description
Leadership	P1 P2 P3	Indicate the year the sustainability or social responsibility reporting begins. Mention of the methodology used (proprietary, GRI, IR, COE). Whether the report or the report on the stability and / or social responsibility of productivity refers to obligations with in the interests of social development of the millennium - publication period
Training	O1 O2 O3 O4 O5 O6 O7	Number of academic programs by type (undergraduate, specialization, masters, doctoral studies) with experience. The number of actions, events, or campaigns per year per program / duration. Number of items and / or related items per program / total number of items per program. The number of actions, events or campaigns per year per program The number of actions, events, or campaigns per year per program. Number of promotions, events or campaigns per year Mention of the Millennium Sustainable Development related to extracurricular activities or curriculum activities

Research work	I1 AND 2 I3 I4 I5 I6	Number of groups or research projects with status and seniority Number of empirical / general studies. Number of proposed research funding / general research. Number of studies conducted within the framework of the principles of sustainable development and social responsibility. The total number of academic products of social responsibility and sustainable development. Mention of sustainable development goals of priority research activities
Expansion	E1 E2 E3 E4 E5 E6	Number of initiatives, projects and / or programs The number of initiatives, projects, programs involving students. The number of initiatives, projects and / or programs with the participation of teaching staff / all initiatives, projects and / or programs implemented% of the budget of the university allocated to these projects. Number of unions, agreements or agreements with institutions / activities carried out in conjunction with them. The number of initiatives, projects and / or programs promoting social responsibility and / or sustainability / of all initiatives, projects and / or programs implemented

		Mentioning Sustainable Development Goals that are priorities in extension or social projection activities
Administration	A1 A2 A3	Information on employees by gender, position and type of contract and salary. The total number of new accepted and contract types. Number of hours of employee training by category or rank and gender

Source: [11]

Fill in the table, simply taking as a basis the area of activity and the corresponding codes indicated in table 4.2. The information used is taken from the web page of the Tashkent Institute of Chemical Technology, in the section "Social Responsibility of the University" and the graded estimates are shown.

Table 4.3. Application for Tashkent Institute of Chemical Technology

Field of activity	Code	University
Leadership	P1 P2 P3	2020 social responsibility report is not available. H is
Training	O1	Existing Undergraduate Programs 5321000-Food Safety; 5630100-Ecology and environmental protection (by industry); 5640100-Life safety; 5640200-Occupational health and safety and Master's programs 5A310901- Product safety and certification; 5A310902- Metrology, standardization and quality management of products (by industry); 5A321003-

	O2 O3 O4 / O7 O1 / O7	Food safety; 5A610101-Service (by type and area of activity); 5A630101- Environmental protection (in the areas of activity). Certain amounts of theses and master's theses th on this topic for the above aims and pits education. It is necessary to review the curricula of these programs: in the case of a complete lack of discipline necessary to revise curricula and introduce new disciplines aimed at defined les of formation and social responsibility. Data unknown. Planned Activities: Several programs that are planned, including master's programs: Master of Social Economics and Sustainable Development, Master of Science in Strategy and Human Resources Management, Specialized Master's Program in Environmental Economics (EE).
Research work	I1 I2 / I6	In this section, there is a fairly large and fairly rich research structure, some of the research groups are working on the subject of innovation and sustainable development, Biotechnology Laboratory, protection s and development I plant resources. Here we present those projects, which we found in the section e Science : Sustainable development project in the form of a culture of health and safety at work, the project for the valorisation of the liquid effluents from the industry for the sustainable cultivation of respectful th environment project on the development of innovative strategies for improving the quality potable th water in cities and regions (international) expertise agroforestry for food security and improving living standards in Kazakhstan, Kyrgyzstan and Uzbekistan

		(international) The projects involved in economic, social and environmental development are presented. Mention of investigations conducted in accordance with the guidelines for sustainable development or social responsibility / general investigations.
Expansion	E1 E2 E3 E4 E 5	The institute is working on 17 scientific s m about EKT am The 17 research projects involving 51 studio Mr. comrade The number of projects with the participation of faculty / total projects completed% of the university budget allocated for these projects is 17 Institute signed over 7 0 agreement minutes with 50 foreign institutions over 20 local agencies implemented jointly with them. Over 30.
Administration	A1 A2 A3	In the administration, t 33 employees work on official jobs Information is not available Information is not available

Own development (2020)

V. THE DISCUSSION OF THE RESULTS

As shown in the table (4. 3.), The Tashkent Institute of Chemical Technology began colossal work to implement social responsibility practices, including them in all these formative, administrative, teaching, and research works. Indeed, the projects initiated by the university s Skim research laboratories include environmental, social and governance issues. The table does not allow us to single out a set of practices undertaken by the institute, nor actions and activities, nor a set of its projects, nor even conventions and alliances, since we considered an analysis of only the most important application for testing this model.

This is a simple model, flexible and easily customizable by any institution, because it sets up tables with indicators (which can vary depending on the needs and context of each institution), and each table corresponds to a clearly defined level from the base level, passing through the standard and intermediate level and leaving to an advanced level, and every time the indicators change, and the integration of SR practices is becoming increasingly important. Recall that this model not only allows you to assess the current state of social responsibility, but also is a guide for those who want to integrate SR practices for the first time, since this model presents five stages that allow you to move from the embryonic (initial) phase, which is the definition of a goal with point of view of social responsibility, to the disclosure phase in the interests of stakeholders.

VI. OUTPUT

If in European universities the topic of integrating the practice of social responsibility of universities is a priority and a requirement, then in Uzbek universities this is far from achieved. Indeed, the Uzbek university has been working since its inception, not paying attention to people's expectations and environmental requirements. Although some student events (sports, cultural, associative) may seem like a practice of SR, our university is designed to report to stakeholders. How? Through the disclosure of information on its activities in the form of a brief message on the social responsibility of the university on its web page.

According to [10], the SR helps the university to clearly articulate its teaching, research and advanced training functions in accordance with ethical principles and responsible management. In addition, this allows achieving coherence between declarations of intent (mission, vision and values) and the daily activities of the university.

According to the same author, [10], the implementation of SR allows you to use the advantages of institutional dynamics for innovation, that is, the university becomes an intellectual, transparent and democratic organization that applies continuous improvement processes, contributing to a creative approach initiatives in the academic and managerial fields. And finally, it allows rationalizing university management so that the university improves the productivity of its processes in various fields (environmental care, employee motivation, improving academic performance and creating social value).

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THE DEVELOPMENT OF THE ORGANIZATIONAL FORMS OF INNOVATION MANAGEMENT

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Abstract: The article shows how to improve the organizational forms of innovation management in the Republic of Uzbekistan. It also provides definitions by scientists on the basic requirements for the implementation of management policy in the field of innovation. It is given factors determining the application of scientific and technical innovation processes in practice as well. It is also provided the suggestions for the use of such ways as the expansion of innovative activities in the industry of the Republic of Uzbekistan, such as internships of researchers in the production departments of developed countries.

Key words: science, education, innovation management, industry, firm, “know-how”, enterprise, economy.

Аннотация: В статье показано, как совершенствовать организационные формы управления инновациями в Республике Узбекистан. Также приводятся определения учеными об основных требованиях к реализации политики управления в сфере инноваций. Приведены факторы, определяющие применение научно-технических инновационных процессов на практике. Также предоставлены предложения по использованию таких способов, как расширение инновационной деятельности в промышленности Республики Узбекистан,

например, стажировки исследователей в производственных отделах развитых стран.

Ключевые слова: наука, образование, инновационный менеджмент, промышленность, фирма, «ноу-хау», предприятие, экономика.

Annotasiya: Maqolada O'zbekiston Respublikasida innovatsion menejmentning tashkiliy shakllarini qanday takomillashtirish kerakligi ko'rsatilgan. Shuningdek, olimlar tomonidan innovatsiyalar sohasida boshqaruv siyosatini amalga oshirishga qo'yiladigan asosiy talablar to'g'risida tushunchalar berilgan. Ilmiy va texnologik innovatsion jarayonlarning amaliyotda qo'llanilishini belgilovchi omillar keltirilgan. Shuningdek, O'zbekiston Respublikasi sanoatida innovatsion faoliyatni kengaytirish kabi usullardan foydalanish bo'yicha takliflar berilgan, masalan, rivojlangan mamlakatlarning ishlab chiqarish bo'limlarida ilmiy xodimlarning malakasini oshirish uchun stajirovkaga yuborish.

Kalit so'zlar: fan, ta'lim, innovatsion menejment, sanoat, kompaniya, nou-xau, korxona, iqtisodiyot.

Introduction: At the present stage of the development of Uzbekistan, the main strategic goal is the transition of the domestic economy from the export of raw materials to an innovative and socially oriented model of development. The interaction of education, science and industry contributes to the acceleration of technological progress and the creation of advanced innovations that ensure competitiveness in the global economic space.

Various economic tasks that the Republic of Uzbekistan presently has can be successfully fulfiled on the basis of a intensive increase in the efficiency of production and management of innovative activities. Creating an effective management system allows all sectors of the economy to function wel both vertically and horizontally, to ensure real improvement of results in the enterprises and in the economy as a whole [1].

Economic growth rates are often high in countries with favorable conditions for the development of the corporate governance sector of the economy both in the field of large integrated production and in the field of small business and private entrepreneurship [2].

The issue of effective management of innovation in corporate structures is especially relevant at the current stage of the development of the economy of Uzbekistan. The most important task at this stage is to achieve the liberalization of the economic development, the pursuit of economic and financial stability in the activities of industrial enterprises. Effectively implemented innovative management methods will lead to the production of quality products, increase the competitiveness of goods which in turn will increase the export potential of the country, as well as the use of local raw materials. The Republic of Uzbekistan has a large production potential, which can serve as an important basis for the expansion of innovative activities. Therefore, creating the economic mechanism of its creation and effective usage has particular sence at this point [3].

Literature review: The scientific and technical achievements in economic sectors, social and measures for the rapid introduction of modern innovative technologies in other areas are mentioned in the Decree of the President of the Republic of Uzbekistan on the Strategy of the Innovation Development of the Republic of Uzbekistan in 2019-2021, adopted in the 21st of September, 2018 [1].

The analysis showed that the work on modernization, diversification of production, increasing its volume and expanding the range of competitive products in domestic and foreign markets is not carried out properly.

At the same time, the organization of corporate structures and the effective management of its innovative activities are thought to be certain problems in a market economy. This is due to the improvement of the management system of industrial enterprises of the republic through the use of a more sophisticated organizational management structure that takes into account the regional features of the country's economy, as well as the application of a new system of quality management, technology chain from raw materials to finished products. The use of more advanced management methods of holding companies at the regional level require solutions.

The analysis of the existing system of research and development management in the Republic of Uzbekistan shows that in recent years, well-established organizational structures and a largely centralized planning system and methods are being formed despite the outdated organizational and legal rules and criteria for evaluating the activities of the main scientific and technical units. Along with centralized forms of management of research and development, the decentralized organization of the innovation cycle is growing and becoming more widespread. There is an intensive process of forming of new organizational units the main task of which is to carry out engineering and implementation work. The so-called “entrepreneurial approach” to the implementation of innovations is becoming more popular by which the inventor becomes the leader in the development and implementation of innovations.

Analysis and Discussion: At present, intermediary bodies are considered to be an important element in the organizational structure of scientific, technical and innovative business in Uzbekistan. They simultaneously perform the tasks of consumers and innovators, allowing the integration of technology, equipment, scientific information to perform the tasks of buying and selling operations. As long as the demand for novelty and also offering them are rising, the scope of intermediary sctructures is also increasing. This, in turn, allows the emergence and expansion of engineering, factoring, patent, information and consulting organizations in the country. Operational management which depends mainly on the experience and qualifications of the staff, and control over the implementation of the innovation process is fully provided in a decentralized system. A centralized management system can be effective when appropriate organizational forms and structures are used for complex and wide-ranging innovations. The essence of this management concept is to create a mechanism to diret the scientific potential to solve in advance the problems that arise or may arise in the socio-economic and scientific-technical development of the national economy. The following basic requirements for the implementation of management policy in the field of innovation are described by scientists [4]:

1. This policy should be based not on extrapolating the proportions of potential growth (or reduction) of the whole science, but on forecasting changes in the level,

capacity and problem-orientation of scientific potential in accordance with the conditions of solving the most important problems of technological re-equipment of production equipment in 20-25 years. Re-equipemt must be carried out on the basis of completely new technologies which are carried out for a specific purpose and begin with fundamental research.

2. The distribution of costs for scientific services and their use should ensure the rapid development of research technology (promising methods, ultimate hardware, advanced experimental and production base and a new form of organization of use of material and technical base of science).

The transition to a market economy requires the development of a new concept of management of innovative processes in the textile industry. It is necessary to establish an innovative research center together with the Association of Textile Industry(“Uztukimachiliksanoat”) to develop textile equipment, weaving machines that meet international standards taking into account the specifics of Uzbek cotton. One of the most important foundations of the new concept of science management should be the principle of self-organization consolidated by the law, which will inevitably lead to a radical change in the role of the primary research team (RT). The main link in the organizational structure of science (especially fundamental science) should be the RT which defines a specific problem rather than an institution. The team, as a rule, will be formed on the basis of leadership and will consist of like-minded scientists, will also have a complex role structure being the most advanced form of organization. The RT should become a major source of funding in the field of fundamental research and partly applied research in the textile industry which in turn will lead to a reduction in financial costs and increase the efficiency of scientific research [5].

The basic principle of a decentralized management system is a contractual relationship. Such a relationship, as a rule, arises between the customer and the executor, however, the management of the organization, formed either by an outside organization or enterprise or by a creative team on a particular problem, can play the role of a customer. In the last case, it will be something which encourages ‘internal ventures’ that are widely developed abroad. At the same time, the parallel development of projects by smaller groups is encouraged in order to select the most promising innovations for the market in the foreign practice.

Three factors determine the application of certain forms of organization of scientific and technological innovation processes in the economic practice:

- The state of the economic system, which implements the innovation (type of market, the nature of competition, the practice of state and economic management, cultural and historical traditions);

- The state of the internal environment in a particular economic system (the nature of the strategy, financial and material-technical resources, technologies, dimensions, organizational structure, internal structure of organization of production, communication with the external environment, etc.);

- The nature of the scientific and technological innovation process as an object of management.

Interaction of scientific-technical and scientific-industrial associations with the innovations established under them and the large number of small enterprises that we implement, in our opinion, will significantly increase the number of scientific developments and discoveries, accelerate the enrichment of the commodity market. In order to ensure the successful operation of small innovative enterprises in Uzbekistan, it is important to point out the following issues [6]:

- creating the environment which is related to the experience of local managers and which encourages searching for novelties and implementing them;

- all innovative activities are focused on the needs of consumers;

- reducing the number of management steps to accelerate the process of "research - production - sales";

- minimizing the time of development and implementation of innovations, the organization of simultaneous parallel solution of innovative issues in the industry.

The new principles of innovation management are based on the recognition of the elements of the innovation process as elements of the system, the recognition of the continuity of the process, as well as the chaos and low level of predictability of results. The reorganization of the management of innovative activities in small enterprises requires the establishment of organizational relationships that allow full use of the creative potential of the team. *There are a number of commonalities that need to be highlighted* no matter how diverse the current concrete forms of such a relationship may be [7]:

- unconditional support of innovative ideas by the management;

- to take all possible measures to facilitate the conduct of scientific experiments at all stages and in all divisions of the organization;

- high level of communications and their continuous improvement. As the problem is explored from different angles, new information combinations and connections emerge at each management stage resulting in a much broader range of solutions. Innovative structures therefore seek the ways to enhance the flow of information between departments and individual employees. A strict condition is followed during a ‘mental attack’: no one has the right to criticize the views expressed. Freedom of thought and the advancement of ideas must be guaranteed by a system that encourages diversity;

- using the method called participatory management. Employees must be involved in all stages of innovation and decision-making. The participation of the personnel prevents from its resisting technological and organizational innovations, contributes to the improvement of production performance;

- the use of complex incentives, including various forms and methods of financial incentives for creative and innovative activities, as well as various measures of socio-psychological impact on employees. This practice is based on the fact that the firm's management is more creative than anyone else if it supports people's social dignity and protection, a sense of responsibility and the opportunity to grow professionally and professionally.

If a small research or design institution intends to achieve real success in the market, its organizational structure must ensure that all levels of management work closely together, the division of labor is clear, and the work of each employee is strictly defined. With the growing competition of various fast-growing commercial centers, the need for a small innovative business structure that is highly flexible and able to respond quickly to changes in the market situation has increased. In addition to the creation and development of innovations on their own in the industry of Uzbekistan, a new form of organization of innovative activities - the cooperation of small research enterprises in the development of innovations has recently become widespread. At a time when some small businesses lack the resources to do this work independently, the practice of co-operative efforts remains necessary. As the life cycle of the product is shrinking and the scale of technological changes is increasing, the working process is getting more complicated [8].

In the current economic climate in Uzbekistan, even small businesses may not always be able to develop new products or technologies without contacting and seeking or cooperating with large enterprises. Such forms of cooperation are very diverse, and they include long-term strategic alliances, short-term strategic agreements for the implementation of some research projects, arrangement of creative associations as new practical opportunities arise, agreements to overcome emerging challenges.

Such a partnership involves the exchange of information on the development of innovations, the exchange of "know-how", the exchange of specialists, linking each other to internal databases, priority acceptance and placement of orders, use of common production areas, common equipment, engineering communications, social infrastructure, separate using procedure, the involvement of one manager in both parties, joint insurance of contractual risks when concluding contracts with each other and so on [9].

Such strategic copperations may include the holding enterprise chain as from stable and dynalic bracnhes, corporate participation systems or participation of raw material for textile production to finished products. Orientation of management systems to innovation requires the creation of an effective organizational and economic mechanism for the coordination of innovative activities. In the context of decentralization of management, it is necessary to more strictly define the functions performed by the enterprise of the research institution, while establishing links and interactions of services at all levels of the research, production and sales chain.

The most common methods of establishing contacts between researchers and manufacturers are the exchange of personnel, the temporary appointment of managers and specialists in certain areas of research of production and sales departments, joint consultations.

An important condition for an objective assessment of the viability of innovative projects for entrepreneurship is the development of professional business plans, which already have a worthy place in the economy of Uzbekistan. Banks, and insurance companies and also the heads of all types of enterprises and organizations expressing their interests to the productional features of business plans. In Uzbekistan, a business plan is a key tool not only for obtaining the necessary loan from the bank, but also for business negotiations with partners, as well as information for local governments. The business plan is considered to be a document that is constantly updated, making the organization prone to various innovations including technical, informational, economic and other innovations [10].

In the recent years, the innovative the enterprises have appeared in the country the initial capital of which consists of intellectual resources. They do not have their own technical capacity, they are mobile, and the same thing is especially valuable for the intensive development of production. These include, for example, the firms that teach computer skills and provide services to organizations in the development and application of algorithms and softwares; and economically thought to be centers of continuing education [11].

Conclusion: Innovative consulting firms also have great potential. The main product of such firms are ideas expressed in the form of very different types of reports. Such ideas include preidictions of world development principles, restructuring the region's economy, new options for evaluating various projects, as well as feasibility studies, assumptions, theories, proposals, contract plans, statistical calculations, method descriptions, tests and simply new ideas. What is difficult to describe on paper will be expressed orally in the form of lectures and informal conversations [12].

A firm can be responsible for the function of a specific link between knowledge creation and management decisions. It should have close ties, on one hand, with academics, universities and network science, and, on the other hand, with users of knowledge, such as enterprises and associations. It is, in fact, a mediator who seeks knowledge, interprets it, and prepares it for the end user.

A consulting company is distinguished from other types of intermediary scientific and technical organizations, first of all, by the nature of activities and research. For example, if an industrial enterprise needs to master, for instance, ion-plasma spraying, it uses the services of a narrow specialized contractor, who gives recommendations on the thickness of the layer, the sequence of spraying each layer, heat treatment modes for the detail. If there is a need to analyze the prospects for the development of ion-plasma spraying in the next ten years, to study the field of application of such coatings, to determine how to better prepare staff for the use of devices, how to make its work as efficient as possible, the firm will have to be particularly skillful [13].

In addition to permanent functional units, which are more or less the same in terms of professional structure, the firm can also create temporary project teams to solve specific problems. They can bring together specialists in different fields from the relevant functional departments, as well as specialists of different ranks, belonging to different levels of the firm hierarchy. The interaction of project team leaders with functional units gives rise to new horizontal and diagonal communication networks (not subordination, but communication). The firm helps to develop an interdisciplinary approach to research by combining the efforts of experts in different fields to solve specific problems which significantly increases the chances of success.

In our opinion, the mentioned above organizational forms for the development and implementation of innovations form the basis for the transition of the Uzbek economy to a completely new scientific, technical and organizational stage to possess a worthy place in the world market of goods and services [14].

It is advisable to use such methods as joint discussion of scientific and technical projects, internships of researchers in production departments in developed countries such as Mutual personnel exchange for the expansion of innovative activities in the industry of the Republic of Uzbekistan, the creation of special organizational structures within the company (technical centers, special groups for planning scientific and experimental development, coordination of research and production units, temporary technical groups and etc.), representatives of various services.

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ORGANIZATION ON THE BASIS OF CLUSTER APPROACH IN THE SYSTEM OF CULTIVATION AND PROCESSING OF LICORICE IN KARAKALPAKSTAN.

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Аннотация: Мақолада агросаноат мажмуаси тармоқларида интеграцион алоқаларни ривожлантиришнинг назарий жиҳатлари қисқача баён этилиб. Қорақапоғистон Республикасида қизилмия етиштириш ва қайта ишлаш тизимида интеграцион алоқаларни ривожлантириш ассосида кластер тизимини шакллантириш ва самарадорлигини ошириш бўйича бўйича таклифлар билдирилган.

Калит сўзлар:агросаноат интеграцияси, қизилмия, кластер,интеграция, ташкилий-бошқарув тузилма, эркин иқтисодий зона,худудий ёндашув, бошқарув самарадорлиги.

Аннотация: В статье обобщены теоретические аспекты развития интегрированных отношений в агропромышленном комплексе. Были сделаны предложения по формированию кластерной системы и повышению ее эффективности на основе развития интегрированных отношений в системе выращивания и переработки солодки в Республике Каракалпакстан.

Ключевые слова: агропромышленная интеграция, солодка, кластер, интеграция, организационно-управленческая структура, свободная экономическая зона, территориальный подход, эффективность управления.

Annotation: The article summarizes the theoretical aspects of the development of integrated relations in the agro-industrial complex. Proposals were made to form and increase the efficiency of the cluster system on the basis of the development of

integrated relations in the system of cultivation and processing of licorice in the Republic of Karakalpakstan.

Keywords: agro-industrial integration, licorice, cluster, integration, organizational-managerial structure, free economic zone, territorial approach, management efficiency.

Introduction: As a result of economic reforms in the agricultural sector of the country, changes in management and forms of ownership and organizational management systems have led to the emergence of farms producing agricultural products and processing enterprises specializing in various fields. In a market economy, agro-industrial sectors and enterprises play a key role in stabilizing the economy and providing the country's population with quality food and medicines, as well as suppliers of raw materials for the processing industry. Therefore, along with other agricultural products in our country, great attention is paid to the development of the system of cultivation and processing of medicinal plants. [6] It is known that in our country, special attention is paid to the development of natural medicines based on the cultivation, protection and processing of medicinal plants belonging to the local flora. It is necessary to study the medicinal properties of natural plants in our scientific institutions, to cultivate these naturally growing plants, to harmonize production technologies, production and economic processes, and to improve organizational and management processes. In this regard, many fundamental, practical and innovative projects are being implemented in the regions of the country to rationally use the existing potential and expand the cultivation of medicinal plants. [3] It is known that in our country, special attention is paid to the development of natural medicines based on the cultivation, protection and processing of medicinal plants belonging to the local flora. It is necessary to study the medicinal properties of natural plants in our scientific institutions, to cultivate these naturally growing plants, to harmonize production technologies, production and economic processes, and to improve organizational and management processes. In this regard, many fundamental, practical and innovative projects are being implemented in the regions of the country to rationally use the existing potential and expand the cultivation of medicinal plants. [3] It should be noted that 50-60% of the drugs produced in developed countries are natural medicinal plants. In our country, on average, 80-85% of the drugs consumed by the population are chemically produced. Only 5% of the country's medicines are made from natural herbs. Therefore, large-scale organizational, economic and technical measures are being taken throughout the country, including organizational, technological and technical conditions to increase the area of medicinal plants, expand the cultivation of wild medicinal plants, create specialized plantations, greenhouses, etc. - The leadership of our country is taking concrete and targeted measures to create conditions [6.] People's Republic of Karakalpakstan One of the most useful plants for aligi is licorice root. From its root raw materials are obtained products necessary for the production of various drugs. In addition, for many years, its root raw materials have been collected and exported to foreign countries. In recent years, the need for root raw materials of this plant is growing. In recent years, great attention has been paid in our country to the cultivation of licorice. In this regard, the Decree of the President of the Republic of Uzbekistan №PF-2970 "On the cultivation of licorice and increasing industrial processing in the Republic of Uzbekistan" (May 16, 2017), Cabinet of Ministers of the Republic of Uzbekistan No. “63 On Measures for Further Development of Methodological Processing ”(January 27, 2018) and Resolution of the Cabinet of Ministers No. 138“ On Cultivation and Industrial Processing of Licorice and Other Medicinal Plants ” On additional measures to effectively organize the hose "(February 15, 2019) were adopted. [1], [3], [5]. Currently, 79 enterprises and firms are engaged in the collection and export of smooth licorice root raw materials in the territory of the Republic of Karakalpakstan. In the regions, the natural resources of this plant are declining. Also, the deterioration of ecological conditions in the region and the shortage of river water have a negative impact on the growth, development and reproduction of plants in the area.

Literatura review: I.Altukhov, I.N.Buzdalov, M.Bakket, V.Bautin, I.Glebov, L.Devyatkina, N. from the list of well-known foreign economists on the development of scientific and theoretical aspects of economics in the management of the agricultural sector. A.Popov, A.Petrikov, I.G.Ushachev and others made a great contribution. Uzbek economists KH.Abdurahmonov, Y.Abdullaev, Sh.N.Zaynutdinov, M.Sharifkhodjaev, S.S.Gulamov and others The theoretical and methodological foundations of management are covered in detail in the works of a number of scientists. Also A.Abdullaev, B.A.Akramov, B.B.Berkinov, F.Nazarova, K.A.Nasirova, R.H.Tashmatov, O.P.Umurzakov, N.S. Khushmatov, T.Kh.Farmonov, R.H.Husanov conducted research on the problems of the agricultural sector, including the theoretical foundations of management of agricultural enterprises and the improvement of management of integration processes in the industry. In the research work of the above-named economists have developed sound proposals and recommendations of deep scientific and methodological significance for the development and improvement of management and management of the agricultural sector.

Research methodology: The main purpose of the study is to improve the integration processes and management processes in the system of cultivation and processing of licorice in Karakalpakstan in the light of changes in the agro-economy and the requirements of developed market relations. Theoretical and methodological bases of this article , research conducted by economists on the financial stability of enterprises lili, expert assessment, process monitoring, a systematic approach to economic events and processes.

Analysis and results: The market economy, like all other sectors, has its own requirements for the cultivation of medicinal plants. The main of these requirements is to ensure that all production units in the agro-industrial complex cover their costs and make a profit by offering goods to the consumer within the market demand. Activation of agro-industrial integration processes in the complex is also crucial and plays an important role in increasing the incomes of producers and the population.

Agro-industrial integration can generally be seen as a process of merging agricultural production on the basis of its interaction with industry and related service sectors. The concept of "agro-industrial integration" is multifaceted and includes not only the process of production between industries, but also the object of scientific research, the subject of assimilation and implementation of research results.[9]

In particular, the importance of the issue of export of processed fruits and vegetables grown on natural crops and grown by agricultural enterprises to domestic and foreign markets makes the development of integration processes an objective necessity. Because in the context of agro-industrial integration, inter-sectoral relations are somewhat simplified, that is, the interdependence of internal relations with external relations is improved, and the purpose of external relations is aligned with the purpose of internal relations, and their "flexibility" increases reliability. There are different views and opinions among agrarian economists on the interpretation of agro-industrial integration in economic theory. At the same time, a group of economists integrated the process of agro-industrial integration into a single system of technical, technological, organizational-managerial and economic framework within the agro-industrial structures of industry, agriculture and other enterprises, organizations in a mutually compatible manner. The second group of economists argues that agro-industrial integration is characterized by the consolidation of food production from agricultural raw materials. that the process of interconnected stages of production, storage, processing and delivery of products and consumer goods to the consumer is a technologically, economically and organizationally complex process; suggests that the sequence involves merging.[9] In our opinion, agro-industrial integration is a structure of market entities engaged in the cultivation, processing, storage, primary and deep processing and delivery (sale) of agricultural products to the consumer and formed on the basis of mutual cooperation and interest. There are many types of agro-industrial integration in scientific sources and in the practice of the world economy in general today, the most common and effective of which are "clusters". From this point of view, Uzbekistan also pays great attention to the interest in this type of agro-industrial integration and its introduction in the agro-economic sectors, and scientific and practical research is being conducted in these areas. [4]

In particular, the application of the cluster approach to the organization and management of production in the development of cultivation and processing of medicinal plants in the country will further increase the opportunities for the rapid development of the pharmaceutical industry in our country. For example, taking into account the natural climate and soil conditions of the northern part of Uzbekistan, the Republic of Karakalpakstan, a number of decrees and resolutions of the President and the Cabinet of Ministers have been adopted on the cultivation and processing of licorice in the country.(**Table-1)**

Table-1.

Decree of the President of the Republic of Uzbekistan May 16, 2017 №PD 2970 Indicators of target parameters for the creation of licorice plantations and the cultivation of root crops in the period 2017-2021

№	**Districts**	**Licorice plantation area, ha**						**Target parameters of root preparation**					
		All 2017-2021 y	**Over the years**					**All 2021-2025 y**	**Over the years**				
			2017	2018	2019	2020	2021		2021	2022	2023	2024	2025
All		18 510	2 420	3 380	3 600	4 440	4 670	144 878	18 956	26 444	28 160	34 752	36 566
All Republic of Karakalpakstan		16 010	2 020	2 980	3 200	3 840	3 970	124 878	15 756	23 244	24 960	29 952	30 966
1	Amudarya	380	65	65	70	90	90	2 964	507	507	546	702	702
2	Beruni	820	115	150	175	190	190	6 396	897	1 170	1 365	1 482	1 482
3	Kanlykol	1 175	160	225	230	265	295	9 165	1 248	1 755	1 794	2 067	2 301

4	Karauzyak	1 270	165	220	250	315	320	9 906	1 287	1 716	1 950	2 457	2 496
5	Kegeyli	1 825	150	320	345	485	525	14 235	1 170	2 496	2 691	3 783	4 095
6	Kungrad	1 340	165	220	280	325	350	10 452	1 287	1 716	2 184	2 535	2 730
7	Muynak	225	30	45	45	50	55	1755	234	351	351	390	429
8	Nukus	2070	200	395	420	525	530	16146	1560	3081	3276	4095	4134
9	Takhtakupyr	1650	200	325	325	400	400	12870	1560	2535	2535	3120	3120
10	Turtkul	390	65	70	75	90	90	3042	507	546	585	7002	702
11	Khodjeyli	1250	250	250	250	250	250	3750	1950	1950	1950	1950	1950
12	Chimbay	1950	260	370	390	465	465	15210	2028	2886	3042	3627	3627

According to the analysis, 26.0% of the export potential of the Republic of Karakalpakstan is vegetables and fruits, 12.5% - textiles, 6.0% - chemicals, of which 13.2% - licorice root, 46.0% - licorice root extract. [7] Today, more than sixty processing enterprises operate in this direction in the country.

Conclusion and Recommendations: Based on the above, one of the main tasks is to improve the integration processes and management processes in the system of cultivation and processing of licorice in Karakalpakstan in the light of changes in the agro-economy of the republic and the requirements of developed market relations.

According to the results of the study, there are some shortcomings and problems in the current system of licorice cultivation and processing in the Republic of Karakalpakstan. We have tried to express this in the picture below. (Table-2)

As can be seen from the picture, the fact that several state and non-state enterprises are dealing with this issue in the country at the same time leads to imbalances and duplication between their activities.

In particular, the Ministry of Agriculture, the Nukus-Farm Free Economic Zone [2] and the Association of Organizations for the Cultivation and Processing of Licorice and Other Medicinal Plants are coordinating and managing these activities.

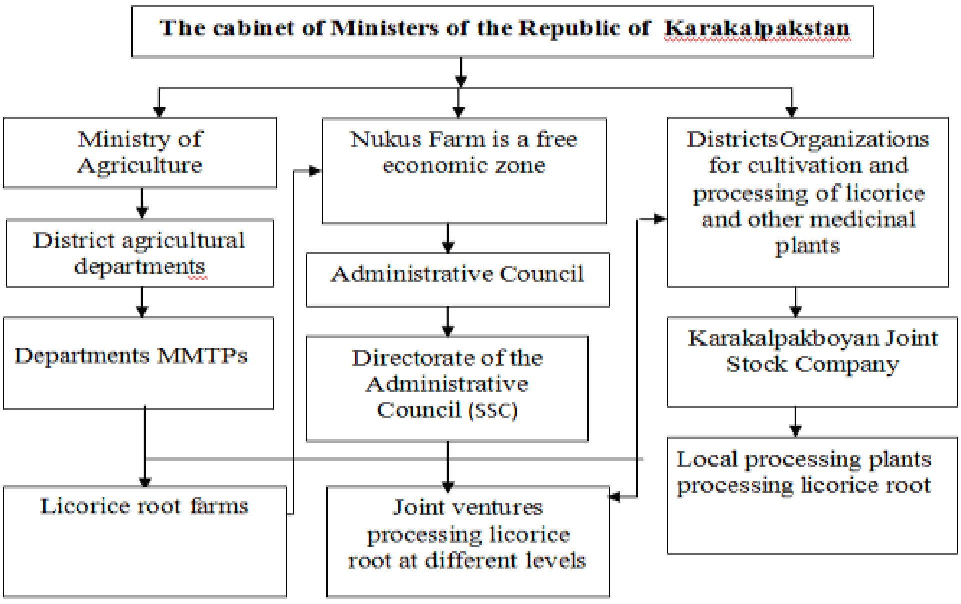

Table- 2. The current organizational and administrative structure of the system of cultivation and processing of licorice in the Republic of Karakalpakstan

In our opinion, this situation contradicts, firstly, the development of the industry based on targeted and strategic goals set out in Presidential Decrees and Cabinet of Ministers, and secondly, the principles of a market economy and integrated development. Therefore, in our opinion, it is necessary to improve the system of integration and management of licorice cultivation and processing enterprises in the Republic of Karakalpakstan in accordance with the requirements of modern and developed market relations. In doing so, we propose the introduction of a cluster approach, which is a recognized and advanced form of integration, as noted above.

(Table- 3)

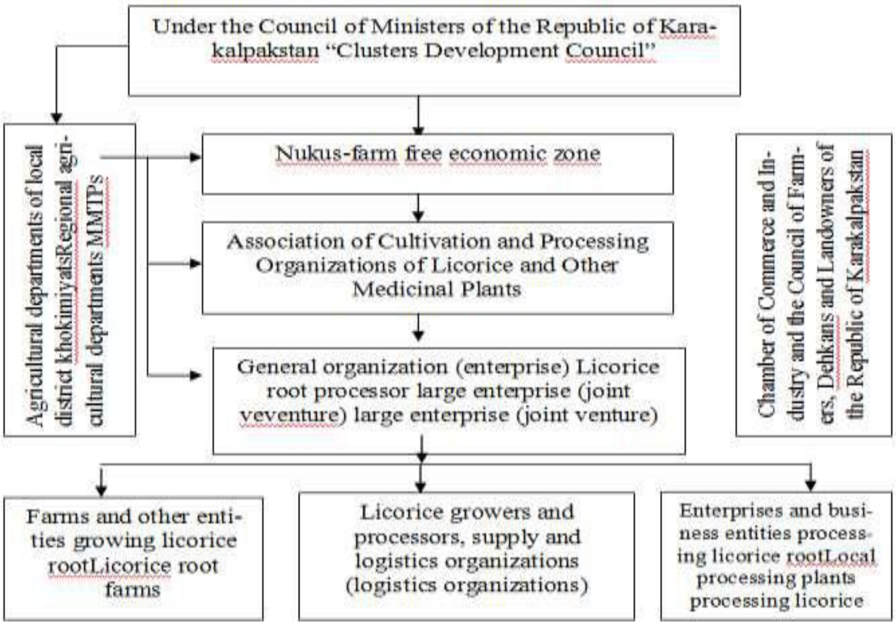

Table- 3. The scheme of organization of the system of cultivation and processing of licorice in the Republic of Karakalpakstan on the basis of a cluster approach.

In the above picture, we believe that the approach should be based on the fact that the cultivation and processing of licorice is of great importance and strategic importance for the Republic of Karakalpakstan. Therefore, it is expedient to establish "Clusters" specializing in the cultivation and processing of licorice in the Republic, the activities of governmental and non-governmental organizations in the formation of clusters and their organizational management within the scope of their competence. [4] The proposed cluster approach will also serve to further develop the system of cultivation and processing of licorice in the Republic of Karakalpakstan, to make the pharmaceutical industry a leading sector of the economy in the country and to increase the efficiency of management.

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UDK:336.27

DEVELOPMENT AND IMPLEMENTATION OF INTERNAL STANDARDS BY AUDIT ORGANIZATIONS

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Annotatsiya. Ушбу мақолада аудиторлик ташкилотларининг ички стандартларининг ахамияти, уларнинг тузилиши, ички стандартларга қўйиладиган талаблар, уларнинг афзалликлари, халқаро нормалар асосида гурухланиши ёритилиб берилган.

Kalit so'zlar. аудит, аудиторлик ташкилоти, ички стандартлар, халқаро стандартлар, аудиторлик текшируви

Annotation. This article covers the nature of internal standards of audit organizations, their structure, requirements for internal standards, their advantages, their grouping on the basis of international norms.

Key words. audit, auditing organization, internal standards, international standards, auditor check

Аннотация: В данной статье рассматривается сущность внутренних стандартов аудиторских организаций, их структура, требования к внутренним стандартам, их преимущества, их группировка на основе международных норм.

Ключевые слова. аудит, аудиторская организация, внутренние стандарты, международные стандарты, аудиторская проверка

Introduction: In accordance with the requirements of current legislation, each audit organization must have a set of internal standards developed on the basis of national auditing standards.

The importance and practical significance of intra-firm standards for audit organizations is confirmed by the fact that in the special literature and scientific research issues of intra-firm standardization are given great attention[1].

Intercompany standards of an audit organization are documents that detail and regulate common requirements for the implementation and execution of an audit, adopted and approved by an audit organization in order to ensure the effectiveness of practical work and its adequacy to the requirements of the rules (standards) of audit activity.

Professor N.S. Sanaev writes: Auditing is an entrepreneurial activity aimed at conducting an audit of an individual or legal entity with the legal status of an auditor and providing consulting services [2].

According to the definition of M. M. Tulakhodjaeva: An audit is a review of an entity's financial statements or related financial information by independent qualified specialists in order to make conclusions about the level of compliance of this report or information with the law and other regulations [3].

The audit organization should form a package of internal standards reflecting its own approach to the audits and conclusions drawn up, based on the generally established principles of organizing and conducting the audit.

The presence of a system of internal standards and its methodological support is a necessary indicator of the professionalism of the audit organization.

Literature review: According to V.I. Podolsky - “Internal standards of audit organizations and individual auditors are documents detailing and regulating the uniform requirements for the organization of work of audit organizations, the implementation and execution of audit services”[4].

According to Sirotenko E.A. - “Under the internal standards of the audit organization are understood documents that detail and regulate the uniform requirements for the implementation and execution of the audit, adopted and approved by the audit organization in order to ensure the effectiveness of practical work and its adequacy to the requirements of the rules (standards) of audit activity”[5].

According to Sheremet A.D., Suits V.P. - Intra-company standards are a set of intra-company instructions and manuals of a significant volume, which are constantly being adjusted in order to improve and due to changes in the environment for their application[6].

According to Solonchev C. - Intercompany (technological) standards– a certain set of regulations developed and approved by an audit firm that describes the entire process of conducting an audit and providing audit-related services, starting from the moment the assignment is received and ending with the preparation of reporting documents (audit report, report on the results of the audit and etc.) provided to the management of the audited entity and representatives of its owner[7].

According to B.T. Zharylgassov - Internal standards of an audit organization are documents detailing and regulating uniform requirements for the implementation and execution of audits, adopted and approved by the audit organization in order to ensure the effectiveness of practical work and its adequacy to the requirements of the rules (standards) of audit activity and internal standards developed in accredited audit associations.[8]

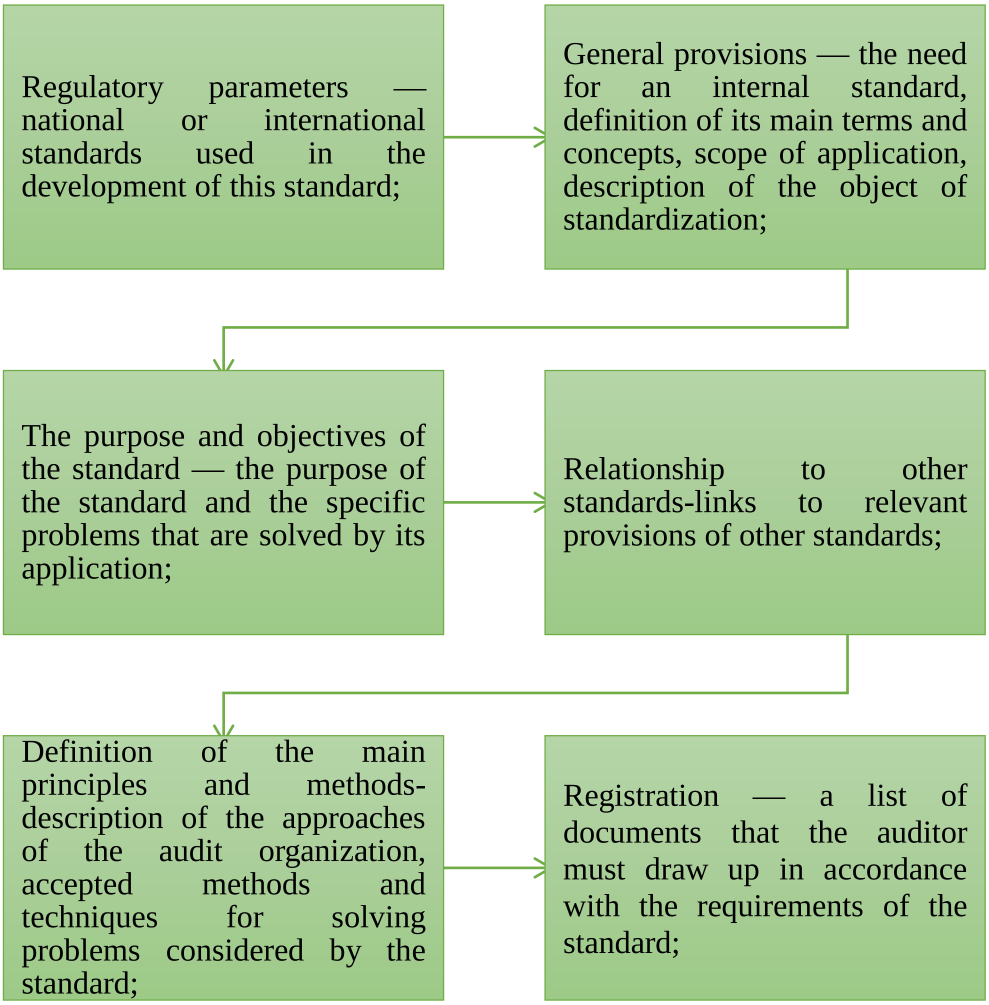
Research methodology: In the scientific paper, analysis and synthesis, systematic approach, abstract-logical thinking, economic analysis, grouping, expert evaluation and comparison methods were used.

Analysis and results: Today, audit organizations occupy an incomparable place in the economy of our country. According to statistics, in the following years, changes can be observed in the dynamics of the number of audit organizations in Uzbekistan.

1-picture. Number of audit organizations and auditors[9]

Internal standards regulate the activities of auditors within this audit organization and provide additional conditions for resolving real and potential conflicts between employees and the administration of the audit organization, between the audit organization and regulatory authorities, between the audit organization and the economic entity, between the audit organization and organizations that protect the public interest, as well as between the auditors themselves.

The requirements of internal standards of audit organizations regulate the conduct of audit activities in accordance with the basic principles of audit and generally recognized ethical standards.



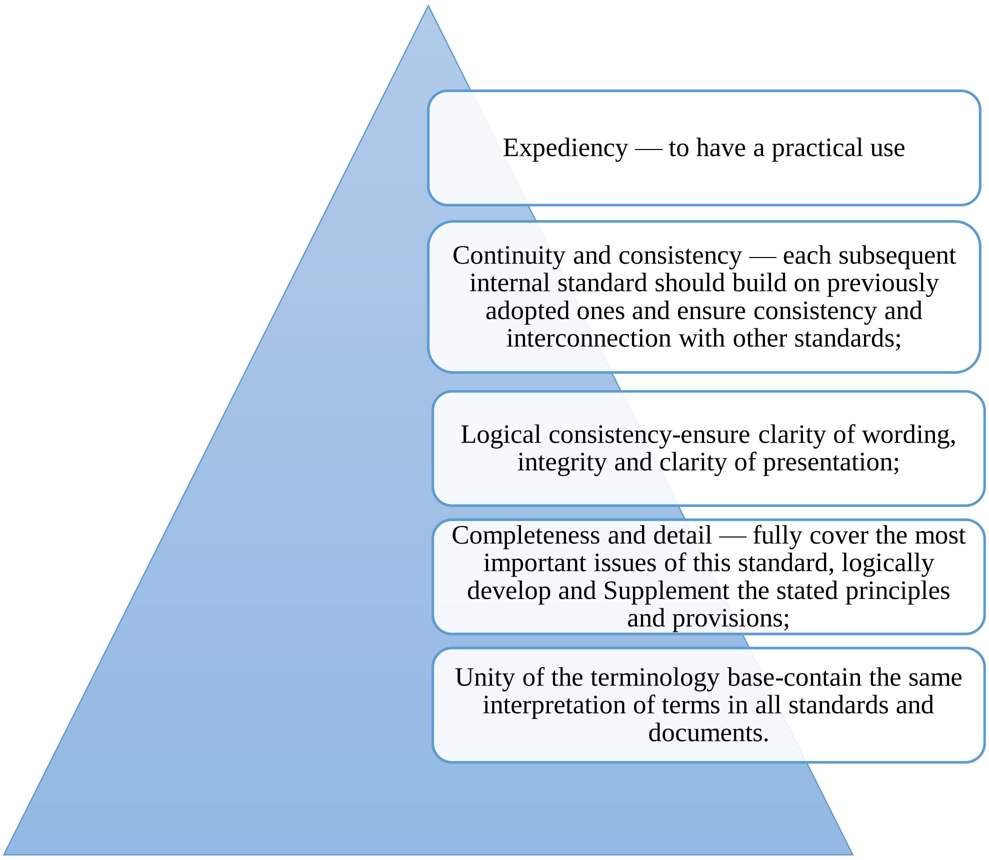
2-picture. Structure-internal standard of an audit organization[1]

Internal standards contain common basic requirements for the audit procedure, quality and reliability of the audit and create an additional level of assurance of the audit results when they are met. They define the overall approach of the audit organization to conducting an audit, regardless of the conditions under which the audit is conducted.

Inter-company standards are individual, authored in each audit firm, and their content is secret information. In-house standards are a set of in-house instructions and guidelines that are constantly updated for improvement.

[1] Compiled by the author

The developed system of internal standards allows to regulate audit activity taking into account all trends of its development and experience in the international audit community, taking into account the specifics of accounting and accounting (financial) reporting, legal regulation of economic activity and audit of a particular country, and the audit organization's own approach to audits and conclusions.



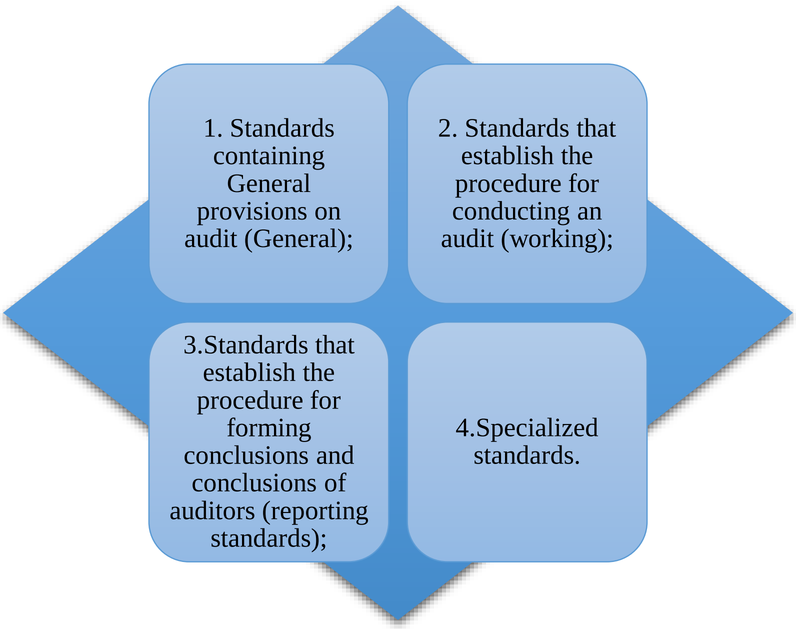
3-picture. Requirements to internal standards[2]

The development of internal standards should be entrusted to highly professional employees (lead auditors) who are well versed in both international and national standards of auditing, and in the audit technology itself, with excellent knowledge of the theory and practice of accounting, audit, analysis, Finance and law. Internal standards are approved by the order of the head of the audit organization and take effect from the moment of approval. All employees of the audit organization should be informed about the approval of standards in a timely manner.

In the preparation of internal company auditing standards appropriate to comply with the following conditions: the mutual desire of all parties concerned to reach

[2] Compiled by the author

agreement taking into account the views of each party on quality control of audit services, applicability, compatibility and interchangeability; the need to create internal standards should be evaluated from the point of view of their applicability and practicality; security standards clear wording and clarity of presentation; should be unity terminology database, i.e. all internal standards should contain a common interpretation of terms; standards should be updated periodically and in a timely manner.



4-picture. Grouping of internal standards of audit organizations on the basis of international norms [3]

Internal standards containing General provisions on audit are intended to regulate the relationship between the audit organization and the audited economic entity, the relationship between auditors, as well as between employees and the administration of the audit organization in accordance with the basic principles of audit and ethical standards.

Internal standards that establish the procedure for conducting an audit (working standards) include specific rules, methods of conducting an audit and are developments on the implementation of the requirements of the rules (standards) of audit activity.

[3] Compiled by the author

Internal standards that establish the procedure for forming conclusions and conclusions of auditors contain internal requirements of the audit organization for the content and formation of conclusions and drawing conclusions based on the results of the audit.

It is important that the internal standards used in the practice reflect the audit firm's own approach to audits and preparation of reports based on the generally established principles of organization and conduct of audits [10].

Specialized internal standards include standards in the field of audit methodology for various activities of economic entities, as well as for various audit purposes.

The development of internal standards is based on the principles of professional audit ethics, such as independence, professional judgment and skepticism, materiality, and reasonable assurance.

Internal standards must be approved by the order of the head of the audit organization, and in cases stipulated by the constituent documents of the audit organization-by the Board of founders or other authorized body. Internal standards may provide for the appointment of appropriate officials responsible for compliance with the provisions of internal standards.

Conclusion/recommendations: In our opinion, the purpose of developing internal standards is to improve the quality and reliability of audit services, the effectiveness of the results obtained, reduce the complexity of the audit work, reduce the risk of auditing and create additional guarantees for users of accounting information. Also, the internal standards of the audit organization allow the use of new auditing technologies and techniques in the practice of auditing to combine the principles and approaches of the audit organization.

The lack of internal standards raises the question of the compliance of the audit services provided by the organization with the general established standards, its management, the level of professionalism of the leading auditors.

We believe that the development of internal standards in auditing organizations will improve the quality and reliability of the work of audit services, the effectiveness of the results obtained, reduce the complexity of the audit work, reduce the risk of auditing and create additional guarantees for users of accounting information.

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SOME ISSUES OF IMPROVING THE SURVIVABILITY OF MOBILE COMMUNICATION SYSTEMS IN EMERGENCY SITUATIONS

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Annotatsiya – Ushbu maqolada mobil aloqa tizimining tuzilish topologiyalari va ularning ishlash algoritmlarini tahlil qilish orqali mobil aloqa tizimi yashovchanligini baholash masalasi ko'rib chiqilgan. Favqulotda vaziyatlarda mobil aloqa tizimi yashovchanligini ta'minlashning bir necha usullari ko'rib chiqilgan va belgilangan hududlarda samarasi yuqoriroq bo'lgan usul taklif qilingan. Favqulotda vaziyatlarni hisobga olgan xolda uyali aloqa tarmoqlarining tuzilish modellari bo'yicha fikrlar berilgan. Belgilangan xududlarda favqulotda vaziyatlarni xisobga olgan xolda, bazaviy stansiyalarni o'rnatish bo'yicha tavsiyalar keltirilgan.

Kalit so'zlar yashovchanlik, ishonchlilik, favqulodda vaziyatlar, baza stansiyalari, mobil aloqa tarmog'i.

Abstract - This article discusses the issue of assessing the survivability of a mobile communication system by analyzing the topologies of the structure of the mobile communication system and algorithms for their functioning. Several ways of ensuring the survivability of the mobile communication system in emergency situations

(ES) were considered, and a method was proposed that is more effective in these regions. Opinions were expressed on structured models of cellular networks taking into account ES. Taking into account ES in these regions, installation of base station (BS) is recommended.

Keywords survivability, reliability, emergency situations, base station, mobile communication network.

Аннотация - В данной статье рассматривается вопрос оценки живучести системы мобильной связи путем анализа топологий структуры системы мобильной связи и алгоритмов их функционирования. Было рассмотрено несколько способов обеспечения живучести системы мобильной связи в чрезвычайных ситуациях, предложен метод, эффективность которого выше в указанных регионах. Были высказаны мнения по структурированным моделям сотовых сетей с учетом чрезвычайных ситуаций. Учитывая чрезвычайные ситуации в указанных регионах, рекомендуются работы по установке базовых станций.

Ключевая слова живучесть, надежность, чрезвычайных ситуациях, базовых станций, мобильной сети связи.

I. INTRODUCTION

Effective work on emergency prevention and response is not possible without an organizational system of the mobile radio network. Currently, the most common type of telecommunications is mobile cellular communication. It is known that even for the organization of public communication networks within certain industries, channels of mobile cellular networks are used. Mobile cellular communication channels are also used for organizing radio communication networks in the designated area [1]. From a commercial point of view, it is appropriate that the smallest number of BS provides simultaneous access to network services for the largest number of mobile subscribers. In case of ES in the designated area, it is critically necessary to meet the following requirements for radio communication systems:

- maximum coverage area;
- network performance and survivability;

- resistance to structural damage and overload;
- operational recoverability of performance.

At the same time, the survivability of the communication network is one of the main components of network reliability. The survivability property of a network characterizes its ability to continue providing services in the event of failures or system failures with a guarantee of full recovery within a specified interval.

II. RELATED WORKS

In case of ES in the mobile radio network, two main problems may occur that reduce the network availability and stability parameters: overloading of channels and equipment, as well as interruption of communication. These two problems need to be considered together, since they affect each other.

It is because of the interruption of communication that the number of subscriber requests for service increases dramatically, causing the service devices to restart [2].

To assess the survivability of a mobile network, you can use the following indicators: the probability of establishing a connection between specified network nodes. Possible connection and transfer the required amount of information in terms of destructive effects, the determination of the maximum number of nodes in a line network, after failure of which the network gets disconnected relatively arbitrary pair of points; the mean number of nodes between which it is possible to establish connections with simultaneous damage to the number of lines in ES.

As a rule, a mobile radio network has a multi-level hierarchical network structure. A network structure is a set of communication nodes (network elements) connected to each other according to a given scheme. This network structure may be vulnerable. Full functioning of several communication nodes of a hierarchical network structure is possible only when the main (control) node is functioning normally. Interrupting the operation of one communication node leads to overloads and failure of other nodes in the network structure.

This is called the "cascade effect" and the survivability of mobile radio systems in ES requires an analysis of the impact of each network element on survivability. This entails the need for detailed consideration of the technological features of mobile radio communication. For this purpose, the communication network is divided into domains in order to identify the most important components that provide resistance to destructive effects, as well as to analyze the consequences of their domain failure and failure. In this direction, Xwan T.A., Trushkin V.P., Popov I.L., Velichko V.V., Popkov G.V., Popkov V.K., Romashkova O.N. Several researchers conducted a study and achieved the required results.

III. MATERIAL AND METHODS

We present a hierarchical model of a mobile communication network (MCN) to assess its survivability characteristics as a set of lower-level subsystems: subscriber equipment, radio access, the base network, and a gateway for switching external networks.

This hierarchical model allows you to calculate the survivability of MCN, as a combination of calculating the survivability of low-level subsystems: radio access equipment (AE), subscriber equipment (SE), the base network (BN) and gateways for switching with external networks. Note that the influence of external networks can be excluded, since the conditions of ES on the designated area are usually local in nature. Since the processes of destruction and recovery in MCN models of subsystems occur independently of each other, it becomes possible to decompose the General problem into subtasks of the study of the survivability of individual subsystems. Based on this, the survivability index (probability) of the hierarchical model of the mobile radio network is determined by the following product

$$L = L_{SE} * L_{BN} * L_{AE} \qquad (1)$$

When using (expression 1), the L_{SE} calculation will be performed only in cases where the impact of the damaging action from ES may be manifested on the subscribers themselves. In other words, the user of the MCN is not able to take part in the recovery process from ES when the subscriber equipment is not working. More generally, we will use $L_{SE} = 1$ in further calculations.

The calculation of the BS survivability will be made on the basis of analytical modeling of situations related to the consequences of ES in the zone of operation of the MCN. To develop stochastic models for calculating the network structure of survivability, the mathematical apparatus of Markov chains was used.

In the event of an emergency, as in the case of a deliberate attack on a mobile radio network, the disruptive effects usually reach the target. However, the availability of backup network resources allows you to maintain and maintain the health of your MCN. There are two possible scenarios for ES.

In the first case, let's assume that an emergency situation disrupts the entire MCN. Depending on the amount of damage caused, different times will be spent on restoring the network to health. Figure 1 shows a model of the impact of ES on the disruption of MCN.

This model uses an extraordinary stationary stochastic process described by the corresponding probability state diagram. From here we come to an assessment of the network recovery intensity and find the optimal values of recovery intensities in the case of a destructive impact on MCN.

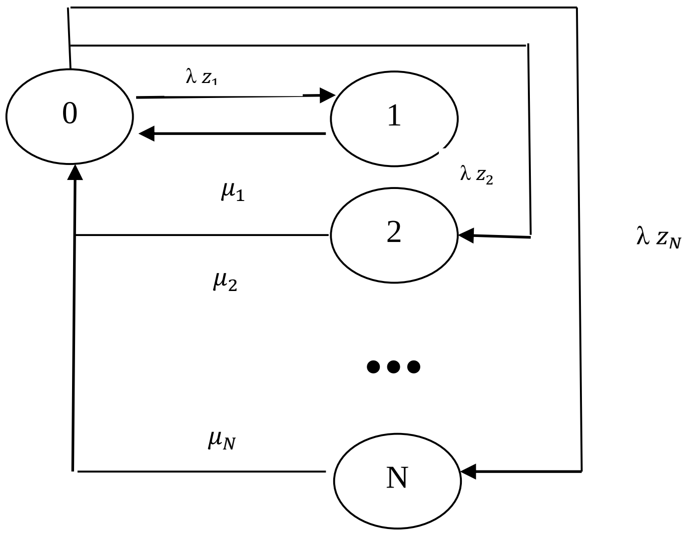

Figure 1. Model of the impact of ES on the MCN malfunction.

Below are the state equations of the system (2), where z_i, the probability of success of a multi-target attack, $z_i \geq z_j$ if $i < j$, $\sum z_i = 1$

$$L_0 \lambda z_1 = L_1 \mu_1 \dots L_0 \lambda z_j = L \mu_j$$

$$L_0 \lambda z_N = L_N \mu_N \qquad (2)$$

Normalization condition:

$$\sum_{i=0}^{N} L_i = 1 \qquad (3)$$

From here you can get the network recovery rate:

$$\mu_i = \sqrt{\lambda z_i / l} \qquad \mu_i = Z(\lambda z_i)^{\frac{1}{2}} / \sum_{j=1}^{N} (\lambda z_i)^{1/2} \qquad (4)$$

Survivability can be calculated using the formula:

$$L = \frac{z}{z+\lambda(\sum_{i=1}^{N} \sqrt{z_i})^2} \qquad (5)$$

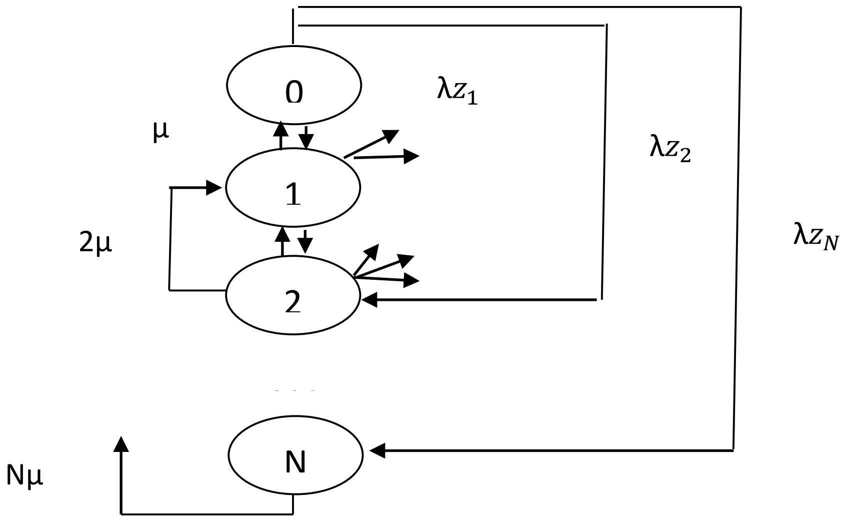

Figure 2. Simulation of ES, provided that the system is attacked while there are functional components

Now let's look at the second case of the impact of emergencies on the mobile radio network. Assume that one or more systems are being disabled. The mobile network system is attacked until all components fail completely (figure 2).

Since the network is functional, if at least one of its components is functioning, then in States 1...N-1, the mobile network network will be functional, and continues to be attacked. Let's write down a system of static equilibrium equations for this model:$L_0(\mu + H_N) - L_1\mu$=0

$$L_j\left(j\mu + H_{N-j}\right) - L_{j+k}(j+1)\mu - \sum_{i=1}^{j-1} L_i \lambda z_{j-1} = 0 \qquad (6)$$

$$L_N N_\mu - \sum_{i=0}^{j-1} L\lambda z_{N-1} = 0$$

In the Probabilistic L_N state, N systems are inoperable. Therefore, by solving the system of equations 6, you can determine the probability of MCN operability as $1 - L_N$. the most effective way to ensure the operability of the mobile radio network in ES is to increase the intensity of connection maintenance. Technically, this can be achieved by forcibly limiting the duration of the conversation or switching to sending short messages (SMS).

A simplified algorithm for connecting two subscriber devices in case of ES is shown in figure 3.

(2G) occur when all channels of the base station transmitter are busy at the same time. Overloads in mobile radio networks of the third generation (3G) cause slightly different processes compared to networks of previous generations. If a situation occurs when the cell base station can handle the load from all subscribers connected to it, the radio frequency coverage area is "compressed “(the AC – admission control function), which corresponds to the” reset" of subscribers located on the maximum 3G coverage area to the 2G coverage area [1-2].

A mobile network system that has a distributed structure can be modeled using directed graphs. Network channels the edges of the r_i graphs are represented, and the nodes of the network are the vertices of the V_i graph.

The mobile network model can be represented as directed graphs. Network elements in the model are communication nodes-graph vertices, communication channels, and network sections-graph edges [4-5]. The proposed method for reconfiguring the structure of a MCN in case of emergencies is based on calculating network resources when a graph vertex is deleted due to emergencies. thus, the vertex v_i can be assigned a number of characteristics: node performance, the probability of its being in the working state p_i. The edges of the graph r_{ij}between the vertices v_i and v_j, for example, can be characterized by bandwidth, the probability of breaking the connection, etc.

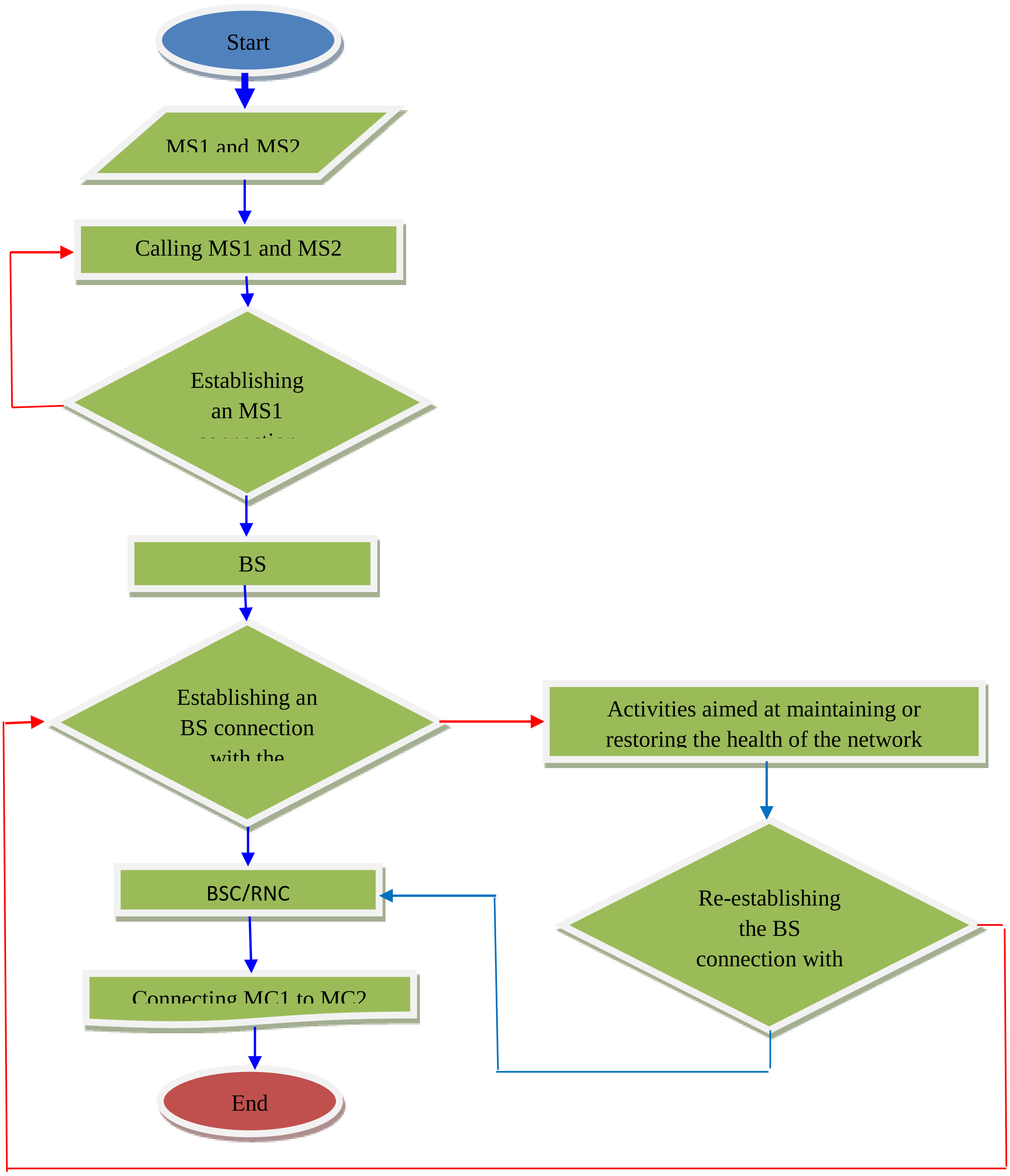

Figure 3. The algorithm works the network of MCN in ES

Graph vertices can serve as sources and receivers of network information flows, as well as transit nodes that pass information flows generated in other nodes.

In ES, it is advisable to analyze graph models of the network, considering the various causes of node and edge failures. Taking into account the peculiarities of ES, the results of calculating the probability of failure of an entire set of edges simultaneously or almost simultaneously are of practical importance.

To define the concept of survivability, you must enter a number of concepts. The entire set of edges through which the information flow passes from the vertex v_i to v_j is called the path (v_i, v_j). If there is a path for any two vertices of the graph (v_i, v_j), then the graph is called connected, otherwise the graph is not connected. An edge that enters or exits a vertex is called an incident edge. The total number of edges d(i) incident to a vertex is called its degree.

The values of paths between graph vertices are described by the incident matrix $||\,(v_i, v_j)||$.

The vertex (or point on the edge) located at the smallest distance from all other vertices is called the median of the graph, and the median distance R is the radius of the graph. If you exclude at least one edge from the graph, the radius of the graph will increase, because you will need to find a longer way around it. But note that excluding one or even more edges from a graph does not necessarily destroy its connectivity. The specified property is called a liveness graph [6].

Let a fragment of a MCN be defined by a graph that has v_i vertices connected by r_{ij} edges (figure 4). The vertex highlighted in blue is the Central switching node connected to all other vertices. If the Central node fails, the graph structure changes. When any of the remaining vertices stop working, the original graph structure splits into two unrelated subgraphs. This corresponds to a violation of the integrity of the radio network.

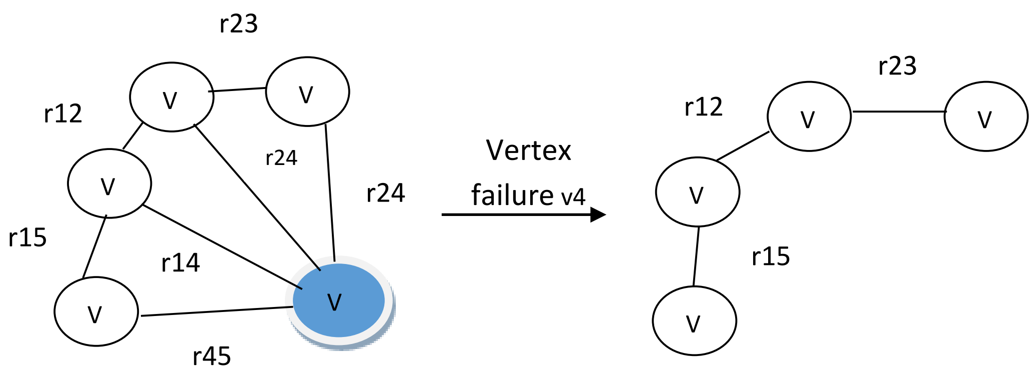

Figure 4. Example of a graph model of a radio network fragment (5 vertexes and 7 Weber)

The survivability of radio communication networks in the designated area as an indicator of security in an emergency.

When analyzing and evaluating the survivability of networks and radio communication systems in ES, it is necessary to take into account their main characteristics and features. The main features of ES in the designated area are: poor predictability, suddenness, rapid spread, and random destruction of objects in the emergency zone. At the same time, there is a small probability that radio communication systems will stop functioning outside the epicenter of ES. Actions to restore mobile network networks designated area should be actively initiated immediately after the active phase of ES. The main purpose of the management, communication and notification systems is to eliminate ES and provide reliable notification of people about ways out of the emergency zone. Therefore, in ES, the main criterion for the survivability of mobile network systems is the probability of blocking incoming calls due to a decrease in network resources (network failure rate).

Let the probability of survival of all BS that are in the area of ES are the same. In this case, the weight of the mobile terminals by relay transmission is switched to the service of those BS. which are not in the area of ES and continue to function. In this case, the characteristics of the MCN (call intensity. The average duration of service) will change and will depend on the number of affected BS and the geography of their location [7].

The survivability of a mobile network and the impact of emergency factors can be determined using an expression.

$$L = 1 - \left(\sum_{k=0}^{N} P(k) P_{blok}\,(k)\right) = 1 - \left(\sum_{k=1}^{N} C_N^k p^k (1-P)^{N-k} \frac{p^{mk}/_{(mk)!}}{\sum_{i=0}^{mk} p^i/_{i!}} + (1-P)^N\right), \qquad (7)$$

where N is the number of base station and cluster in the area of ES;

K-number of BS that have not lost the ability to function-random value;

P(K) - the probability of K stations working in the emergency zone wizard; $P_{blok}\,(k)$- the probability of blocking incoming requests in the BS in the emergency zone cluster;

m - number of channels base station;

λ - intensity of connection establishment;

μ - intensity of service call.

The expression for calculating the probability of blocking L contains two terms: the first is the probability of blocking a call if there are functioning BS, and the second is the probability that all BS have stopped functioning. Note that in the second case, the probability of blocking the call is 100%.

Obviously, the main parameters included in the specified expression are determined by the number of BS that have stopped functioning. In this case, in particular, the load on neighboring cells increases, the volume of incoming load increases, and therefore, the average connection duration increases.

Next, consider another aspect. It is obvious that with increasing distance from the base station to the epicenter of emergencies, the probability of survival of the base station increases (figure 5).

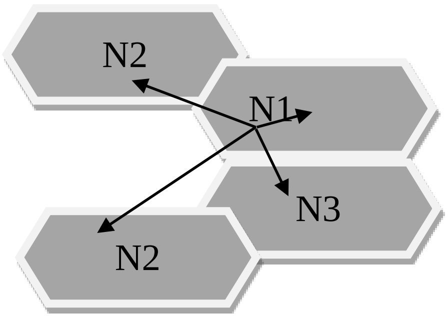

Figure 5. Example of location base station from the emergency center

Let's order the values of the probabilities of survival of the base station in their ascending order and number the probabilities.

$$p_1 > p_2 > p_3 > \cdots > p_n.$$

Then the expression for calculating the mobile network survivability will take the following form

$$L = 1 - \sum_{k=0}^{N} \sum_{j_1 \dots j_k} \prod_{i \in l(j_1 \dots j_k)} C_N^k P_i^k (1 - p_i)^{N-k} \frac{p^{mk} / (mk)!}{\sum_{i=0}^{mk} p^i / i!}$$

(8)

When p=1 (the case when all BS survived), the formula turns into the erlang formula for systems with losses

$$L_N(p) = 1 - \left(\sum_{k=1}^{N} C_N^k p^k (1-p)^{N-k} \frac{p^{mk}/(mk)!}{\sum_{i=0}^{mk} p^i/i!} \right)$$

(9)

Figure 6 shows the results of calculating the mobile network survivability for the following special case.

Let's assume that there are three BS in the emergency zone that belong to the same cluster. Each base station supports 20 duplex channels. For ES, the average connection maintenance time is 1 minute, and the cluster load is 30 calls per minute. Under these conditions, the probability of blocking a call is approximately 10^{-6}.

In case of ES, traffic may increase by an order of magnitude, and at the same time the radar station may stop functioning. If the radio network traffic increases by, for example, fifty calls per minute, the probability of blocking is 2.2%. If the probability of eliminating one base station is 0.2 then the probability of blocking the call will increase to 5%. And in ES, when PI two events occur simultaneously, the probability of denial of service will increase dramatically to 17.4%.

To change your network settings, including the base station will improve the survivability of the network. The results of calculating the mobile network survivability are shown in figure 6-dependence of the mobile radio network survivability on the number of radio channels.

$$L(m) = 1 - \sum_{j=0}^{N} \left(\frac{N!}{(N-j)!\,j!} * p^j * (1-p)^{(N-j)} * \frac{\frac{p_0{}^{m-j}}{(m-j)!}}{\sum_{i=0}^{m-j} \frac{p_0{}^i}{i!}} \right) \qquad (10)$$

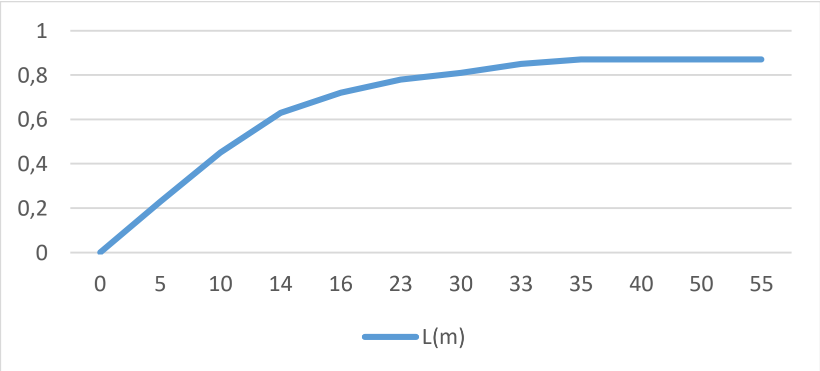

Figure 6.-Dependence of mobile radio network survivability on the number of radio channels

The graph shows that when the number of channels increases, the survivability increases. but in this case, the maximum survivability is 87.5%, so the minimum possible losses are about 12.5%.

Let's analyze the impact of call service intensity on the probability of blocking calls.

Let's present the calculation expression in the following form

$$L(t) = 1 - \sum_{j=0}^{N}\left(\frac{N!}{(N-j)!\,j!} * p^{j} * (1-p)^{(N-j)} * \frac{\frac{(l(\frac{t}{60}))^{m-j}}{(m-j)!}}{\sum_{i=0}^{m-j}\frac{(l(\frac{t}{60}))^{m-j}}{l!}}\right) \qquad (11)$$

The calculation results are shown in figure 7.

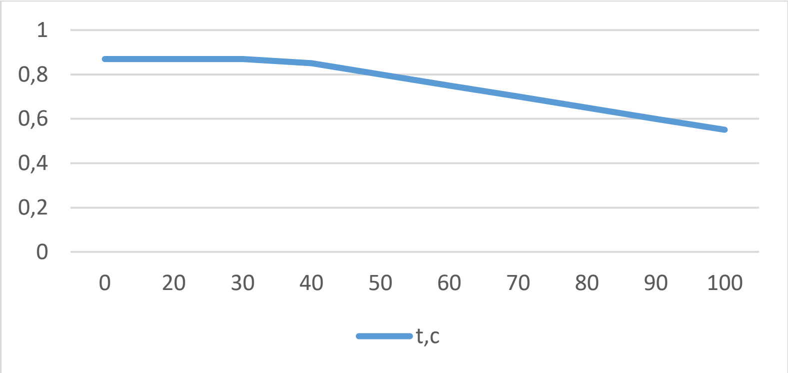

Figure 7-Dependence of mobile network survivability on the average connection service time

The dependence shown on the graph allows us to conclude that when the connection time is reduced, the probability of failure decreases, but the network survivability does not take values higher than 87.5% and the probability of blocking will not be less than 12.5 %.

In real conditions, it is advisable to use a combined option to increase the survivability of the MCN. In particular, it is advisable to replace or reserve fixed BS with mobile BS. However, even with this increase in the number of BS, the probability of blocking a call may remain high, since the network traffic is also very large.

The peculiarity of the MCN functioning in case of emergencies on railway transport is the high mobility of network subscribers in the process of emergency response. This allows subscribers to quickly move to the area of operation of BS that have remained operational. Thus, the mobile network network with a large number of available BS initially has a high functional survivability. Figure 8 shows the dependences of mobile network survivability (probability of successful service) on the number of BS in the cluster.

$$L(n) = 1 - \sum_{j=0}^{N} \left(\frac{N!}{(N-j)!\,j!} * p^j * (1-p)^{(N-j)} * \frac{\frac{p_0 m-j}{(m-j)!}}{\sum_{i=0}^{m-j} \frac{p_0 j}{l!}} \right) \qquad (12)$$

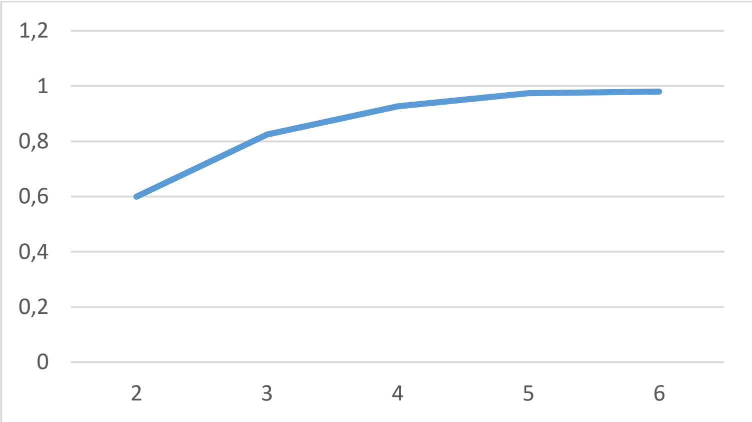

Figure 8. Dependences of mobile network survivability on the number of BS in the cluster

It is important that in the last dependence, the survivability criterion is determined for the entire network, and in the above expressions, the indicators for the epicenter of the impact of ES were calculated.

One of the most effective ways to reduce the load on mobile network channels is to partially replace the voice signal with short SMS messages.

The location of the BS and the definition of the zone of handover in radio communication to increase safety in case of an emergency

To solve problems related to improving security in ES, it is necessary to determine the method of placing BS in mobile network networks that are connected to the BSC\RNC center. When forming a communication network topology, we usually consider three main options for the topology of the base station connection set: in series (Multi Drop Chain - MDC), connecting BS in parallel (Multi Drop Loop - MDL), and connecting BS point - to - point (Point to Point-P2P) [1]. With the passage of the route connections at each node, the transmission bandwidth of the channel is reduced in two times. Therefore, the P2P connection is the best, since each base station serves the largest number of channels. However, the P2P model is the most expensive in terms of cost to implement. Therefore, in practice, MDC and MDL topology variants are used more often. In this case, the criterion of the optimal number of routing steps must be taken into account to ensure the guaranteed lowest channel bandwidth, even on the lower edges of the graph. Design experience shows that the MDL topology option is appropriate for use in dense urban development and large transport hubs using a compacted frequency plan. The MDC topology option is applicable for cross-country conditions (figure 9).

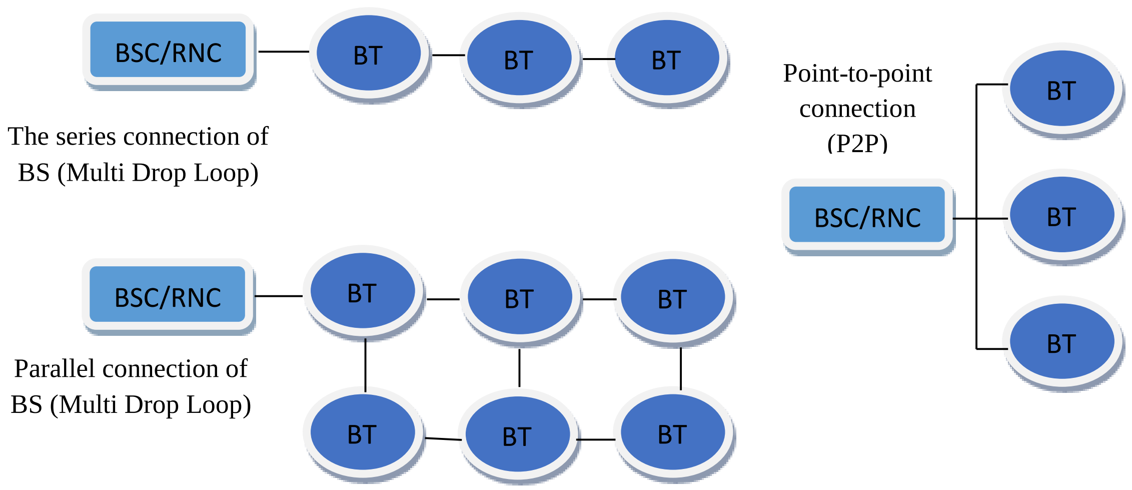

Figure 9 - options for the location of BS of the radio network

Each of the base station locations can be illustrated with a formalized model that most closely reflects the characteristics of the network cluster in real conditions.

The results of scientific research on the practical use of the proposed models and methods depend on a number of features of building MCN: the type of cluster architecture, the structure of the BS themselves, the nature of the ES that occurred, etc. Regardless of these features, the implementation of the proposed models allows increasing the probability of successful connection in mobile radio networks of the 2G generation - up to 45%, in mobile radio networks of the 3G generation - up to 20%, in networks of subsequent generations - 15% and 25% [8-11].

Let's look at some examples of the structure of mobile network clusters and BS operating in ES. The stations belong to the second and third generations and the combined 2G/3G variant. the Facilities are served by two different BSC switching centers (RNC) (figure 10).

Figure 10-Combined cluster of the second-and third-generation mobile radio network

Under the conditions of example a, five BS are assigned to the emergency zone, numbered conditionally from 1 to 5.

Each base station serves cells of various shapes and sizes. Blue highlighted sector GSM 900 MHz , green - sector GSM 1800 MHz, and yellow - honeycomb system of UMTS 2100 MHz.

The emergency zone is a rectangle bounded by black lines. Let's assume that all BS inside the specified rectangle have lost their functionality and, consequently, have stopped serving calls to mobile terminals. Note that not all communication channels may be damaged and, therefore, the transmission of information flows is possible. After an emergency occurs, the cluster will look as shown in figure 11.

Figure 11-Cluster after an emergency occurs on a transport node

When leaving the lines of BS in case of emergencies, a significant part of the territory was without radio coverage. Let's apply our recommendation number two. In other words, let's assume that for all sectors that are directed opposite (but do not intersect), neighborhoods are pre-defined. Next, we use recommendation number 4- increase the power of the transmitter to the value when the sectors of several neighboring BS may overlap. Why use recommendations 1 and 3 when the necessary parameters were not previously set on the BS. When using all of these recommendations, the cluster takes the form shown in figure 12.

Figure 12-view of the cluster after reconfiguration

Note that the procedure for prescribing neighborhoods is not complicated and takes a short time. So, after reconfiguring the cluster, the network can be restored to service the minimum number of connections in ES. Further, it is obvious that radio communication problems can occur due to network reboots. At the same time, it is worth noting that measures such as increasing the capacity of network elements and using second carriers in third-generation networks should be used only in extreme cases when emergencies are more long-term.

Consider the impact of emergencies on information flows within a cluster (figure 13). Figure 14 contains a representation of two graphs that model flows between BSC and BTS. Please note that BSC 1 and 2 can interact, since there is a procedure for relay transmission between BS controlled by server controllers. This scheme can prevent the occurrence of overloads when one of the controllers fails.

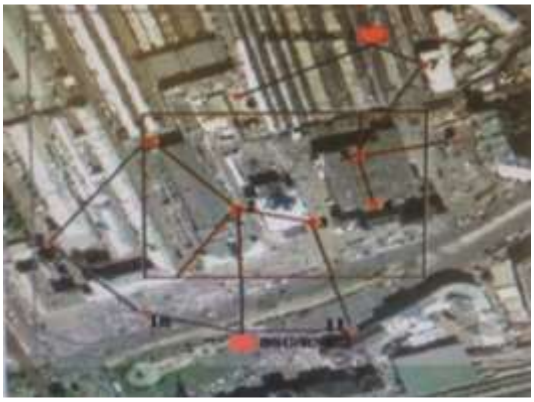

Figure 13-information Flows before emergencies occur

As previously suggested, in case of emergencies (figure 14), not all branches of the graph were broken (for example, edge C3 and C5). Base station number 4 does not function as a receiver-transmitter, but can be used as a router. In this case, using it via C1-c3-c5, you can restore the path to base station 8.

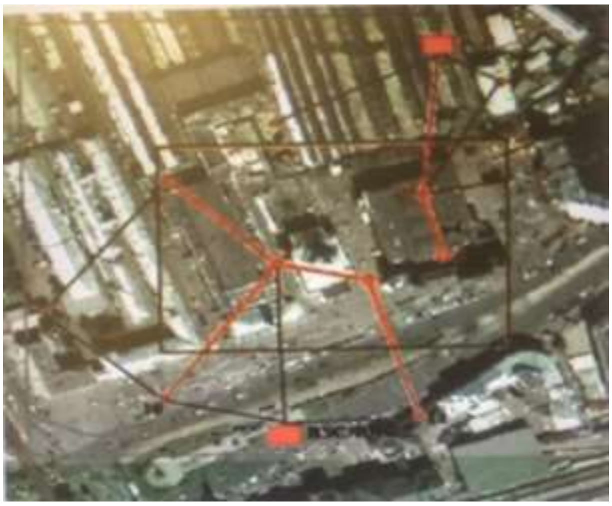

Figure 14 - Flow of transmission of information after an emergency

IV. CONCLUISON

1.The assessment of the mobile cellular radio network survivability was made based on the analysis of the topology and algorithm of its operation; several methods were proposed to ensure the survivability of the mobile cellular radio network cluster in ES, three of which are proactive, which significantly increases safety in ES.

2.The recommended values of network parameters that ensure the operation of the mobile cellular radio network segment in an emergency on the designated territory are determined.

3.Models are proposed that provide analysis of the processes of functioning of the mobile cellular radio network, including taking into account the conditions of ES.

4.The developed method BS of the mobile radio network, as safe as possible with regard to possible emergencies for designated area.

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ANALYSIS OF THE DEGREE OF DAMAGE OF SEEDS IN THE TECHNOLOGICAL PROCESS OF COTTON PROCESSING

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Аннотация. В данной статье авторы наряду с анализированием степени повреждения семян в технологическом процессе обработки хлопка, приводят также технологические процессы, вызывающие наибольшее повреждение семян, а также их преимущества и недостатки.

Ключевые слова. Хлопок, семена, пневмотранспорт, повреждённость, технологический процесс, джин, линтер.

Аннотация. Ушбу мақолада муаллифлар пахтани қайта ишлаш технологик жараёнида чигитнинг шикастланиш даражасини аниқлашни таҳлил қилиш билан бирга, энг кўп чигит шикастланиши содир бўладиган технологик жараёнлар ҳамда уларни авзалликлари ва камчиликлари келтирилган.

Калит сўзлар. Пахта, чигит, пневмотранспорт, шикастланиш, технологик жараён, жин, линтер.

Annotation. In this article, the authors analyze the process of determining the degree of damage to the seed in the technological process of cotton processing, as well as the

technological processes that cause the most seed damage, as well as their advantages and disadvantages.

Keywords. Cotton, seeds, pneumatic transport, damage, technological process, gin, linter.

Introduction. The production of high-quality fiber in line with world standards poses an important task for specialists and scientists in the field of cotton processing, such as the improvement of existing equipment and technology [1]. In turn, the increasing level of improvement of spinning and weaving equipment also requires great attention to the quality of cotton fiber.

The initial processing of cotton consists of a number of technological processes (placement, storage, transportation, drying, cleaning, fiber separation, etc.), which form a unique technological chain. The performance and quality of each piece of equipment in this chain is closely related to the performance and quality of the previous machines. Given this situation, it can be concluded that the impact of each piece of equipment in the technological chain on the quality of cotton products is significant.

Literature review. Seed damage is important in the technological process of ginneries. This is because seed damage results in various defects that affect the quality of the fiber.

In the research conducted by A. Burhanov (1) in the technological process of primary processing of cotton to the linter machine, the number of cotton samples was taken at 5 points to check the damage to the seeds.

The largest seed damage was 2.5 ÷ 3% at the fifth and eighth points on the liner machine with gin. At five points up to the gin machine, the damage to the seed was 1.5%. Thus, 1.0 ÷ 1.2% showed that at the first and third points, i.e., the cotton was in the air-carrying device in the pipes (Fig. 1).

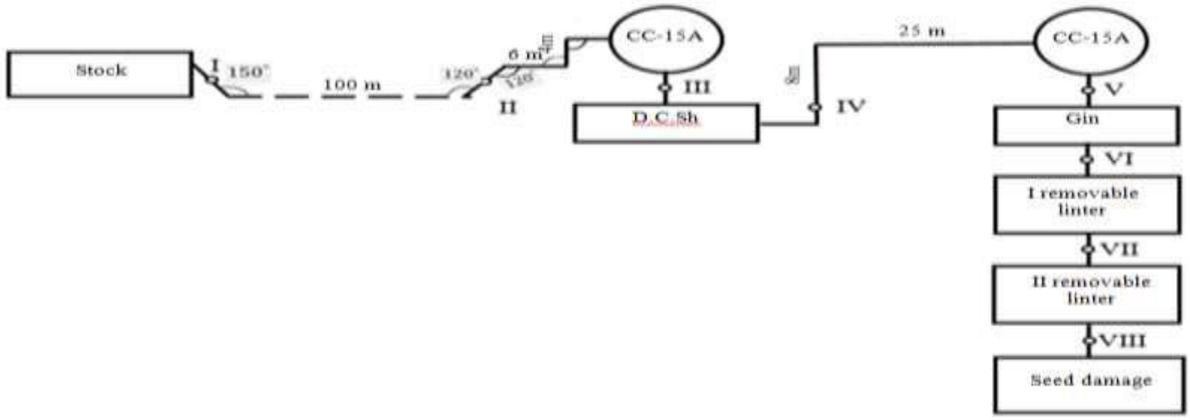

Figure 1. Scheme of technological process of processing of raw materials in ginning enterprises I-VIII sample points

Thus, as can be seen from the graph in Figure 2, 1.2% of cotton seeds were damaged, while in pneumatic transport and after drying and cleaning of cotton, this figure was 2.6 ÷ 2.8%.

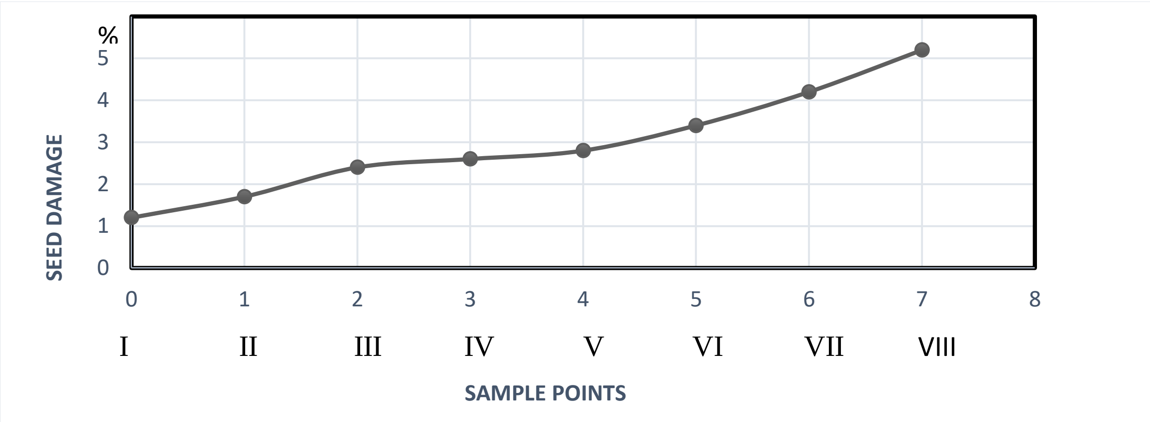

Figure 2. Graph of seed damage in the technological process of cotton processing.

Furthermore, the occurrence of seed damage in the technological process of cotton processing affects the quality of the fiber obtained after the gin machine. This prevents fiber from being sold in the upper class, which in turn leads to a decline in the economic performance of ginners.

Research Methodology. The territory and workshops of the ginnery use various means of transport to transport raw materials and finished products from one place to another during the initial processing of cotton. In this case, the type of transport used to transport cotton from the gins and warehouses of the enterprise to the shops and from one shop to another can be a mechanical and air transport device. An air-carrying device has several advantages over a mechanical type of transport.

With the help of mechanical type lintals, it is much more difficult to transport cotton from the gins to the shops. The main reasons for the widespread use of air-lifting device are its reliable operation, minimal loss of material when transporting cotton, compactness of the device, its ability to be used in places inconvenient and cramped for mechanical transport, its ease of maintenance and repair. In addition, transporting cotton by airflow helps the cotton to shrink and lose a certain amount of moisture. Also, during the separation of cotton from the air, the initial cleaning of cotton from fine impurities and dust is provided.

The air-carrying device is also widely used in the ginning industry due to its number of advantages.

Airborne devices also differ from other devices in the simplicity of use, ease of operation, the ability to automate transport processes.

The disadvantage of the device for transporting cotton by air is the damage to the seeds in the transported cotton and the high consumption of electricity. Currently, air transport devices are also used for mechanization of transportation and loading and unloading of seeds and industrial waste.

Air-transporting devices used to transport cotton can be classified according to the following characteristics:

Depending on the place of installation and use, air-operated devices are divided into types that can be installed inside the plant, between shops and inside the shop [2,3].

Cotton ginners use a suction-type air-carrying device to transport cotton (Figure 3).

It consists of the following main working elements: cotton is fed to the pipe by means of a mechanical conveying device (1), which is transported by air along the working pipe (2), cotton is separated from heavy mixtures in a sieve (3) and fed to a separator (4). The polluted air is transferred to the cyclone (8) and the dust chamber (9) through the suction air duct (5), the centrifugal fan (6), which creates pressure in the pipes, the exhaust air duct (7). They in turn ensure that the air is cleaned of dust before it is released into the atmosphere.

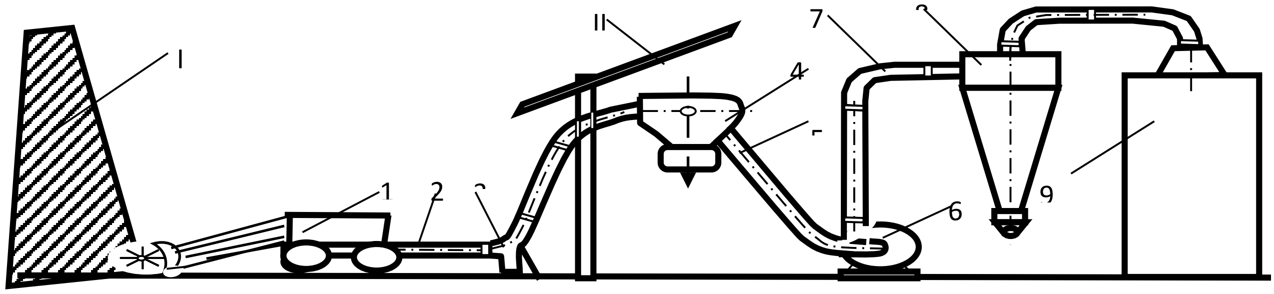

Figure 3. Air-powered device in ginneries.

1-Cotton mechanical transmission equipment for pipe; 2-Working pipe; 3- stonemason; 4- separator; 5- suction air duct; 6- fan; 7-exhaust air duct; 8-dust collector; 9-dust chamber (I - cotton mill, II - production workshop).

The principle of operation of the air-carrying device is that under the flow formed by the pressure difference, the atmospheric air sucked into the pipe, following the material being transported with it. Inside the tube, the cotton moves with the air and reaches the separator. The separator separates the material from the carrier air and transfers it to the process equipment [4].

Analysis and results. The advantage of the suction air carrier is that the working pipe system can be easily changed without difficulty, depending on the location of the gins, and its length can be extended by connecting additional pipes to the primary pipes. The production efficiency of the air-carrying device depends on the production capacity of the ginnery. For an advanced cotton ginning plant with one battery, it is 10 tons per hour.

The growth of the rate of cotton production puts before the cotton processing industry the task of increasing production capacity, increasing the productivity of equipment, improving product quality.

The performance of these tasks depends in many respects on the operation of the air-carrying device installed in the area. This is because it is directly involved in the continuous technological process of the ginning plant and is an important part of determining its initial and operating speed.

The increase in the volume of cotton production has led to the expansion of the territory of enterprises and the increase in the length of the network of air-carrying devices in it, in some cases to a length of 200 m and more. Since the radius of movement of a single air-transport device served by a fan ВЦ-12M does not exceed 100-110 meters, transportation of cotton from very long distances is usually done by connecting the carrier devices in series using additional moving air [5].

A suction-type air-carrying device is more common for transportation in the technological process of a ginning plant. During transport at high speeds, the speed of cotton inside the pipe reaches 20÷25 m / s, at which speed it hits the walls of the pipe, rubs, bends the pipe, hits the inner walls of the stone and separator [6,7]. This inevitably has a negative impact on the quality indicators of cotton. However, one of the conditions to ensure the maintenance of cotton quality, ie to prevent damage to the cotton seed and the occurrence of technological defects in the fiber - is to choose the optimal mode for air transportation.

Conclusion / Recommendations. In this article, the authors provide a detailed analysis of the problem of determining the degree of seed damage in the technological process of cotton processing, as well as the operation of the pneumatic transport device, which causes the most seed damage.

Focusing on the classification of the device for transporting cotton by air, showed the advantages and disadvantages of the pneumatic transport device and its main elements.

In our future work, research will be conducted to reduce the risk of seed damage in the technological process of cotton processing.

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PROBLEMS OF SUSTAINABLE OPERATION OF ELECTRICITY FACILITIES

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Аннотация. Мақолада табиий ва техноген хусусиятли фавқулодда вазиятлар содир бўлганида электр энергетика объектларининг барқарор фаолиятини таъминлаш муаммолари ёритилган бўлиб, ёнғин билан боғлиқ мураккаб фавқулодда вазиятларда ушбу объектлар фаолиятининг барқарорлигини таъминлаш модели келтирилган.

Аннотация. В статье освещены задачи обеспечения стабильного функционирования электроэнергетических объектов при возникновении чрезвычайных ситуаций природного и техногенного характера, а также приведена модель устойчивой работы этих объектов при возникновении сложных чрезвычайных ситуаций связанных с пожарами.

Annotation. The article discusses the problems of ensuring the sustainable operation of power facilities in the event of natural and man-made emergencies and provides a model for ensuring the sustainability of these facilities in complex emergency situations involving fire.

Калит сўзлар: электр энергетика объектлари, табиий ва техноген хусусиятли фавқулодда вазиятлар, модель, иссиқлик электр станциялари, ёнғин, ташқи ва ички омиллар.

Ключевые слова: электроэнергетические объекты, чрезвычайные ситуации природного и техногенного характера, модель, тепловые электрические станции, пожар, внешние и внутренние факторы.

Key words: electric power facilities, natural and man-made emergency situations, model, thermal power plants, fire, external and internal factors.

Introduction: Many natural and man-made emergencies on Earth have caused great damage to the population, territories and economies of a number of countries, in particular, according to media reports, the total amount of damage from natural disasters in the world last year amounted to 306 billion dollars. Natural and man-made emergencies have caused significant damage to the environment, the livelihoods of the population, as well as the economy through various sectors of production in developed countries. Strong earthquakes in Chile, San Francisco, Tokyo, Ashgabat and Tashkent over the past 50 years have killed many people, destroyed homes and businesses. In recent years, more than 40 earthquakes with a magnitude of 5 have occurred in Uzbekistan.

The economic, social and political development of any country depends on the level of energy supply. Throughout its development, of humanity has been relentlessly using the energy resources of nature for its own needs. The growing demand is leading to a sharp increase in the use of energy resources. In particular, today there are many problems in meeting the needs of the population in electricity in all sectors of the economy.

Literature review: Today, even in the power facilities of developed countries, there are large-scale disasters due to natural and man-made emergencies. In particular, the emergency at the Fukushima nuclear power plant shook the whole world, with radioactively contaminated water still leaking into the Pacific Ocean. The primary cause of this emergency was a strong earthquake of magnitude nine, which caused a very large tsunami and caused the cooling system at the nuclear power plant to fail. Unfortunately, the spare generators available at the station were dismantled half a year ago and taken away for repair. As a result of the sharp rise in temperature, the foundation of the NPP melted. Twice as large explosions occurred as a result of hydrogen accumulation in the building of power stations. It will soon become clear that millions of cubic meters of radioactively contaminated water have flowed into the Pacific Ocean as a result of a major accident caused by the removal of all generators in reserve, which led to an irreversible man-made emergency as a result of the natural disaster. When GRINPIS analyzed and studied the consequences of this natural and man-made emergency, it became clear that humanity has never seen such damage in its history, and to this day, the AES area is considered a very dangerous zone for human activities.

Although power plants in all countries have been built with natural emergencies in mind, earthquakes, in particular, are likely to cause secondary man-made emergencies, such as large-scale fires, which can occur at these facilities as a result of earthquakes [1, 2, 3, 4]. .

The bulk of the total electricity generated on Earth is generated by thermal power plants, and these power facilities are important facilities for the economy and life activities. For this reason, the requirements for fire safety in power facilities require a serious approach to buildings in other industries, as disruptions in the system of electricity generation and transmission to consumers cause serious damage to all sectors of the economy, disrupting human life.

Research Methodology: On the prevention of fires that may occur due to natural and man-made emergencies that may occur at power facilities, the following are advisable to focus on:

- the impact of natural and man-made emergencies, in particular earthquakes, on buildings and structures at power facilities;

- dangerous negative consequences of emergencies related to fires at power facilities;

- forecasting the occurrence of natural and man-made emergencies related to fires at power facilities, the development of a model to ensure the stability of these facilities in various complex situations.

Results of the study

According to the results of studies conducted by experts, the accumulation of cases of damage and deformation in the structures of buildings of power facilities located in seismically active areas will continue to affect the strength of buildings. The degree of impact of such damage will depend on the design scheme of power facilities, including the number of floors in the building, the location of the main supporting elements, type of earthquake, strength, frequency, duration and soil characteristics of the area where the facility is located, groundwater and others. As a result of the combined effect of the listed factors, it is more likely to cause serious consequences in power facilities of different designs. The complexity of these cases is that some of the damage to the building is not noticeable at all, such as the rupture of the reinforcement joints inside the wall. Any damage to the building structure of buildings and constructions at power facilities reduces the level of fire safety. Although the construction of metal-framed buildings is one of the most effective ways to ensure the strength of buildings and structures of power facilities due to the earthquake, but in terms of technical and technological characteristics of electrical equipment and devices in this category of facilities, the risk of fire is high. Also, due to the high thermal conductivity of metal structures, their fire resistance is low, and when a fire occurs due to natural emergencies, the metal structures melt under the influence of a strong flame within 5-15 minutes and the building collapses.

The main component in the aftermath of natural and man-made emergencies is the victims and the damage caused. Victims – in cases of death, injury, illness of people, the damage caused – the material and financial damage caused during the emergency, which in turn is direct or indirect.

Natural and man-made emergencies cause direct damage to the environment and nature as a result of the breakdown of production and social facilities. Restoration of production facilities that have been suspended due to an emergency is determined by the amount of indirect losses in relation to the duration of the process of repairing the damage. These losses in themselves have a negative impact on economic growth.

Therefore, in many countries, such as the United States, the organization of activities to prevent natural and man-made emergencies has risen to the level of public policy and is one of the areas of national security. As long as there are risks posed by natural and man-made emergencies, the need to combat and prevent them remains important.

Although the number of fires at power facilities has decreased as a result of all measures taken today, there are still enough problems to be solved. According to the analysis of accidents and emergencies at power facilities in recent years, emergencies around the world are caused not only by natural and man-made causes, but also by human factors, i.e. the lack of professional training, skills, inexperience, it has also been observed that it occurs due to the inactivity of the teacher-student system, indifference to work and incompetence [5, 6, 7].

According to the idea of Belov V.V., Pergamenshchik B.K., Rukin M.V. and a number of experts, even if all power units in thermal power plants are conveniently located in one building, this is not perfect from a fire safety standpoint – the risk of fire spreading increases in the event of natural and man-made emergencies, resulting in failure of several units is coming.

The fuel oil supply system, chemical treatment plant, oil supply system within the thermal power plant are the main fire hazard facilities, and in case of emergency, the workers and employees working at the station, the nearby area and the population may be injured. In particular, in the last 30 years in Russia there have been more than thirty major catastrophes in the main building of existing thermal power plants .

In most thermal power plants, the building structure of the building where the engine room is located consists of a metal cladding connected to each other by trusses, and in cases of natural and man-made emergencies, huge material damage was observed. In 1989, a generator oil fire in Takhiatash thermal power plant building caused a powerful explosion, the flames reached the roof of the building, thick smoke inside the building, all electrical equipment and devices in the engine room were out of order, and 2,700 sq/m of building surface, roof was destroyed.

As a result of the power outage in Brazil on November 10, 2009, 50 million people were left without electricity, all production in the country, which also affected Uruguay. Itaypu hydroelectric power plant, the world’s second-largest, generated electricity due to a hurricane emergency, and power supplies were restored on November 11 as a result of repairs by auxiliary forces and specialists.

In December 2010, the entire city was left without electricity due to a very large short circuit due to negligence in repairs to the Rio de Janeiro city power line. Until the crash on the highway was rectified, the process in the entire city system was halted and huge economic losses were incurred [8, 9].

Emergencies that can occur due to the fact that all the main equipment at power facilities are under high voltage, a large amount of transformer oil, the presence of a large number of insulated cables are considered very complex. Large-scale fires have often been observed to occur on cold winter days, when all equipment at the plant is operating under heavy load.

According to a study conducted by Russian experts, the most common cause of fire-related emergencies in power plants over the past five years is a violation of the rules of operation of electrical equipment in 73% of cases, firefighting errors in 17% of cases, malfunction of production equipment in 11% of cases. caused by disruption of technological processes. During this period, there were approximately 4,000 fires of varying magnitude at power facilities [10].

It should be noted that the occurrence of man-made emergencies due to natural disasters in power facilities, in particular, causes a large amount of indirect damage, in addition to direct damage due to fires. In particular, in the event of a fire, when the power generation process is stopped, the load increases due to the distribution of power to other generating forces, which can lead to systemic failure due to improper actions of service personnel and other factors. The lack of sustainable operation of the power plant has a negative impact not only on the economy, but also on people’s livelihoods.

In order to minimize the impact of fire-related emergencies, it is necessary to extinguish the fire in a timely manner with the full use of all forces and means. The sooner the fire is extinguished, the more likely it is that a large-scale fire will break out at the power plant and the damage it will cause.

We predict the occurrence of natural and man-made emergencies related to fires at power facilities, and present a model of ensuring the stability of these facilities in various complex situations (Figure 1).

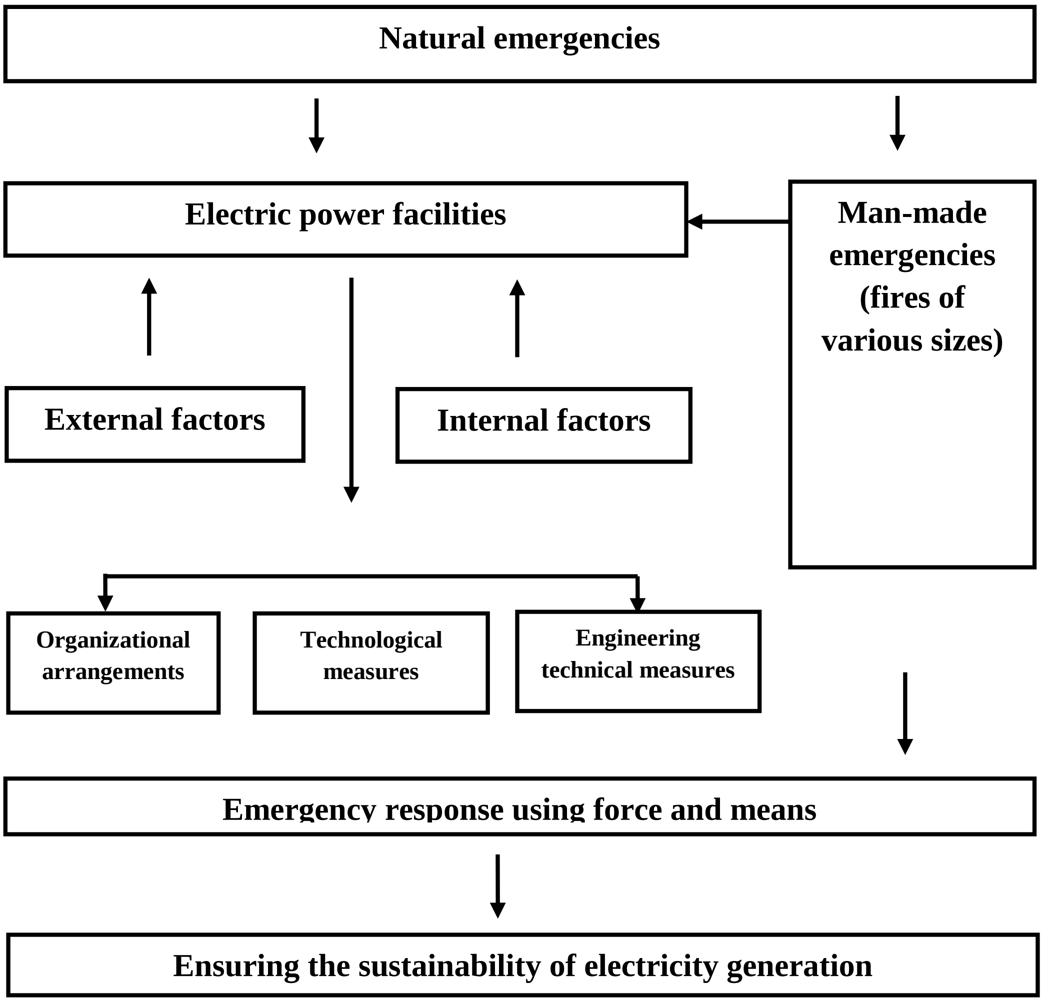

Figure 1. Model of providing sustainable operation of power facilities

Conclusion: Given the fact that power facilities occupy large areas, it requires a scientific and technical approach to the problem by predicting the occurrence of natural and man-made emergencies, and to take comprehensive measures to prevent them rather than eliminate them after a fire emergency.

The design of buildings and structures at power facilities to withstand fire, high temperatures, will prevent the occurrence of secondary accidents due to natural emergencies.

In order to prevent the occurrence of socio-economic emergencies, to prevent emergencies related to fires at power facilities, to prevent hazards by directing all forces and means at the facility correctly and promptly until the arrival of the regional fire safety forces; is very important.

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ON ONE PROBLEM OF APRIORIOUS EVALUATION FOR A HYDRODYNAMIC SYSTEM WITH DISTRIBUTED PARAMETERS

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Аннотация: Мақолада нефть, газ конларини ишга туширишда амалий аҳамиятга эга бўлган, ўзаро аралашмайдиган газ ва сув фазалари фильтрланиши назариясининг гидродинамик масаласи қаралган. Умумлашган функциялар синфида ечимнинг априор баҳоланиши келтирилган.

Калит сўзлар: фойдали қатлам, фильтрация назарияси, босим, тўйинганлик, ўтказувчанлик, ғоваклик, диффенциаль тенглама, умумлашган функция, гельберт фазозаси, хусусий ҳосила, тенгсизлик, априор баҳолаш, узлуксиз дифференциалланувчи.

Аннотация: В статье рассматривается гидродинамическая задача теории фильтрации, несмешивающихся фаз, газ и воды, имеющееся прикладное значение в разработке нефтегазоввых
месторождений. Получены априорную оценку решений в классе обобщенных функций.

Ключевые слова: продуктивный пласт, теория фильтрации, давление, насыщенность, проницаемость, пористость, дифференциальное уравнение, обобщенная функция, гельбертово пространство, частные производные, неравенство, априорная оценка, непрерывно дифференцируемое.

Abstract: The article considers the hydrodynamic problem of the theory of filtration, immiscible phases, gas and water, the existing applied value in the development of oil and gas fields. An a priori estimate of the solutions in the class of generalized functions is obtained.

Keywords: reservoir, filtration theory, pressure saturation, permeability, porosity, differential equation, generalized function, helbert space, private derivatives, inequality, a priori estimate, continuously differentiable

Introduction. The solution of a wide class of problems of analyzing the dynamic states of a system with distributed parameters (WDP), as applied to oil and gas fields, is significantly complicated by the lack of sufficiently adequate and in place mathematical models of filtration processes that are convenient for use.

A qualitative study of a complex nonlinear system of partial differential equations related to solving the problems of the existence and correctness of a solution can be based on problems of analysis and optimization of the development of oil and gas fields. The solution to these problems is of great importance in connection with the rapid development of the country's oil and gas industry.

Literature review. The mathematical theory of controlling objects with distributed parameters has been greatly developed. With a significant number of scientific works devoted to this field, it is necessary to note the works of Russian scientists A.G. Butkovsky, A.I. Egorov, V.P. Zhivoglyadov, M.V. Meerov, K.A. Lurie, Yu.I. Samoilenko , T.K.Sirazetdinova, A.A. Feldbaum and several others. An important contribution was also made by foreign experts, among whom the names of R.K.S. Wong, V. Malgraj, J.L. Lyons, V. Fleming, A. Friedman are known [1-7].

Rather general necessary necessary conditions for optimizing program control (an analysis problem) are formulated, the controllability conditions are studied relatively completely, and optimality conditions for linear objects described by partial differential equations of parabolic and hyperbolic types are obtained, a number of numerical methods for optimal control of objects and systems with distributed parameters are developed.

Research Methodology. In a qualitative study of applied problems, analysis of the states of a system with WDP, described by partial differential equations, the most important problem is the boundedness of solutions in any norms.

Let us consider a mathematical model for the joint filtration of two immiscible phases, gas and water in a porous medium [8]

$$m\frac{\partial}{\partial t}(\rho_b\sigma_b)=\frac{\partial}{\partial x}(\rho_b k_b\frac{\partial P_b}{\partial x})+\frac{\partial}{\partial y}(\rho_b k_b\frac{\partial P_b}{\partial y})-\sum_{i=1}^{N}\sigma(x-x_i)\cdot\rho_b Q_b^i(t) \qquad (1)$$

$$m\frac{\partial}{\partial t}(\rho_\Gamma\sigma_\Gamma)=\frac{\partial}{\partial x}\left[\rho_\Gamma k_\Gamma\frac{\partial}{\partial x}(P_b+P_\kappa(\sigma_b))\right]+\frac{\partial}{\partial y}\left[\rho_\Gamma k_\Gamma\frac{\partial}{\partial y}(P_b+P_\kappa(\sigma_b))\right]-\sum_{i=1}^{N}\sigma(x-x_i)\cdot\rho_\Gamma Q_\Gamma^i(t),$$

$$(x,y)\in\Omega,\ t\in(t_0,T) \qquad (2)$$

Here $\sigma_b(x,y,t)$ and $\sigma_\Gamma(x,y,t)$ water and gas saturation, $P_b(x,y,t)$ - water pressure, $P_k(\sigma_b)$ - capillary leap, $P_\Gamma=P_b+P_k$ - gas pressure,

$$k_b(\sigma_b,x,y)=\bar{k}_b(\sigma_b)k(x,y)\Delta h(x)/\mu_b,$$

$$k_\Gamma(\sigma_\Gamma,x,y)=\bar{k}_\Gamma(\sigma_\Gamma)k(x,y)\Delta h(x)/\mu_\Gamma(P_\Gamma)$$

$$m(x)=\bar{m}(x)\Delta h(x),$$

where $\bar{k}_b(\sigma_b)\cdot\bar{k}_\Gamma(\sigma_b)$, - relative phase permeabilities of water and gas, $k(x)$ - absolute permeability, $m(x)$ - porosity, $\Delta h(x)$ - bed thickness, μ_b and $\mu_\Gamma P_\Gamma$ - the viscosity of water and gas, while μ_b independent of P_b. The function μ_Γ can be taken as $\mu_\Gamma(P_\Gamma)=\sqrt{\bar{T}}/Z(P_\Gamma)$ where $\bar{T}$ - absolute temperature, $Z(P_\Gamma)$ - continuous function, gas compressibility. Further, ρ_b, $\rho_\Gamma(P_\Gamma)$ - water and gas density, wherein $\rho_b=1$ (water supposed incompressible), the function ρ_Γ can be taken as $\rho_\Gamma(P_\Gamma)$ where $a=M/R\bar{T}$, M - molecular weight of gas, R - gas constant.

As the equations are known (1) and (2) out of the law of conservation of mass, then they make sense when the conditions

$$0\le\sigma_b\le 1,\quad 0\le\sigma_\Gamma\le 1,\quad \sigma_\Gamma+\sigma_b=1, \qquad (3)$$

Equations (1), (2) resolved in the field Ω with border Γ. We represent wells in the form of point drains and sources, N - many well numbers, Q_b^i, Q_Γ^i - volumetric flow rates i - th water and gas wells, $\delta(x)$ - delta Dirac function. The initial and boundary conditions are given in the form:

$$P_b(x,y,t)=P_b^{КОНТ}(x,y,t),\sigma_b(x,y,t)=\sigma_b^{КОНТ}(x,y,t),(x,y)\in Г. \quad (4)$$

$$P_b(x,y,t_0)=P_b^0(x,y),\sigma_b(x,t_0)=\sigma_b^0(x,y),(x,y)\in\Omega\ . \quad (5)$$

Relative phase permeability $\bar{k}_Г(\sigma_Г),\bar{k}_b(\sigma_b)$- continuous functions, in the interim от $\sigma_{\min}$ до $\sigma_{\max}$ are presented in polynomial form [9]:

$$\bar{k}_Г(\sigma_Г)=\sum_{i=1}^{n}a_{Гi}(\sigma_{\max}-\sigma_{\min})^i,$$

$$\bar{k}_Г=1,\quad 0\le\delta_b\le\delta_{\min},\quad \bar{k}_Г(\sigma_b)=0,\sigma_{pbГ}\le\sigma_Г\le 1;$$

$$\bar{k}_b(\sigma_b)=\sum_{i=1}^{N}a_{bi}(\sigma_b-\sigma_{\min})^i,$$

$$\bar{k}_b(\sigma_b)=0,\quad 0\le\sigma_b\le\sigma_{\min},\quad \bar{k}_b(\sigma_b)=1,\delta_{\max}\le\sigma_b\le 1;$$

Permeability, porosity and thickness $\Delta h(x)$ reservoir with limited and measurable functions for $x\in\Omega$. The following inequalities are used

$$\bar{k}_b(\sigma_b,x)\ge\upsilon_b>0,k_Г(\sigma_b,P_Г,x)\ge\upsilon_Г>0$$

Assume that the capillary jump function $P_k(\sigma_b)$ - twice continuously differentiable argument function σ_b, при этом

$$P_k(\sigma_b)\ge 0,\qquad -dP_k(\sigma_b)/d(\sigma_b)>0$$

Further we use the expression

$$\varphi(\sigma_b)=P_k(\sigma_b)-(1-\sigma_b)(dP_k)(\sigma_b)/d\sigma_b)).$$

Fluid flow rate i-well we denote by $q^i_{ж}=q^i_b+q^i_Г$. Then $q^i_b=q^i_{ж}-f(\sigma_b)$, where $f(\sigma_b)=\bar{k}_b/(\bar{k}_b+\bar{k}_Г)$. Further, we will take into account that the density $\rho_Г$ determined only when $0\le P_b\le P_{\max}$. We will consider the equations (1), (2) in the area determined by the conditions (5) and

$$0<\mu\le P_b\le P_{\max} \quad (6)$$

It is assumed that a generalized solution of the equations (1), (2) under conditions (3) – (5) exists in hilbert space $W_2(Q_T)$, where Q_T - cylinder $\Omega x(t_0,T)$ [10,11]. This space in question consists of elements $u(x,t)$ and space $L_2(Q_T)$, having quadratically summable over Q_T generalized derivatives $\partial u / \partial x_i, i=1,2$.

Functions $\sigma_b P_b$ из $W_2^{2,1}(Q_T)$ are a generalized solution if they satisfy the conditions (4), (5) and identity

$$\int_{Q_T} (-m\sigma_b \frac{\partial \mu_1}{\partial t} + \sum_{j=1}^{2} K_b \frac{\partial P_b}{\partial x_j} \cdot \frac{\partial \mu_1}{\partial x_j}) dxdt = \int_{\Omega} \sigma_b^0 \mu_b(x,0)dx - \sum_{j=1}^{2} \int_{t_0}^{T} [f \cdot \mu_1] /_{x=x_0} Q_{жс}^n(t)dt,$$

$$\int_{Q_T} \left[-1 - \sigma_b a P_Г \frac{\partial \mu_2}{\partial t} + \sum_{j=1}^{2} \rho_Г k_Г (\frac{\partial P_b}{\partial x_j} + \frac{\partial P_k}{\partial \sigma_b} \frac{\partial \sigma_b}{\partial x_j}) \right] dxdt = \int_{\Omega} a(1-\sigma_b^0) P_Г^0 \mu_2(x,0)dx -$$

$$-\sum_{n \in S} \int_{t_0}^{T} [\rho_Г (1-f)\mu_1] /_{x=x_0} Q_{жс}^n(t)dt,$$

for any functions μ_1, μ_2 of $W_2^{1,1}(Q_T)$ vanishing on the side of the cylinder Q_T and with $t=T$. Space $W_2^{1,1}(Q_T)$ form functions from $W_2^{1,0}(Q_T)$, which have a quadratically summable generalized derivative with respect to t.

Theorem. Let be $W_2^{1,1}(Q_T)$ - helbert space, generalized solution of equations (1), (2) subject to the conditions (3) – (5) exists and at the same time there is an a priori estimate:

$$\int_{Q_T} \left| \sigma_x^1 \right|^2 + \left| P_x^1 \right|^2 dxdt \le B_{13} + B_{14} \sum_{n \in S} \int_{t_0}^{T} Q_{жс}^n(t)dt.$$

Evidence. Let's make a change of variables: $\sigma = \sigma_b - \overline{\sigma}, \quad P = P_b - \overline{P}$, where $\overline{\sigma}$, $\overline{P}$ - some limited features from $W_2^{1,1}(Q_T)$, satisfying boundary conditions (4). Multiply both sides of the equation (1) on the $\sigma(x,t)$ and integrate over Q_T.

Integrating in parts, we obtain

$$\frac{2}{m} \int_{\Omega} \sigma^2 /_{t_0}^{T} dx + m \int_{\Omega_T} \sigma \frac{\partial \overline{\sigma}}{\partial t} dxdt = -\sum_{j=1}^{2} \int_{Q_T} k_b \frac{\partial t}{\partial x_j} (\frac{\partial P}{\partial x_j} + \frac{\partial \overline{P}}{\partial x_j}) dxdt - \sum_{n \in S} \int_{t_0}^{T} \sigma(x_n, t) f(\sigma_b(xt)) Q_{жс}^n(t)dt$$

Subject to conditions (3), positivity k_b and other assumptions made above, we obtain the estimate

$$\int\limits_{Q_T} /\sigma_x^{/} P_x^{/} / \,dxdt \le B_1 + B_2 \int\limits_{Q_T} /\sigma_x^{/}/dxdt + B_3 \sum_{n\in S} \int\limits_{t_0}^{T} Q_{жс}^{n}(t)dt \qquad (7)$$

Marked here $\sigma_x^{/} = (\partial\sigma / \partial x_1, \partial\sigma / \partial x_2), |\sigma_x^{/}|$ - vector norm $\sigma_x^{/}$, $\sigma_x^{/} P_x^{/}$ - scalar product $\sigma_x^{/}$ and $P_x^{/}$. Coefficient $B_i, i = 1, 2...,$, here and in the following formulas depend on the initial and boundary (through functions $\sigma \overline{P}$) conditions, from the coefficients of the equations (1), (2), from restrictions (6).

In the same way, we multiply both sides of the equation (2) on the $\sigma(x,t)$ and integrate over Q_T. We transform the left-hand side of the relation thus obtained taking into account $\rho_T = aP_\Gamma$, $\sigma_\Gamma = 1 - \sigma_b$ and in equality

$$\int\limits_{t_0}^{T} \sigma \frac{\partial}{\partial t}[P_\Gamma(1-\sigma_b)]dt = \sigma P_\Gamma(1-\sigma_b) /_{t_0}^{T} - \int\limits_{t_0}^{T} P(1-\sigma_b)\frac{\partial \sigma_b}{\partial t} - \int\limits_{t_0}^{T} \sigma(\overline{P} + \varphi(\sigma_b))\frac{\partial \sigma_b}{\partial t}dt$$

in place $\dfrac{\partial \sigma_b}{\partial t}$ substitute the expression on the right side of the equation (1). Applying integration by parts to terms containing second derivatives, we obtain the estimate

$$\int\limits_{Q_T} \left|\sigma_x^{/}\right|^2 dxdt \le B_4 + B_5 \int\limits_{Q_T} \left|P_x^{/}\right|^2 + \left|\sigma_x^{/} P_x^{/}\right| + \left|\sigma_x^{/}\right| + \left|P_x^{/}\right| dxdt + K_b \sum_{n\in S} \int\limits_{t_0}^{T} Q_{жс}^{n}(t)dt$$

Finally, we multiply both sides of the equation (2) on the $P(x,t)$ and integrate over Q_T. We use the equality

$$\int\limits_{t_0}^{T} P \frac{\partial}{\partial t}[P_\Gamma(1-\sigma_b)]dt = \frac{1}{2}P_T^2(1-\sigma_b) /_{t_0}^{T} - \int\limits_{t_0}^{T} P(\frac{1}{2}P + \overline{P} + \varphi(\sigma_b))\frac{\partial \sigma_b}{\partial t} + \int\limits_{t_0}^{T} P \frac{\partial \overline{P}}{\partial t}(1-\sigma_b)dt,$$

in which the derivative $\dfrac{\partial \sigma_b}{\partial t}$ you need to replace it with the expression on the right side of the equation (1). Performing integration by parts in terms containing second derivatives, we obtain the estimate

$$\int\limits_{Q_T} \left(\left|\sigma_x^{/}\right|^2 + \left|P_x^{/}\right|^2\right)dxdt \le B_{13} + B_{14}\sum_{n\in S}\int\limits_{t_0}^{T} Q_{жс}^{n}(t)dt \qquad (9)$$

In the conclusions of this estimate, the circumstance that $\left|P_x^{/}\right|^2$ in the evaluated formula is a positive coefficient

$$a(k_b P + k_\Gamma P_\Gamma + \varphi(\sigma_b)k_b).$$

Of (7) – (9) we get

$$\int\limits_{Q_T} \left(\left|\sigma_x^{/}\right|^2 + \left|P_x^{/}\right|^2\right)dxdt \le B_{10} + B_{11}\int\limits_{Q_T} \left(\left|\sigma_x^{/}\right| + \left|P_x^{/}\right|\right)dxdt + B_{12}\sum_{n\in S}\int\limits_{t_0}^{T} Q_{жс}^{n}(t)dt.$$

Applying inequality $|u| \le \dfrac{1}{2\varepsilon} + \dfrac{\varepsilon}{2}|u|^2$, finally get

$$\int\limits_{Q_T} \left(\left|\sigma_x^{/}\right|^2 + \left|P_x^{/}\right|^2\right)dxdt \le B_{13} + B_{14}\sum_{n\in S}\int\limits_{t_0}^{T} Q_{жс}^{n}(t)dt.$$

It should be noted that the function from the classes $W_2^{1,0}(\Omega)$, $W_2^{1,1}(\Omega)$, $W_2^{2,1}(\Omega)$ possesses many properties unusual for functions, which are usually described by hydrodynamic processes of the theory of filtration.

Analysis and results. An analysis of the results of a priori estimation shows that the relative phase permeabilities are unknown functions, the method of determination of which is discussed in this paper. For simplicity, it is assumed that only functions are unknown $\bar{k}_\Gamma(\sigma_\Gamma), \bar{k}_b(\sigma_b)$, entering into equations (1), (2), while similar functions in the well zone are considered known.

For the best fit between the mathematical model and the actual process of filtering in the reservoir, it is necessary to use the information available on this field during its operation.

Conclusion/Recommendations. The obtained a priori estimate can be applied:

1. to prove the existence of a solution to boundary value problems, taking place in the development and further development of oil and gas fields;
2. to study the qualitative properties of systems solutions partial differential equations of the type (1), (2).
3. for a qualitative study of applied problems of analysis and synthesis of multiply connected systems described by parabolic-type partial differential equations that have a place in the underground leaching of the mining industry.

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ON ONE PROBLEM OF MATHEMATICAL MODELING OF LEARNING PROCESSES AS AN OBJECT OF MANAGEMENT

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Аннотация: мақолада таълим жараёнини бошқаришнинг ОЎЮ мисолида амалий масаласи қаралган. Бошқарув назариясининг системали ёндошув принципи ва тўпламлар назарияси элементлари қўлланилиб масаланинг математик модели яратилган. Масалани ечиш ҳисоблаш алгоритми тузилиб, амалий тавсиялар берилган.

Калит сўзлар: бошқарув назарияси, система, системали ёндашув, таълим жараёни, объект, субъет, мутахассис-педагог, математик модел, тўплам, қисм тўплам, кесишма, бирлашма, ахборот матрицаси, алгритм, ҳисоблаш эксперименти.

Аннотация: в статье рассматривается прикладная задача управления процессов обучения, на примере ВУЗ. Разработана математическая модел задачи с применением принципа системного подхода теории управления и элементы теории множеств. Создан вычислительный алгоритм решения задачи, даются практические рекомендации.

Ключевые слова: теория управления, система, системный подход, процесс обучения, объект, субъект, специалист-преподаватель, математическая

модель, множество, подмножество, пересечение, объединение, информационная матрица, алгоритм, вычислительный эксперимент.

Abstract: The article considers the applied task of managing learning processes, using an example University. A mathematical model of the problem is developed using the principle of a systematic approach to control theory and elements of set theory. A computational algorithm for solving the problem is created, practical recommendations are given.

Keywords: control theory, system, systematic approach, learning process, object, subject, specialist teacher, mathematical model, set, subset, intersection, unification, information matrix, algorithm, computational experiment.

Introduction. The study of the management processes of large industrial, energy, mining, hydro-technical complexes, as well as some socio-economic and biological systems led to the emergence of the concept of a complex control system with a given hierarchical structure and led to the formulation of a number of mathematical problems specific to these systems.

To this end, issues related to the study of control processes in complex systems are considered. It is known that such systems consist of separate subsystems, each of which solves its own control problem. Since, when choosing any control law, three main tasks are solved: obtaining information about the controlled object, converting it for the purpose of synthesizing the control law and issuing it to the object, we will say that for the considered complex systems each of the subsystems has the right to make decisions. Note that the division of a complex control system into subsystems is due to the large dimension of such systems and the ensuing difficulties associated with the collection and processing of information about their state when choosing control actions [1,2].

Literature review. Socio-economic sectors of the country as a continuously developing system and they can be represented as a complex management system. One of the subsystems of this system is the higher educational institutions of the country.

As the complexity of the systems increases, a problem arises, less related to the consideration of the properties and laws of the functioning of elements, and more to the choice of the best structure, optimal organization of the interaction of elements, determination of optimal modes of their functioning, taking into account the influence of the external environment, etc. [1-3]. Therefore, it is advisable to use a systematic approach to solving applied problems in the analysis and synthesis of learning processes in a university. The systematic approach of control theory is based on the creation of a control structure and mathematical modeling using the theory of similarity, the theory of scientific experiment, set theory, mathematical statistics, theory of algorithms and a number of other fundamental classical theories. At the same time, in the design of modern information management systems and computer software in the analysis and synthesis of complex systems, the so-called object-oriented approach is increasingly used [4-6].

Thus, the main purpose of the abstract description in the design is to build a meaningful description of the processes of functioning of the control object. A meaningful description in verbal terms concentrates information about the tasks that are solved during the operation of the control object, about the subsystems that are part of the developed system, and the subtasks they solve, about the degree and nature of the interaction between the subsystems in the overall process of functioning of the system as a whole, about the criteria taken into account when design, about the parameters that determine the functioning of both subsystems, and the system as a whole, about external disturbances and restrictions on both certain criteria, and on the parameters of the system, etc. [7,8].

Research Methodology. In the social sphere (industry) of management as a university, the management structure is organized in a hierarchical form of functioning, i.e. centralized management system. To create a mathematical model of management processes for advanced training of teachers, as a subsystem of a complex management system, the principle of a systematic approach to control theory with elements of the theory of sets of functional analysis is applied. As the studied management objects, we can consider the university as n subjects of the country. The mathematical designation of these objects can be formulated as follows $A_1, A_2, A_3, ..., A_l$. Across A_k designated university $k-$ th industry. Here $A_k, k=\overline{1,l}$ is a union of a finite number of non-self-intersecting sets, i.e. occurs:

$$A=\bigcup_{k=1}^{l} A_k, A_i \cap A_{i+1}=\varnothing.$$

A set consists of subsets $A_1, A_2, A_3, ..., A_l$ elements of these subsets are

$$B_{i,j}^k, (k=\overline{1,l},\ i=\overline{1,m},\ \text{j}=\overline{1,n}),$$

these elements mean that j – oh university i- ministry and department in k- m region (or region).

Lots of A_k defined as follows

$$A_k=\bigcup_{i,j} B_{i,j}^k, (k=\overline{1,l},\ i=\overline{1,m},\ \text{j}=\overline{1,n}).$$

And so many A_k consists of unions of a finite number of subsets

$$B_{i,j}^k, (k=\overline{1,l},\ i=\overline{1,m},\ \text{j}=\overline{1,n}).$$

As you know, in every university in every faculty there are many specialist teachers. In this case, the elements of the lower level of the hierarchy can be designated as follows:

$$B_{i,j}^k=\bigcup_{\alpha,\beta} C_{\alpha,\beta}^j, \left(j=\overline{1,n}, \alpha=\overline{1,s1}, \beta=\overline{1,s2}\right)$$

Here $C_{\alpha,\beta}^j-\beta$ teacher, specialty $\alpha,\ j$ - go university.

Information on the degree of knowledge, qualifications and skills of each specialist teacher of a university is always of interest to management personnel at the highest levels of the hierarchy.

The constant study and monitoring of information about the degree (high, good, medium, low) of the knowledge of a specialist teacher is a necessary source of information for top managers of the hierarchy.

The functional task of this system is the formation of information sources, the collection and continuous processing of existing information, analyze this information and quickly transfer from the very first requirements of top-level managerial specialists in the hierarchy.

In [9, 10] the concept was introduced **information matrix,** a definition is given and a general view of this matrix is given.

$$C^{j}_{\alpha,\beta} = \left\|\sigma_{\alpha,\beta}\right\|, \left(\alpha = \overline{1,s1}, \beta = \overline{1,s2}\right)$$

Elements of the information matrix $\sigma_{\alpha,\beta}$ It is information about the knowledge of specialist teachers who are formed in the lower levels of the management hierarchy and are constantly stored in a database organized at the highest levels of the hierarchy.

For each $\sigma_{\alpha,\beta}$ the information matrix is filled in, the line elements of which are sections (or parts) of individual theoretical knowledge, and the column elements are the number of questions in these sections or parts.

Matrix Elements $C^{j}_{\alpha,\beta}$ are formed as follows [9]:

$$\sigma_{1,\beta} = \left\|a^{(1)}i, j\right\|, \sigma_{2,\beta} = \left\|a^{(2)}i, j\right\|, \ldots, \sigma_{s1,\beta} = \left\|a^{(s1)}i, j\right\|, i = \overline{1, m_1}, \; j = \overline{1, n_1}\ .$$

The preparation of information is carried out in the following sequence.

For all $\sigma_{\alpha,\beta}$, the elements $a_{i,j}$ is formed as the sum of numbers 1 and 0 and the condition is checked

$$\sum_{i-1}^{m_1} a^{(1)}i, j < K\,, \; j = \overline{1, n_1} \qquad (1)$$

(Given, constant), if the condition is satisfied, then $\sigma_{1,\beta} = 0$, otherwise $\sigma_{1,\beta} = 1$ proceeds to the next line, and condition (1) is checked and $\sigma_{2,\beta} = 1$ or $\sigma_{2,\beta} = 0$, etc $\sigma_{s,\beta} = 1$ or $\sigma_{s,\beta} = 0$, formed as elements of rows and columns of the information matrix. For each specialist teacher for each official position, an information matrix is formed on the degree and knowledge and experience of the official position.

An information matrix consisting of elements is filled $\sigma_{\alpha,\beta}$ and an analysis of a computational experiment is carried out. The filled information matrices, consisting of data analysis information at low levels of the hierarchy, are reanalyzed at the middle and highest levels of the hierarchy. As a result of the analysis of the processing of statistical data, plans are created for the advanced training of specialist teachers for the new academic year, from each university. And a decision is made on planning advanced training related to the issues of how many specialist teachers, for how long it is necessary to send for advanced training.

To form the elements of information matrices, it is advisable to conduct computational experiments on statistical data at low levels (at faculty levels) of the hierarchy in the following sequence:

- the information matrix is filled in and the data is stored in the database;

- an organization is being created for conducting testing of a specialist teacher for which specialists, for how long and this plan is drawn up by an appropriate order of the university staff department;

- in all specialties of a separate faculty, groups of experts prepare testing tasks (tests);

- analysis tasks are solved with the help of an information matrix created (formed) by the testing of specialist teachers;

- experts classifies (or groups) according to the results of the analysis of the results of testing on the knowledge and skills of specialist teachers.

After carrying out the above sequences according to certain plans, experts transmit information to the Ministry and the Vedomosti about sending a specialist teacher to continuing education courses.

Analysis and results. The sequence of formation of elements of information matrices using computational experiments can be applied in most socio-economic systems.

The head of the university makes a decision on the advanced training of specialist teachers for the academic year and the prepared statistics are transferred to the personnel department of the Ministry of Statistics and the Department.

The developed management system for advanced training of university specialists is an open system, since the structure of the system can be continuously supplemented with additional elements and adjusted for use by other classes of production and social management facilities where advanced training of specialists (or employees) is required.

Conclusion/Recommendations. As a result of the functioning of the developed control system, the following:

1) specialists undergo special testing;

2) according to the test results, the volume of initial
3) (current) theoretical knowledge of each specialist of a university teacher;
4) individual parameters of each specialist - teacher are calculated: assimilation coefficients and forgetting coefficients;
5) optimal program controls are calculated and feedback control.

An optimal trajectory is constructed for an individual teacher or group of teachers with similar coefficients of learning and forgetting.

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RITUALS OF PASSING TO ADOLESCENCE FROM CHILDHOOD (Circumcision wedding)

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Annotatsiya: Ushbu maqolada Xorazm vohasi aholisining bolalikdan o'smirlikka o'tish bilan bog'liq marosimlari va ularning transformatsiyalashuv jarayoni yoritib berilgan.

Kalit so'zlar: chamanto'y, bola o'g'irlash, hashar, joy to'yi, sunnat to'yi.

Аннотация: В данной статье описывается процесс перехода населения Хорезмского оазиса из детства в юность и обряды, связанные с их трансформацией.

Ключевые слова: чамантой, похищение детей, хашар, домашняя свадьба, свадьба обрезание.

Abstract: This article describes the rituals of the population of the Khorezm oasis in connection with the transition from childhood to adolescence and the process of their transformation.

Key words: chamantoy, child abduction, hashar, house wedding, circumcision wedding.

Introduction: More than 130 nation and 16 representatives of confession live together in agreement and cooperation in Uzbekistan. All chances have been created for moral development of all nations. Just now different nation's representatives live loyally to their national ceremonies and traditions. That's why learning traditions and ceremonies of other people who live in our country and delivering to wide community are very important problem. Because ceremonies which are being forgotten are not only progress of history, but also moral power of future. One of the longest historical ethnographic lands is Khorezm in Uzbekistan. It has peculiar tradition and ceremonies. Acute, reasonable and thoughtful creative people of this town have invented these ceremonies for a long time.

It is possible to observe the rituals of circumcision, which is the occasion for the transfer of the children from childhood to adolescence. For example, one of the child's close relatives "kidnapped" the child on the day of the ceremony and took some money for the kid. When the child was circumcised, the child's parents put the child's one hand into the oil and the other into flour in order to facilitate pain [1]. A child's mattress is wounded with a rope to keep the child safe from evil eyes. Three days ago, a tree decorated with toys is hung in the house where the circumcision wedding takes place. This is called "chamantuy". It means that there is a circumcision wedding in this house. Before the circumcision, that hair bundle tummy was removed, which indicated that childhood had gone into adolescence. Such children should be dressed with white light summer robe made of coarcecalico and wide white slips (breeches). The wedding ceremony may also be held after that. All this is a very important guide to the child becoming a perfect man.

When the child is circumcised, his mother and father have to put his hands into oil, as it is meant to relieve the child. When the wedding child was placed into circumcision, his supporters – uncles and relatives greeted him with gifts. Wedded women give them a handkerchief and scarf. And this ritual is called as handkerchief gifting in the oasis [2].

Literature Review: You can get some valuable information from the books by N.P. Lobacheva[1], K.V. Zadixina [2], G. Snesaryev [3], E.S. Vulfson [4], P.G. Bogatirev [5], E.G. Kagarov [6], V.P. Nalivkin [7]. They did much in order to scientific research during their lifetime. For example N.P. Lobacheva gave information about the weddings in Khorezm in her book "Свадебный обряд хорезмских узбеков", E.S. Vulfson`s "Как живут сарты" illustrates the ceremonies of the wedding of Turkish people.

Especially during 1936-1976 complex expedition of Khorezm archeology and ethnology did a lot of researches and its members also tried to do their best. The content of the group was divided into two general groups. The first group – The northern group of Khorezm (the leader V. Zaxidina) and second group – Southern group (the leader Saranova).They both investigated the cc-ceremonies and rites and their evolutionary and transformational process. But taking into consideration their scientific activities, results and admiring them, we should emphasize that, the atmosphere of investigation of 1st time was suitable for the Soviet and communistic ideology so that research should serve to create The Soviet Nation. On the whole the researches which were made in the communistic period should be approached critically.

Research methodology: Uzbek families are rich and with lots of children and houses are considered for the members of families not only as a shelter, but also as part of their homeland. Fellows were married in Uzbek families, who have been living in large and rich families. Girls who reached their marriage age were also married. As a result, a new family was organized. The Uzbek girls are usually brought up in the love and sensitivity of their "future" homes.

"The birth of a son is the happiness and glory of the family. It is the continuation of the family, the motherland, the defender, the family's fortune. With the birth of a son, fathers planted 100-200 poplars on the grounds of the yard according to the advice of elderly grandparents. These poplars are grown as raw materials to a new building until the child gets married. Before the marriage was often a new home or a renovation of the yard. There is also a special custom of the new house built with voluntary public mutual aid of relatives, friends [3].

In Khorezm, as heirs in many cases, little sons remained at home with their parents. Other sons have lived an independent life, building their inner courtyard with their own labor and khashar – voluntary public mutual aid. Once a comfortable place for a yard construction is selected, the master picks up the four corners of the house and is the first brick built by the prospective owner, and the masters were honored with it. When building construction was finished, family members moved to it. Sheep was slaughtered and served. This ceremony was also a special small wedding, where all the elderly people in the neighborhood participated. Traditionally, guests brought gifts for the new yard. In Khorezm, carpets are often gifted [4].

With good intentions, a big earthen pitcher or jug was buried under the yard even fulled up with sand, sandstone. It means not to let blessings, treasure and wealth out from the house. In fact, in ancient times, such pitchers were used to keep gold, almonds, jewellery and gemstones. In its time this heritage wealth was very useful for the new generation in building a new house.

The traditions associated with threshold are also exemplary. The daughters, the brides in the morning cleaned threshold as if mirror. Greeting or joining hands is considered as bad characterized. They met each other when the visitor came in, or on the contrary.

At the time of moving to a new home, the Uzbek people are still working on a number of traditions, even for their generosity. The first thing to do is to place the house in the visible places. This is what our people have to do with the phrase “keep away from bad”. In all ages, it has been said that people with “evil eyes”, black people, who envy the fullness of others. The sight of a person with a malicious intent was “burned” when he was in a state of exhaustion. There were those who earlier said that they were superstitious. Whatever the case, we need to preserve every aspect of the traditions of our culture and to bring it to future generations. Apart from that, when moving to a new home, a horse’s saddle stumbles were stuck on the courtyard door. It is intended to be a rich and wealthy property, such as a home-grown horse.

Inside the house there is a horn of a deer and a head, which indicates that the descendants were spread from Mother Bug. There may be rooms with wolf’s nails. It is also a sign that the descendants are spread from valves and it symbolizes to live in a fertile land. The tradition of hanging an amulet with incense and prickles belonged not only to a new private home, but also to public places, public and private cars, such as public houses, public catering, household services, and various shops. This is a matter connected with a belief in each person.

Before moving to a new home, there was definitely a sacrifice of sheep, goats, chickens, cocks which was afforded by anyone who wanted to do it. This is also peculiar alms for the sake of god, which is a reflection of the plea of AllaahiTaala, in which he is praying to this house for happiness, illumination, evil eye, trouble and calamity. Pilaf or soup is made of that slaughtered animal and is distributed to neighbors, elderly and poor.

There are three things to do when moving to a new home. First, salt was brought from the threshold, and the house was intended to be with food. Second, bread and flour were brought from the threshold. In this way, the people of the new home are intended to be satisfied, hard-working and happy. That is why bread is dear to everyone as a symbol of living and sustenance. Thirdly, a mirror was brought inside from the threshold of a new house. It is a well-intentioned purpose that the life of this family is bright and light-bearing. These symbols can be replaced with each other and they be entered in the new home together at the same time. The migration to the new home ends with the ceremonies of courtyard feast or the house party [5].

After the alms for god's sake, a special wedding was held in the courtyard of the house, after moving to a new house built by the villagers and relatives. This wedding is also held in autumn and winter. The yard was made more spacious and comfortable for a wedding reception. After the wedding, the new building was mastered and learned to live there. This wedding is the happiest, most festive occasion for the family as a marriage wedding. The young family with a shelter-a new housing gradually rose themselves. A house was considered as a sustainable stronghold for a tribe, village and nation. Each village was famous for its certain heralds together with an older man who knows everybody in the village, a skillful barber-master and a delicate handed cook. These heralds or messengers announced the time, place of ceremonies like weddings, feats, parties etc. moving on donkey, bicycle, motorcycle or car, depending on the size of the village.

In many Uzbek families, according to the tradition that has survived, an elderly son has been separated to a new house as new family. If there is no possibility to build a home, the grandchild has lived up until marriage. The head of the family is concerned about the future of his family by the birth of a son, and according to tradition, he thinks of his future. Because, the boy is a future labor force and a family head in the future.

Many rich families begin thinking of having a new house from the day they had a son. And the mother cares for her daughters and collects the "sep" (properties, pots and pans) from her youth. Usually, the younger son lives with his father and after his death, the house and the farm become his heritage [6].

At the end of the 19th and early 20th centuries, large families were everywhere in Bukhara Emirate and Khiva khanate and it was impossible to sell the ground, although it belonged to the family. Working goods, agricultural weapons, and derivative farms were the property of the family. Although, the cows that came from the house of bride-groom's family were considered as personal property ("hereditary heritage"), its dairy products were commonly owned. In South Khorezm, where the family council was preserved, these large families lived in a large, multi-sized bedroom in the courtyards. In the courtyard, several married couples lived in some rooms and had a shared kitchen and a living room. The income of such families and everything in the yard, even the sum of money taken for the girl, are also common property.

The pot was general for everyone and bread was baked in one and the same tandoor. In a family, father is dominant and his reputation is decisive. Such large families maintained their patriarchal traditions strongly. Younger adults wholly obeyed to the head of the family. If one of the boys separates as another family with their children, then if their children are married and have children, this smaller family will gradually become unseparated complex family [7]. Such families did not have full independence. Family relationships became more complicated by the fact that some of the cousins of the same family worked together. "Making the pot separate" means that the great patriarchal families began to slow down.

During the research according to the archeological and historical sources and literature, the objective, historical and scientific approaches have been tried to carry out. So as to identify the current matter we used the logical, critical, chronological and comparative ways of analysis.

Analysis and results: The results of article can be used to illustrate and learn the history of Uzbekistan, to write handbooks for students of higher education, to organize new exhibitions in museums and propagandize the historical-cultural heritage.

Taking into consideration vast field of knowledge based on the new stylistic and theoretical approaches, the features of the ethnic ceremonies and Uzbek`s traditions and their process of transformation have been studied, analyzed and generalized.

Conclusion and recommendations: At the end of the 19th and early 20th centuries social distinctions, injustice, social inequality were evident in the material life of the population, its place of residence, clothing, meals and food. Along with wealthy luxury houses of wealthy people in the cities, the cobblestone huts without windows were mixed with each other. According to the ethnographer N.P. Ostroumov, one of the leaders of the Russian colonial administration in the last century, large-scale households in Turkestan had large quantities of home-made and high-quality clothing and very rich dishes.

On the walls of the most common two-laminated sintered houses, there are several rectangular or dome-shaped hinges, which include various household items, plates and beds. The wealthy houses are decorated with delicate and carnal ornamentation and the pavilions and boards are filled with precious vessels and other items. Carving of doors, gates and columns is common in Khorezm.

Historical-ethnographic analysis of such traditionally customary rituals and ceremonies has shown that the roots of these customs and rituals are linked to ancient beliefs. Some of them (Circumcision wedding) were more strictly legislated with the introduction of the Islamic religion and became a part of Islam [15].

By scientifically studying and analyzing the ethnolocal traditions and transformation processes of the Khorezm oasis. Uzbek traditions and ceremonies, the following news was proposed:

- Ethnographic data on the ethnographic information on the ethno-cultural features and transformation processes of the Uzbek traditions and ceremonies in the Khorezm oasis has been systematized and historically summarized;

- Information about foreign and Soviet historiography of Khorezm's Uzbek customs and traditions, research by local ethnologists was first studied comparatively and scientifically for the first time;

- Rituals from the childhood (Sunnat wedding) were scientifically analyzed and some scientific conclusions were made.

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THE EVIDENCES ON THE HISTORY OF KHIVA BY MUHAMMAD MURAD DEVONBEGI

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Аннотация. Ушбу мақолада XIX ўрталарида феодал жамиятнинг ижтимоий иқтисодий ва сиёсий инқирози оқибатида юз берган ҳодисалар ҳақида фикр юритилади. Сулолавий бошқарув оқибатида жамият ўзгармасдан инқироз кучаяди. Подшо Россияси бундай шароитдан фойдаланиб Хивани мустамлака қилгани хақида сўз юритилади.

Калит сўзлар. Сулолавий бошқарув, ижтимоий иқтисодий ва сиёсий инқироз, Девонбеги, меҳтар ва кушбеги, ясовулбоши, закот, Хива хони, аграр мамлакат, суғорма деҳқончилик

Аннотация: В статье речь идёт о событиях, произошедших в хивинском ханстве впоследствии общественно-политических и экономических кризисов в середине XIX веке. Использовавших в последствий династического управления углублявшийся кризисом в обществе царская Россия Захватив ханства превратил его в свою колонию.

Ключевые слова. Династическое правление, социально-экономический и политический кризис, Девонбеги, Мехтар и Кушбеги, Ясовулбоши, Закят, Хан Хивы, Аграрная страна, Орошаемое земледелие

Abstract: This article deals with the facts about Khiva Khanate in the 19th century on the eve of invasion of the country by Russian Empire given by Muhammad Murad Devonbegi one of the administrative officials of the khanate. It reveals the cause of social and political crisis in the country.

Key words: Dynastic rule, socio-economic and political crisis, Devonbegi, mehtar and kushbegi, yasovulboshi, zakat, Khan of Khiva, agrarian country, irrigated land.

Introduction: The Khiva Khanate was still a medieval feudal monarchy ruled by the dynastic in Central Asia in the 19th century. The great philosopher Niccolo Machiavelli said the followings describing the ruler of the monarchy, "It was easy for the rulers to sit on the throne not by their own power but by the grace of fate, but it was difficult to hold it in their hands. They flew the long way to their destination as easily as a bird, but then they had to face a lot of difficulties. In such cases, kings were completely dependent on the will and mood of those who gave them power, that the king was between two ultimately unstable and whimsical forces"[1]. It was natural that due to the prevailing mood of peace and tranquility in the palace and in the country's administration, the majority of government officials in political power were representatives of the dynasty.

Literature review: In the 19th century, a similar political situation prevailed in the dynastic feudal state in Khiva. As the absolute ruler, the khan of Khiva had unlimited rights in governing the state. The chief officials of the state were devonbegi, mehtar and kushbegi. These officials controlled certain areas of the khanate or a specific area of public service. The khanate also experienced crises in political and social processes from the mid19th century. During this period, the political activity of Muhammad Murad Devonbegi as the Prime Vizier of the khanate became obvious. As Prime Official, Muhammad Murad Devonbegi was one of the officials who said, "While considering the state affair above than everything else, the spirit of the ruler should be manifested at the highest level, and that person should serve for the state with high persistence,content and happiness." [2].

The oriental historian Agakhiy said “Muhammad Murad Devonbegi was the great pillar of the country, the honorable and loyal servant of the nobles; he was unparalleled in wealth and devotion to the king's service, as well as in the world. He also built a madrasah at his own expense due to his maturity in theology, his mastery of companionship, and his desire to gain the approval of the Almighty.”[3].

Muhammad Murad Devonbegi was born in Afghanistan in the spring of 1830, and later, by fate he moved to Khorezm and settled in Khiva. Entering the service of the palace, he gradually rose to prominence, and on November 5, 1864, he was appointed as the devonbegi of the khanate. He held the post of devonbegi for 37 years. According to historical records, Muhammad Murad was from Afghanistan in birth and came to Khiva as a child [4]. Muhammad Murad rose from the ranks of civil service to the palace because of his tactfulness and wit. He distinguished himself from other officials as a close adviser to the ruler of Khiva, Sayyid Muhammad Rahim II, due to his extremely conservative position, typical of the feudal monarchy, among the state officials in the palace. The devonbegi was able to openly express his conservative radical views by the second half of the 19th century, in relations between Khiva and Russia. Therefore, Muhammad Murad devonbegi as a political figure became the closest person of khan in the palace of Khiva khanate.

After the invasion of Khiva by Tsarist Russian Empire in 1873, Muhammad Murad devonbegi and Rakhmatulla Yasavulboshi were exiled by Russian officials to Kursk on charges of being enemies of the tsarist government and theft of the khanate's state treasury. Y. Syrovatsky met with devonbegi. The Russian officer recorded valuable and interesting information about the history of Khiva during the conversation.” [5].

Research Methodology: It is distinct that tourists and researchers who visited Khiva got acquainted with the main income of the khanate and the production process in it, of course, as well as getting interested in the lifestyle of the population. Therefore, in an interview with Lieutenant Colonel Syrovatsky, devonbegi began his story on the history of Khiva with information about the annual income of the Khanate. According to his report, "The annual income in the country was 200,000 rubles on the eve of the Khiva invasion." As an agrarian country, the agriculture was predominant in the khanate, so the rural community paid land tax. In particular, 10 tanob landowners had to pay 3 gold pieces, 1 tanob land in the Khanate was equal to 1/3 of a tenth. The second type of tax payment was received from domestic trade. The amount of collect money was from 20tiyins (coins) to 10 gold pieces of from each merchant’s shop.

Analysis and results: According to devonbegi, zakat received from foreign trade was collected from each camel or 1/40 of the merchant's goods from Bukhara via the river Amudarya and 3 gold coins from Russian traders. Thus, due to trade between Bukhara and Khiva, the annual collected payment was in the amount of 2,000 gold pieces [6]. The annual income equal to 20,000 gold pieces was earned from the trade with neighboring pastoralists living around the khanate, including the Karakalpaks traders living in the lower reaches of the river Amudarya. The neighboring Kazakh traders who brought the livestock to the Khiva market paid 1 gold for 3 to 5 camels from each camel, or every 40-100 sheep, 2 gold for every 10 sheep, or (40) tiyn for each sheep.

In the Khiva region, the local Turkmen population gave gifts to tax collectors without paying cash. This has encouraged tax collectors to serve for their own interests rather than the interests of the state. Personally Muhammad Murad devonbegi, as a well-known figure, became a close companion of the ruler Said Muhammad Rahimkhan II. He also performed the private orders of the ruler in other emergencies perfectly in addition to his main duties. It should be noted that almost all the officials in the palace could not get out of the age-old traditions of the old administration, acting unilaterally in the domestic and foreign policy of the state. As the prime vizier of the khanate, Devonbegi led the old-fashioned "mold" of officials in the palace, so there was a sense of sanity, serenity, and red tape in the state administration. Devonbegi led that political sphere in particular. Devonbegi's calm and conciliated attitude towards governing the country was depicted in the Russian periodicals as in following "Muhammad Murad Devonbegi, a gentle and indecisive ruler who ruled the khanate without cruelty and ruthless faith, did not do anything without bribes." [7]. It was natural that such a disgusting way of governing a feudal monarchy would prevail in Khiva, a dynastic monarchy in nineteenth-century Central Asia, as the case at all levels of government.

Therefore, in the activities of high-ranking government officials, the bribery, the bribery as a gift, giving presents as a gift was a common feature, even none of the leaders of the religion dare say a word to reveal it to the public that this is not only a crime but also a grave sin.

The information given on the issue of family and marriage in the Khiva khanate by Muhammad Murad is even more interesting. The following fact is noteworthy in the matter of family and marriage based on the rules of the Muslim East Sharia. He described the activities of the Mullah in the matter of marriage as follows. When the mullah administered the marital state of a couple, the husband had to pay 1 gold piece for the marriage certificate. At the same time, the groom paid the bride-money to the bride's parents. The amount of the bride-money varies, and for the average family it has reached about 300 gold pieces. There was a fact that the khan of Khiva paid 15,000 gold coins. Thus he declared that the issues of family and marriage in the khanate were completely under the rule of religious Sharia law. The judge could sentence on divorce in the families based on the rules of Sharia only in cases when the wife claims in lawsuit that her husband had beaten her or that he could not provide her with the necessary living conditions, including, if the husband is unable to provide food, clothing, etc. or the husband may evict his evil wife, the exiled wife may return to her parents' house [8]. The judge had to consider the money provision for the divorced wife to live on. There were some difficult issues in the work of a judge, including: the debtor is unable to pay on time. In the case of an accident or having not enough money to pay at all, the judge has to force the plaintiff to wait until the debtor finds the money and then pay the debt sum at 1/20. If the debtor refuses to pay the debt, he ordered to hit him on the shoulder with a stick until he agrees to pay the debt. While giving interesting and important facts about the history of Khiva Muhammad Murad Devonbegi wrote the followings in case of theft “When it was determined with which hand he had committed the theft that very hand was cut off. A cruel punishment expected for the wife who was unfaithful to her husband. The woman who committed such a crime was shamelessly buried in the ground up to her chest and was stoned at. Introducing his interlocutor to the socio-political life of the khanate, The devonbegi gave interesting facts about the patriarchal slavery that existed in the khanate. On the eve of the invasion of Tsarist Russian Empire in the khanate there were about 58000 Iranian, Russian slaves [9]. He also spoke about the established order of owning and governing the slaves. “A slave escaped from his owner was sentenced to eye-plucking, or the slave sentenced to death was hanged or handed over to an executioner for head execution. In this case, the type of punishment was determined by the khan of Khiva. The clothes of the executed man were handed over to the treasury or given to the executioner on the same day.

In his interview, Muhammad Murad devonbegi said, "Important court cases are decided by the Khiva khan himself. When there is a protest against the judge's decision, the plaintiff appeals to the higher court. And the khan had to decide and make sentence on the case.”

Conclusion: In short, as a result of his conversation, devonbegi also provided interesting information about the sale of land property and its price. He pointed to the surroundings of Khiva as the khanate's most valuable lands. “Each acre of land was valued at between 200 and 300 gold coins, especially in the surrounding gardens of the khanate." As the destination moved further away from Khiva, the price of land became lower from 15 to 30 shillings for 1 *tosh* and 8 *versts* for the distance." Thus, the historical information provided by Muhammad Murad Devonbegi enriched the source of the database on the history of Khiva with valuable and interesting real facts and evidence.

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THE STRUCTURE, RANGE OF STUDY AND HISTORICAL SOURCES ON MUSICAL INSTRUMENT UD

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Аннотация. Тарихдан маълумки, инсон овозига ўхшаш чолғулар орасида уд ўзининг ғамгин ва мунгли садолари билан ажралиб туради. Ўрта аср алломалари – Форобий, Ибн Сино кабилар уд чолғусини энг мукаммал соз сифатида таърифлашган. Амалда эса илмий ишлари билан жавоб беришган. Мазкур мақолада уд чолғу асбоби, унинг характерли жиҳатлари борасида маълумотлар келтирилади. Чолғу тўғрисидаги тарихий манбалар эслаб ўтилади. Уни созлашда қўлланилган араб-форс тилидаги атамалар маънолари тушунтирилади, таҳлил қилинади. Бундан ташқари удга оиладош бўлган чолғулар ҳақида ҳам тўхталиб ўтилади.

Калит сўзлар. Уд, Барбат, Лютня, “Шоҳнома”, Борбад қиссаси, Борбад.

Annotation: Throughout history, the tune of udis the most close to human voice peculiarly by its melancholy and gloomy melodies among musical instruments. Medieval scholars, Farabi and Avicenna have described ud as the most perfect musical instrument. In practice, they answered with their scientific works. This article provides an overview of the ud and its features. Historical sources about the instrument are mentioned. The Arabic-Persian terms used in its setting are explained and analyzed. It also focuses on the instruments that are related toud.

Keywords: Ud, Barbat, Lutnya, "Shakhname", Tale of Borbad, Borbad.

Аннотация: На протяжении всей истории мелодия “уд”а наиболее близка человеческому голосу, особенно по меланхоличным и мрачным мелодиям среди музыкальных инструментов. Средневековые ученые, Фараби и Авиценна описали “уд” как самый совершенный музыкальный инструмент. На практике они отвечали своими научными работами. Эта статья содержит обзор “уд” и его возможностей. Исторические источники об инструменте упоминаются. Арабо-персидские термины, используемые в его урегулировании, объясняются и анализируются. Он также фокусируется на инструментах, которые связаны между собой.

Ключевые слова: Уд, Барбат, Лутня, «Шахнаме», Повесть о Бербаде, Борбад.

Introduction: There is no doubt that themusical instruments play a special role in life of people in Central Asia since ancient history. In particular, the variety of musical instruments that we find in the pages of history, both in writing and in the form of ancient artifacts, provides colorfulness to our musical culture. Among the ancient musical instruments ud is distinguished with its unique sound and form, which is common for Arab, Turkic, Persian, Caucasus (Azerbaijan and Armenian) and Central Asian countries.

Literature Review: Ud is regarded as a leading musical instrument in the treatises of medieval scholars Farabi, IbnSina, Safiuddin al-Urmavi, al-Sherazi and others. The Nizami Ganjavi describing the musical instrument ‘ud’ wrote that it makes the sound like a pleasant splash of water and called it as a "Bird of Sughd". This definition implies that the origin of the ud comes from the Soghd, that is, from Central Asia. Even, during the life period of Farabi, they worked at creating tabula on for a musical instrument.

Tolstov and his followers, who studied the ancient sites of Central Asia in the 30's and 40's of the 20th century, were able to find the survivals and pictures of musical instruments in different forms (remains of the instrument and paintings on the walls). In particular, books by Ryurik Leonidovich Sadokov, who participated in those studies, provided valuable information on the history and appearance of musical instruments related to the musical culture of the peoples of Central Asia in his books ‘The Art of Music in Ancient Khorezm’ [1] and ‘Thousand pieces of Golden Tool’. [2] The books give a detailed information on musical instruments found in the ruins of ancient old castles.

Research methodology: In this article, we have focused on the origin, theoretical basis, and the structural aspects of the musical instrument. We tried to use the simplest methods of research - interview, oral questionnaire.

Analysis and Results: As we know, ud is a stringed and Mestrovicinstrument and is widely used by Central Asian (Uzbek, Tajik) peoples. Ud is a popular instrument in the Orient, like the Greek harp. Ancient musical theories, narratives of music explain the narrow and act structure on the basis of a musical instrumentud. The existence of Ud in the 1st century was discovered by the researchers.

In the ruins of Ayritom we found a frieze with a female musician holding an instrument as ud. In the IX-XV centuries in the treatises of Oriental music (vocalists, music acts, maqoms) ud was considered as the leading instrument in the treatises of Farabi, Ibn Sina, Safiuddin al-Urmavi, al-Sherozi and others. It is known that it had originally 4 strings, and the musician Ziriab (9th century) noted that 5 strings were added by Farabi. [3]

Generally, there are numerous pictures of singers and musicians playing music, various patterns, sculptures and other ornaments, which are not significantly different from each other. For example, the music found in "Bolaliktepa" was very simple, with only one tight string. Afrosiab findings in Samarkand show a large number of musicians, including ud music.

Abu Nasr Farabi was able to play all the musical instruments available in his day. He played music, especially in flute and tanbur skillfully. Some sources indicate that he invented a musical instrument ‘qonun’ and did much to improve the sound of the ud at that time. [4]

During the century when Avicenna lived, ud was a very valuable musical instrument, and artists and poets recognized it in their works. The musical instrument ud was popular and known in the oasisbefore the Arabs’ arrival. During the Arab invasion, it became popular in many parts of the world. It spread to Spain through the Arabs (because Spain was also invaded by the Arabs), and through Spain to the European countries. Later, Europeans made changes to it and began to call it Lutnya. [5]

Darvishali Changi, a music scholar of the 16th and 17th centuries, states in his music book that "ud is the king of musical instruments". This is because Ud's "gentle, pleasant" sound, and the wide volume of the sound distinguished him from other musical instruments of the time. [6] Darvishali writes that Ud had 12 pairs of adjustable silk strings.

The instrumentud was previously adjusted according to the Arabic-Persian instructional terms. [7] For example, strings are arranged in quartets, and are called Persian and Arabic - hodd, zhir, masna, maslas, bam (zirubam). Ud acts are absolute (open string), zoid (increased relatively higher than the open strings), mudjannab (adjacent strand), sabbob (string pressed with index finger), vustai furs (Persian act pressed with middle finger), vustai zalzal (tributed to Zalzal). The lad act was called the binsir (the fourth finger print) and the khinsir (the act performed with small finger). [8] In the treatises the acts are noted in Arabic letters in the order of abjad.

The current ud is without act and has 11 strings. Of these, 5 are of pair strands, and the lower one is single. [9]

If we discuss the music instruments like Ud, it can be compared to a miniature drawn for the "Borbad Stories" found in Firdavsi's 'Shah-name'. Because, Borbadis described in this pictureholding a duck cannon musical instrumantin his hand in the palace of King Husrav Parves. [10]

Miniature for the work of "Shah-name"

According to sources, this instrument was called barbat. If you put the two instruments together, it will be clear that the ud andbarbat are the musical instruments belonging to the same group. In addition, a musical instrument known in Europe as an ancient leutnya is similar in structure to the ud. [11] Below we can compare the pictures of these instruments.

Barbat

Ud

Leutnya

Conclusion: Following such solid evidence, it can be said that each musical instrument has once been the basis for the emergence of a new musical instrument. For example, in Europe such as clavisin and claviacord opened the way for piano and grand piano, while in the East, the dombra was the base of creation of tanbur, avlos for double-flute on base of it qo‘shbulomon were introduced into practice. The emergence of new musical instruments can also be attributed to military actions. The effect of this process is that the musical instruments of many peoples are similar in appearance and form, though not in terms of performance and style.

In conclusion, the sad and closed sound of Ud's has not been used by the artists' team for almost no other purpose than public events and recordingsin recent years. The live performance of Uzbek singers and musicians with the efforts and demands of the Uzbek Concert Organization can also change the attitude of the musician to the positive. After all, the live performance gives the musicians a chance to play and work on musical instruments of their own. This, in turn, helps to popularize our ancient instruments, such as ud, which are very important for the Uzbek ensemble.

Based on this, we aim to further investigate the performers of this instrument and their styles in our subsequent research.

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THE CABBAGE BUGS IN THE TERRITORY OF THE AMU DARYA RIVER (Heteroptera, Pentatomidae, Eurydema)

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Аннотация. Ушбу мақола *Eurydema Laporte* de Castelnau, 1833, кенжа туркумининг фаунасини Хоразм ва Қарақалпақстан худудларида ўрганишга бағишланган. Хаммаси бўлиб, Pentatomidae оиласига мансуб жами иккита тур тўпланган ва аниқланган. Ўрта Осиё крестгулдошлар қандаласи: Eurydema maracanica Oshanin, 1871, Eurydema Wilkinsi Distant, 1879, Амударё худудларида ўрганилган. Ушбу иккита тур карам, броколли ва бошқа маданий сабзавотларнинг зараркунандалари ҳисобланади. Тўпланган биоматериаллар Хоразм Маъмун академиясининг лабораторияси шароитида ўрганилган.

Калит сўзлар: Hemiptera, Heteroptera, Pentatomidae, Eurydema, Амударё.

Резюме. Эта статья посвящена исследованию фауны подрода *Eurydema Laporte* de Castelnau, 1833, в районах Хорезма и Каракалпакстана. Всего было собрано и идентифицировано 2 вида из семейства Pentatomidae. Среднеазиатские виды: Eurydema maracandica Oshanin, 1871 и Eurydema wilkinsi Distant, 1879, были исследованы на территории реки Амударьи. Два из этих видов являются важными вредителями капусты - брокколи и других культур в Узбекистане. Собранный биоматериал был исследован в лабораторных условиях Хорезмской академии Мамуна.

Ключевые слова: Hemiptera, Heteroptera, Pentatomidae, Eurydema, река Амударья.

Abstract. This article deals with the faunistic survey on subgenus *Eurydema Laporte* de Castelnau, 1833, in the regions of Khorezm and Karakalpakistan. Totally 2 species from the family Pentatomidae were collected and identified. The Central Asia species: *Eurydema maracandica* Oshanin, 1871 and *Eurydema wilkinsi* Distant, 1879 were investigated in the territory of the Amu Darya River. Two of these species are important pests of cabbage, broccoli and other crops in Uzbekistan. The collected biomaterial was studied out in the laboratory conditions of the Khorezm Academy of Mamun.

Key Words: Hemiptera, Heteroptera, Pentatomidae, Eurydema, the Amu Darya River.

Introduction: The order of Hemiptera is one of the largest groups of insects after Coleoptera, Diptera, Hymenoptera, and Lepidoptera orders [4, 14, 44, 47]. The Hemiptera are called “true bugs”, because entomologists used to call all insects ‘’bugs’’. That is a loose term, whereas the ‘’true bugs’’ are just those contained within the insect order Hemiptera. This group of insects is very large, with approximately more than 40,000 described species around the world [15, 43, 48]. Hemiptera order belongs to suborder Heteroptera [11, 27, 28].

The Pentatomidae, or stink bugs are an important group of Heteroptera and the largest family within the superfamily Pentatomoidae (Hemiptera: Heteroptera). The Pentatomidae is a family of Heteropterans that currently comprising 4937 species classified in 938 genera [40]. The Pentatominae is the largest subfamily of Pentatomidae containing 3475 species classified in 659 genera [10, 40].

The subgenus Eurydema Laporte de Castelnau, 1833 is a relatively species-rich genus distributed mostly in the Palaearctic region.

The first information about the Central Asian cabbage bug *Eurydema maracandica* Oshanin has been recognized by the Russian entomologist Vasily Fedorovich Oshanin, 1871. *Eurydema wilkinsi* Distant has been recognized by an English entomologist William Lucas Distant, 1879 and by the Russian entomologist Vasily Evgrafovich Jakovlev, 1881.

It is classified in the subfamily Pentatominae, tribe Strachiini [39]. Nowadays, 33 species of Palaearctic Eurydema were cataloged [39]. All of them were classified into three subgeneras: Eurydema s. str. (13 species), Horvatheurydema Dupuis, 1951 (4 species) and Rubrodorsalium Stichel, 1944 (10 species). An illustrated key to western Palaearctic *Eurydema* were provided by Derjanschi & Péricart [5].

Several Pentatomines have a high economic impact on nature because they damage plants and become widespread pests everywhere on the earth [28, 30, 42]. Some of them are agricultural pests which cause severe damages to the cabbage, broccoli (bound to the plants of the family *Brassicaceae*), as well as other crops and some of them, are predators which have an important role in biological control of pests in the United States, Europe, Russia, Turkey and Central Asia [3, 7,18, 20, 21, 22, 31, 33, 37, 41].

The first information about *E. maracandica* and *E. wilkinsi* species of subgenus *Eurydema* Lap. was encountered in Central Asia was published by Plotnikov [36] and Yakhontov [49]. However, the literature provided only scarce data on the presence of this species most of which were recorded in only some areas of Uzbekistan. Despite this, the biology and ecology of the “true bugs’’ in Uzbekistan have remained completely unexplored yet.

Some faunistic researches on various species of subgenus *Eurydema* Lap. were seen evidence from literature from different countries for example in the U.S.A., China, Germany, the Czech Republic, Spain, France, Russia, Turkey, Uzbekistan [1, 2, 5, 6, 8, 12, 13, 22, 26, 29, 34, 35, 45, 46, 50, 51, 52, 53].

Literature review: The Uzbek province that includes two regions; Khorezm and the Republic of Karakalpakstan is located in the southern Aral Sea region. The Khorezm province is situated on the ancient Amu Darya river delta at about 100 meters above sea level. The terrain is flat with negligible depressions, barchan dunes, hillocks, and ridges.

The Republic of Karakalpakstan is located northwest of the Khorezm region and is separated from it by the Amu Darya River. In the southwest, Karakalpakstan is bordered by Turkmenistan, and in the north by Kazakhstan and the southern part of the Aral Sea.

The Khorezm occupies roughly 630 000 ha of which 275 000 ha is irrigated land [19, 32], the Karakalpakstan Republic occupies 167 500 km^2, most of that (86%) is the Kyzyl Kum desert and the Ustyurt plateau, while only 14% of the total land area is situated in the river valley. The river valley has a general inclination towards the Aral Sea and is covered mainly with ridges and dune sands. Maximum valley elevations reach 100 m above sea level in the south and 54 m in the north. In the southeast separate mountain massifs exist, with the highest mountain being the Sultan-Uvais (473 m above sea level). In the Amu Darya delta, there are many channels and small lakes with tugai (riparian) forest, reed thickets and boggy areas [24].

Research Methodology: In this research, some of the materials were collected by a sweeping net (Fig.1) and some of the insects were collected by hand which involves careful combing crop plants and soil surfaces in the fields.

Figure - 1. A sweeping net in the cabbage plantations.

The sample regions were from the location of the Khorezm region and Karakalpakstan provinces, located in the territory of the Amu Darya River.

The nature of damage to cabbage plants by bugs were determined by us through direct observations as on a cabbage plantation in the Urgench district on-farm named" Odilbek", "Gulrukhbegim", "Dargamar", and "Oltin Kala" farms of Khorezm and farms "Zeripboy", "Azamat" of the Ellikkala district of the Republic of Karakalpakstan.

Field experiments and faunistic research materials were collected during 2012-2014. Classification and nomenclature methods recommended by Plotnikov [36] and Yakhontov [49], Khamraev [23, 25] have been followed.

As a result of the field, the research team collected more than 55 specimens of *Eurydema* in the cabbage plantations. The collected biomaterial samples of species of bugs were carried out in the laboratory conditions of the Khorezm Mamun Academy and Researcher of Institute of Zoology, Academy of Sciences of Uzbekistan.

Analysis and results: The faunistic identification on various species of subgenus *Eurydema* Lap. is the most important thing in the field of entomology. The main objective of this study was the identification of insects' species in the territory of the Amu Darya River. In total two species of Heteroptera from the family of Pentatomidae were reported in this paper as the fauna of the Khorezm region and Karakalpakstan provinces located in the territory of the Amu Darya River of Uzbekistan.

The results of the faunistic study of insects were analyzed on the example of 12 types bound to the plants of the family *Brassicaceae* in the conditions of the Amu Darya River territory.

In the territory of the Amu Darya River, these 2 species of insects were first identified. The two species: *E. maracandica* (Fig.2) and the *E. wilkinsi* (Fig.3) have been studied.

SYSTEMATICS

Order: Hemiptera

Suborder: Heteroptera

Infraorder: Pentatomorpha

Family: Pentatomidae

Subfamily: Pentatominae

Tribe: Strachiini

Genus: Eurydema Laporte de Castelnau, 1833

Subgenus: Rubrodorsalium Stichel, 1944

Type Species: *Eurydema maracandica* Oshanin, 1871.

***Figure-2. Eurydema maracandica* Oshanin, 1871.**

SYSTEMATICS

Order: Hemiptera

Suborder: Heteroptera

Infraorder: Pentatomorpha

Family: Pentatomidae

Subfamily: Pentatominae

Tribe: Strachiini

Genus: Eurydema Laporte de Castelnau, 1833

Subgenus: Eurydema Lap. 1833

Type Species: *Eurydema wilkinsi* Distant, 1879.

***Figure -3. Eurydema wilkinsi* Distant, 1879**

Eurydema maracandica Oshanin, 1871

Material examined: Bamian, ix.1957, 1 ♀, K. Lindberg lgt., L. Hoberlandt 1979 det. as *E.pulchrigena* (NMPC).

Distribution: The distribution range of *E. maracandica* is quite extensive. Its northern border passes through the region of Tomsk in western Siberia. The southern border passes through Iran, northern Afghanistan, and northern Kashmir, and enters the Republic of China. The range of this species is in the range 55 ° 5 'and 35 ° 5' N, 47 ° and up to 108 ° E.

Eurydema wilkinsi **Distant, 1879**

Material examined: Bamian, ix.1957, 1 ♀, K. Lindberg lgt., L. Hoberlandt 1979 det. as *E.pulchrigena* (NMPC).

Distribution: *E.wilkinsi* is southern species, in the north, it does not rise above 45-47 ° N. The southern border is near to the city of Mary of Turkmenistan. The range of this species is concluded between 47 ° and 37 ° N, 61 ° 5 'and up to 106 ° E. The range of *E.wilkinsi* in Central Asia and Southern Kazakhstan is focal in nature. The decisive factor determining the focal area is the amount of annual rainfall. It does not occur in areas with annual precipitation above 150 mm per year.

Remarks

These two species of Central Asian known from the South European territory of Russia, Azerbaijan, Iran, Turkmenistan, Tajikistan, Uzbekistan, the Asian part of Kazakhstan, Kyrgyzstan, Afghanistan, Mongolia, and China, the Czech Republic [22, 38, 39].

By Hoberlandt [16] reported this species from Afghanistan based on one male from Herat (identification confirmed). A researcher from Bamian published by Hoberlandt (1984) as *E. pulchrigena* also belongs to this species. The Iranian records from Dasht and the Kandavan pass published by Hoberlandt [17] are based on misidentified specimens of *E. ornata*. The checklist of these species in China was published by Rider *et.al* [38] on localities of Gansu, Nei Monggol, Ningxia, Qinghai, Xinjiang regions. The new records of these species in the Czech Republic were published by Kment & Jindra [22]. The Kazakhstan records were published by Esenbekova & Kazenas [9] on illustrative materials the species of *Eurydema*. By

Zokirov & Azimov [53] reported that for the first time the entomofauna of vegetables and melons of Central Fergana in Uzbekistan and a total of 19 species were determined and the species of *E. maracandica* was obtained too.

Conclusion: According to the results of the faunal analysis, the insects of the family *Brassicaceae* of the territory Amu Darya River are represented by 2 species belonging to 1 order, 1 family and subgenus *Eurydema* Lap.

In the entomofaunistic research of two species, *E. maracandica* and the *E. wilkins*i of insects were observed and identified for the first time in the Khorezm and Karakalpakstan. The two species liveliness is probably associated with the specific conditions of the biocenoses of the climate of the Amu Darya River.

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GRAIN TRANSPARENCY OF TRITICALE VARIETIES GROWN IN SOIL CLIMATIC CONDITIONS OF KHOREZM REGION

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Аннотация: Мақолада Хоразм вилоятида етиштирилаётган 11 та тритикале навларининг дон шаффофлик даражаси ўрганилган. Таҳлилларни олишда фойдаланилган донлар вилоятда умумий қабул қилинган агротехник шарт-шароитларни қўллаган ҳолда етиштирилишига қарамасдан уларда шаффофлик даражаси турлича эканлиги кузатилди. Бу эса навнинг шаффофлик даражаси нафақат агротехник тадбирларга боғлиқ ҳолда ўзгаришини, балки биологик хусусиятларга ҳам боғлиқлигини англатади.

Калит сўзлар: эндосперм, крахмал, дон, шаффофлик, диафаноскоп, тритикале.

Аннотация: В статье изучены параметры стекловидности зерна 11 тритикале возделывоемых в Хорезмской области. Резултаты полученных анализов показывают что, не смотря на проведение общепринятых агротехнических мероприятий при возделываний озимой пшеницы в Хорезмской области параметры стекловидности зерна у изучаемых сортов были разными. Это докозывает что, параметры стекловидности сортов изменчивы не только по провидению агротехничиских мероприятий, но и по биологичиским свойством сорта.

Ключевые слова: эндосперм, крахмал, зерно, стекловидность, диафаноскоп, тритикале.

Annotation: The degree of grain transparency of 11 local and foreign varieties of triticale in the Khorezm region has been studied in the article. It was observed that the degree of transparency of analyzed grains is various even though they are harvested using generally accepted agro technical conditions. This confirms that the degree of transparency of the varieties is variable not only in the providence of agro technical measures, but also in the biological peculiarity of the variety.

Key words: endosperm, starch, grain, transparency, diaphanoscope, triticale.

Introduction. In the first stage of economic reforms in Uzbekistan, the priority was given to agricultural reforms. In connection with agrarian reforms in the republic, there were significant changes in the structure of the area and the area under grain crops expanded sharply. The way to achieve grain independence has been consistently implemented. Triticale is considered as a new foodstuff, widely used in Uzbekistan, and is grown mainly on irrigated land and partly on dry land. Triticale is an intergenerational hybrid, and it contains hereditary characteristics of wheat and rye. Triticale is named after the first part of the Latin name of wheat (triti) and the second part of the rye (cale). The appearance, structure, and shape of the grain resemble wheat and rye. Triticale is one of the most productive cereals that are mainly used as feed [6].

Creation of new varieties and increase of grain production of the highest quality nowadays is an urgent task both in the world and in our country. Therefore, the creation of high-yielding intensive types of grain varieties adapted to soil and climatic conditions at different regions of the republic, resistant to drought and heat, diseases and pests remained as one of the most actual problems for scientists of biology today.

Literature review. V.E. Pisarev (1972) created 56 chromosomal amphidiploid Triticale interbreeding soft wheat (2n = 42) and rye (2n = 14) at the Nemchinovka Research Institute in Moscow [7]. A.F. Schulindin (1975) created 42 chromosomal amphidiploids Triticale in the Ukraine Research Institute of Plant Science, Selection and Genetics, interbreeding hard wheat (2n = 28) and rye (2n = 14) [10].

Generally, triticale combines traits of the rye genome, such as resistance to rust disease and environmental tolerance, with traits of wheat, such as high yield potential with good grain quality (Griffith and Lang, 2004; Rakha et al., 2011) [9].

Triticale gains an advantage over wheat and rye with its number of important indicators – productivity, nutrition and other qualities and it is equal and even prior to rye with its resistance for adverse weather and rust diseases [6]. Triticale, which contains the best valuable features of wheat and rye, differs from other cereals with its resistance to fungal and viral diseases, a high frost-resistance, productive capacity and high protein and amino acids. The scientific literatures suggest that triticale grain is far superior to other forage crops due to its protein richness, light and fast digestion, and nutritional value [5].

Materials and methods. Grain quality is a product of many indicators. It varies depending on the type of grain crops, the climate and the agro-technical measures being applied. Albumen, starch and carbohydrate mark the important quality indicators of flour and flour products taken from cereals. Pieces of starch give the transparency of cereals. They are divided into two groups. The first group consists of small starch chondriosomes that reduce the color clearness of grain. The second group is made of large plastid starch grains, providing increased transparency [4]. Studies have shown that the starch compose between 61.5 and 83.0% of grain. It is well known that the timely and adequate care for the plant not only increases its productivity but also has a positive effect on grain quality. Transparency decreases under conditions of excess moisture and in the absence of nitrogen [2].

The higher the moisture content of the soil, the lower the nitrogen deficiency, the lower the concentration of the soil solution, the lower the degree of transparency of the grain and vice versa, the more thick (saturated) the soil, the more transparency of grain[1].

Triticale grain core is of great importance because of its internal consistency, as it reflects the nature of grain during processing, as well as its consumer properties. The endosperm of triticale cereal is in the shape of full-bodied and lightly darkened glass (about 3/4 of the cut grain). These are said to be in the shape of half-bottle. Grains Transparency: The structure of a grain, that is, its structure can be bottle-shaped or floury. The grain size or lack of grain depends on the small size of the starch particles in it, the properties and protein distribution and the binding of starch with the protein. Grain is produced from particles of grain, much more than flour, but much energy is spent on grinding bottle-shaped grain. Grain flour is obtained from a soft grain, but less in protein than bottle-shaped grain.

When the flour is extracted from the transparent grain, the essence is easily separated and the flour has high baking properties. In the flour milling practice, three groups of transparency for cereals are established: up to 40%, 40 to 60% and more than 60%. In the formation of flour milling categories, the transparency is maintained at 50 ... 60%. Depending on the color of the grain, triticale is classified into several types of cereals (categorization of the grain into types and sub-types). The color of the Triticale grain depends on the pigments in the pigment layer of the seeds, the thickness of the kernel peel and the content of kernel. The color of the triticale variety of red grain varies from dark red to yellowish. When the kernel of the grain is in the bottle shape, it is usually dark. White bark of triticale does not contain pigments, as well as its color. The change in the color of the grain in the usual varieties indicates that the grain is grown or stored in adverse conditions or the breach of harvesting rule is violated. This affects the technological value of flour. Therefore, when checking the quality of grain, this indicator is taken into account separately.

As already been mentioned, the content of the kernel depends to some extent on the color of the triticale grain and is inextricably linked to the technological value of the grain. The consistency (composition) of the kernel of the triticale grain may be bottle-shaped, half bottle-shaped or flour shaped, depending on its appearance. The consistency of triticale grain kernels depends on the form of bonding of starch grains with protein in the grain. The total protein content in the bottle-shaped triticale grain is higher than that of the flour shaped triticale grain. The consistency of the triticale grain determines the properties of it in the process of its processing. That is, the amount of cereals obtained when milling bottle-shaped grain, the amount of milled product increases, which, in turn, ensures high efficiency in milling flour [8].

After detecting grain contamination, 100 pieces of the remaining grain is counted and tested in 2 different ways in order to identify the bottle shape of grain, using diaphragmatic light or cutting across the grain [3].

Determination of transparency through a diaphanascope is done as follows: 100 grains are placed in the diaphanascope cassette. Then, through the diaphanascope axis, the first line of grains is completely transparent and flour producing. Semiconductor grains are not considered. After reviewing the ten lines, the bottom panel of the counter shows the total percentage of transparency and the upper panel shows the amount of transparent grains. The overall transparency can also be determined by a cross-sectional cutting of 100 grains. Transparency, flour producing capability and partial transparency of each grain is identified. The overall transparency is calculated as a percentage of the following formula: $У= Т+\frac{Я}{2}$. Here: U-total transparency, %; T – amount of transparent kernels, pieces; *Я* – the amount of half transparent kernels, pieces. Findings are expressed in integers.

Determination of the total transparency of the triticale grain is based on the sum of transparent and partially bottle-shaped grains. The grain is considered transparent if its kernel is: a) completely transparent or b) a little flour shaped and (c) if no more than 1/4 of the grain is flour shaped. Grain is considered as flour producing when its kernel is: a) completely transparent or b) portion of the grain does not exceed 1/4 in the transparent part of the grain. Partially transparent cereals are grains that do not belong to the above mentioned groups, but have a clear, but not identical stain. It is known that transparent cereals are bottle shaped and flour shaped cereals grains don’t transmit light and they are dark.

Results of the study. The transparency level of triticale varieties grown in the Khorezm region is shown in Table 1.

Table 1

The degree of transparency of Triticale varieties

№	Variety	Transparent, %	Semi transparent,%	Not transparent,%	Degree of transparency, %
1	Krasnodar-99	86	10	4	91,0
2	Sardor	60	19	21	69,5
3	Svat	38	41	21	58,5
4	Sergey	56	25	19	68,5
5	Tikhon	56	18	26	65,0
6	Tuyimli	61	22	17	72,0
7	GulDU	56	28	16	70,0
8	Odyssey	63	21	16	73,5
9	Prag serebristy	48	36	16	66,0
10	Dustlik	40	33	27	56,5
11	Farkhad	46	32	22	62,0
12	Valentine 90	32	42	26	53,0

** Grain used for the analysis was grown using generally accepted agro-technical conditions in the region.*

Full transparency and general transparency of one winter wheat and eleven triticale varieties, presented in the table, were comparatively analyzed. According to it, the Triticale varieties showed no higher results than the control wheat (Krasnodar-99) on fully transparent grains. The highest results in the full transparency of Triticale varieties were shown by the varieties of Tikhon, Odyssey and Tuyimli.

Conclusion. Based on the laboratory experiments conducted, we came to the following conclusions:

- It can be seen that the transparency of wheat varieties grown under the same agro-technical conditions also varies. Grain transparency depends on the biological characteristics of the wheat variety;
- Harvested grain must be stored in a shady and dry place;

- In assessing the degree of transparency of wheat grain, it is necessary to take into account only the amount of fully transparent grains, not the overall transparency of the grain.

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REPRESENTATION OF MATHEMATICAL EXPRESSIONS IN WEB APPLICATIONS

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Annotatsiya: Ushbu maqola veb texnologiyaga asoslangan dasturlarda matematik ifodalarni tasvirlash usullariga bag’ishlangan. Matematik ifodalarni brauzerlarda ifodalashda JsMath, KaTeX va MathJax texnologiyalari imkoniyatlaridan foydalanish bo’yicha yo’riqnoma ishlab chiqilgan. MathJax texnologiyasi asosida har qanday murakkab tipdagi matematik ifodalarni tasvirlash uchun tuzilma va sintaksislarni qo’llanilishi keltirilgan.

Kalit so'zlar: web texnologiyalar, matematik ifodalar, JsMath, KaTeX, MathJax, standart matematik ifodalar, Matritsalar, RGB ranglar tizimi.

Abstract: This article focuses on how to describe mathematical expressions in web-based applications. Guidelines have been developed for the use of JsMath, KaTeX and advantages of MathJax technologies in the expression of mathematical expressions in browsers. MathJax technology utilizes structures and syntax to depict any complicated type of mathematical expression.

Keywords: web technologies, mathematical expressions, JsMath, KaTeX, MathJax, standard mathematical expressions, Matrices, RGB color system.

Аннотация: Эта статья посвящена описанию отображений математических выражений в веб-приложениях. Были разработаны рекомендации по использованию технологий JsMath, KaTeX и MathJax при отображений математических выражений в браузерах. В основе технологии MathJax были разработаны структура отображений сложных математических выражнний и был дан обзор возможностей и синтаксиса.

Ключевные слова: веб-технологии, математические выражения, JsMath, KaTeX, MathJax, стандартные математические выражения, матрицы, цветовая система RGB.

Introduction

Web applications are used in many industries around the world. The main reason for the development of web technologies is the expansion of the Internet. Web technologies have a very high potential for fast and easy delivery of the necessary information to users. It is known, that in applications based on web technologies, mathematical expressions are provided as images or objects. Many of the mathematical expressions used in this process increase the size of the program. As a result, the program runs slowly, and the user experiences inconvenience when using the network. In addition, when using mobile devices, it becomes difficult to read mathematical expressions in the form of images, due to the deterioration of image quality.

Literature review: Math libraries such as JsMath, KaTeX and MathJax have been widely used to introduce math formulas into e-documents and web pages. While they have the same purpose, these libraries differ in terms of syntax, performance and cross-platforming. In the work [1] authors demonstrate the use of jsMath within HTML web pages and advanced features for PDF. The research [10] shows techniques using MathJax to modify the representation of formulas for better comprehension in different scientific fields.

LaTeX is widely used in academia to prepare documents and for publication of scientific documents in many fields, including mathematics, physics, chemistry, bioinformatics, computer science, statistics, and economics. LaTeX is actually a high-level language that uses the power of TeX in an easier way for writers. In short, TeX handles the layout side and LaTeX handles the content side for document processing. In that respect, KaTeX and TeX are much more exhaustive, whereas KaTeX is a web port of LaTeX and only offers a few necessary features. Instead of using the complete language, we are interested in using only the features that enable the rendering of math fonts and symbols. This limited typesetting is much easier to perform and KaTeX docs it with incredible speed as well[13].

Research methodology. **About JsMath, KaTeX, and MathJax**

Currently, there are technologies such as JsMath, KaTeX, and MathJax that allow you to describe mathematical expressions for applications based on web technologies.

JsMath is a JavaScript technology that runs in most browsers that allows you to add mathematical expressions to HTML pages. This technology was created on March 14, 2004. There are currently three versions of this technology, the latest version of jsMath 3.6 was released on March 21, 2010. JsMath creates mathematical expressions using images and symbols. In an expression, only TeX characters are represented as images[1]. This description of the expression leads to a certain decrease in memory, and the disadvantage is that the quality of TeX characters deteriorates as the size of the expression increases.

Table-1. The view while increasing expression created on the technology of JsMath.

Initial view	Zoomed View
$\int_{\kappa}^{1} \left[(1-w^2)(\kappa^2-w^2)\right]^{-1/2}$	$\int_{\kappa}^{1} \left[(1-w^2)(\kappa^2-w^2)\right]^{-1/2}$

KaTeX is A JavaScript tool developed for fast and easy representation of Tex mathematical expressions on the Internet. To create Latex expressions, standard Donald Knuth characters[2] are used, which is represented synchronously. Due to the fact that Kotex gives the same results on all browsers using Node technology.js, you can pre-calculate the expression and send it in HTML format. Kotex is available in all major browsers, including Chrome, Safari, Firefox, Opera, Edge, and IE 9-11. It was initially developed by Khan Academy[3], and became one of the top five trending projects on GitHub in September 2014[4]. This technology only allows you to compose mathematical expressions using TeX characters, and does not perform any actions like enlarging, changing colors, etc. Hence the performance of KaTex technologies is considered significantly high[5]. In Fig. 1 presented the results of page processing with different complex math formulas which are supported by both KaTeX and MathJax libraries. Here, Process is the time of processing of math formulas by libraries, DomContent loaded is the time of web page structure loading, Fonts loaded is the time of fonts loading and Page Complete is the time of full render of the web page. Overall, the speed of KaTeX page processing comparing to MathJax is higher by 451 ms. The comparison was conducted with the help of the resource [11]. However, KaTeX does not support all the features MathJax currently provide [12].

Table-2. Representation of mathematical expressions using Latex.

KaTeX syntax	Math representation
`\left(\sum_{k=1}^n a_k b_k \right)^2 \leq \left( \sum_{k=1}^n a_k^2 \right)`	$\left(\sum_{k=1}^n a_k b_k\right)^2 \leq \left(\sum_{k=1}^n a_k^2\right)\left(\sum_{k=1}^n b_k^2\right)$

`\left( \sum_{k=1}^n b_k^2 \right)`	

MathJax is an open source JavaScript-based program that provides high-quality mathematical expressions in all modern browsers. To describe mathematical expressions, the program uses modern CSS and web fonts instead of MathJax or Flash technology. The program is compatible with all modern browsers and can describe to users any type of articles, mathematical expressions in books. Including giving high-quality expressions to smartphone users. Mathematical formulas expressed using this technology can be integrated with Word and LaTeX programs. For users with poor eyesight, MathJax allows you to zoom in on mathematical images without reducing the quality of expressions. It includes MathML, a language for mathematical notation, and AsciiMath, a set of mathematical notation[6]. The mathematical expression written in this web technology is available on all devices and does not require the user to install additional plug-ins and applications. MathJax uses a mathematical notation language to create a high-quality vector method that allows you to view expressions in full size, rather than on drawn images.

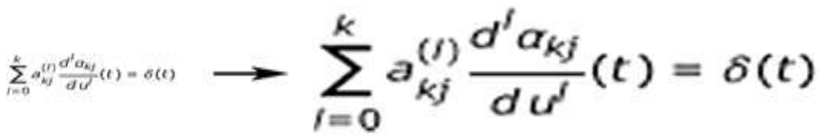


Fig. 1. Enlarged expression presented as an image.

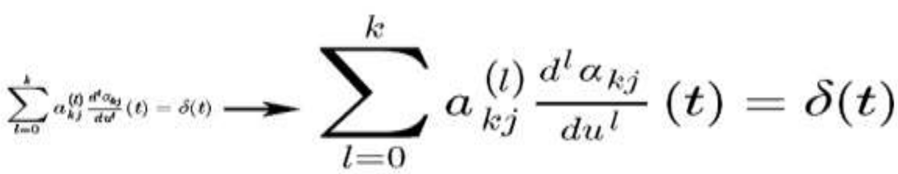


Fig. 2. Enlarged expression created using MathJax.

Main part

Among the programs mentioned above, we have learned that MathJax has a wide range of features for describing mathematical expressions. Based on this, we will consider using MathJax technology to describe mathematical expressions in web applications. To use the program, you need to do the following using its API services:

1. It is required to connect to the services API of MathJax technology and install the following links at the top of the HTML page.

```
<script
       src="https://polyfill.io/v3/polyfill.min.js?features=es6">
</script>
<script
       id="MathJax-script" async
       src="https://cdn.jsdelivr.net/npm/mathjax@3.0.1/es5/tex-
mml-chtml.js">
</script>
```

2. The MathJax configuration is performed at the top of the HTML page and looks like this:

```
<script>
    MathJax = {
        tex: {
            inlineMath: [['$', '$'], ['$$', '$$']]
        },
        svg: {
            fontCache: 'global'
        },
        menuSettings:{
            zoom : "Click"
        },
    };
</script>
```

This parameter is designed to make it easier for users to describe and write mathematical expressions. Mathematical formulas can be expressed without performing these settings.

3. Mathematical expressions are described in the visible part of the html code (body) of the page. This requires knowledge of the structure and syntax of mathematical expressions. In the next section, we will look at the rules for writing the structure and syntax of a mathematical expression. As an example, consider the following mathematical expression.

Table-3. Representation of a mathematical expression using MathJax technology.

MathJax syntax	Math representation
`$$T = \sqrt[5]{a} + \sqrt[4]{b \cdot \frac{a+b}{2b + ab}} \cdot(a^2 + b^2 + 2)$$`	$T = \sqrt[5]{a} + \sqrt[4]{b \cdot \frac{a+b}{2b+ab}} \cdot (a^2 + b^2 + 2)$

Expressions created using MathJax technology are based on text, not images, and this allows us to:

– Image quality does not deteriorate when increasing the size of expressions
– The ability to change expressions
– Search capability, due to the fact that expressions are saved in text form
– Small amount of memory, since the expression is not measured in pixels.
– Expressions written in MathJax technology can be represented on the screen using an HTML stream or extensible vector graphics (SVG)[7].

Syntactic description of mathematical expressions

It is possible to generate all mathematical expressions using MathJax technology. The following table shows packages that describe standard mathematical expressions.

Table-4. Representation of standard mathematical expressions

Name	Syntax	Result
Fraction	`\frac{n}{2}`	$\frac{n}{2}$
Square root	`\sqrt{x}`	$\sqrt{x}$

y-th root	`\sqrt[y]{x}`	$\sqrt[y]{x}$
Power	`{x}^{y}` `x^{{yz}^i}`	x^y x^{yz^i}
Subscript	`{x}_{y}`	x_y
Limit	`\lim_{x\to 0}{y}`	$\lim_{x\to 0} y$
Sigma	`\sum_{i=1}^{n}{i^2}`	$\sum_{i=1}^{n} i^2$
Pi constant	`\pi`	π
Sinus, Cosinus	`\sin{x} +\cos{y}`	$\sin x + \cos y$

Matrix representation

The matrix expression starts with the symbol `$$ \begin {matrix}` and ends with the symbol `\end {matrix} $$`. Each row of the matrix ends with the \\ symbol and each element is separated by the & symbol.

Table-5. Matrix representation

MathJax syntax	Math representation

`$$\begin{matrix}`
`1 & x & x^2 \\`
`1 & y & y^2 \\`
`1 & z & z^2 \\`
`\end{matrix}$$`
	$\begin{matrix} 1 & x & x^2 \\ 1 & y & y^2 \\ 1 & z & z^2 \end{matrix}$

`$$\begin{pmatrix}`
`1&2\\`
`3&4\\`
`\end{pmatrix}$$`
	$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

`$$\begin{bmatrix}`
`1&2\\`
`3&4\\`
`\end{bmatrix}$$`
	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

<table>
<tr><td></td><td></td></tr>
<tr><td>$$\begin{Bmatrix}
1&2\\
3&4\\
\end{Bmatrix}$$</td><td>$\begin{Bmatrix} 1 & 2 \\ 3 & 4 \end{Bmatrix}$</td></tr>
<tr><td>$$\begin{vmatrix}
1&2\\
3&4\\
\end{vmatrix}$$</td><td>$\begin{vmatrix} 1 & 2 \\ 3 & 4 \end{vmatrix}$</td></tr>
<tr><td>$$\begin{Vmatrix}
1&2\\
3&4\\
\end{Vmatrix}$$</td><td>$\begin{Vmatrix} 1 & 2 \\ 3 & 4 \end{Vmatrix}$</td></tr>
<tr><td>\begin{pmatrix}
1 & a_1 & a_1^2 & \cdots & a_1^n \\
1 & a_2 & a_2^2 & \cdots & a_2^n \\
\vdots & \vdots& \vdots & \ddots & \vdots \\
1 & a_m & a_m^2 & \cdots & a_m^n
\end{pmatrix}</td><td>$\begin{pmatrix} 1 & a_1 & a_1^2 & \cdots & a_1^n \\ 1 & a_2 & a_2^2 & \cdots & a_2^n \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 1 & a_m & a_m^2 & \cdots & a_m^n \end{pmatrix}$</td></tr>
<tr><td>$$ \left[
\begin{array}{cc|c}
1&2&3\\
4&5&6
\end{array}
\right] $$</td><td>$\left[\begin{array}{cc|c} 1 & 2 & 3 \\ 4 & 5 & 6 \end{array} \right]$</td></tr>
</table>

The expression of the conditional functions

The expression of conditional functions starts with the symbol $$ \ begin {case} and ends with the symbol \ end {case} $$. Each conditional function ends with the \ \ symbol, and the & symbol is written between each condition and action.

Table-6. The expression of the conditional functions

MathJax syntax	Math representation

`f(n) =`
`\begin{cases}`
`n/2,  & \text{if $n$ is even} \\`
`3n+1, & \text{if $n$ is odd}`
`\end{cases}`
	$f(n) = \begin{cases} n/2 & \text{if } n \text{ is even} \\ 3n+1 & \text{if } n \text{ is odd} \end{cases}$

Changing expression colors

More than 100 [8] keywords can be used to describe color expressions in MathJax. You can also use the RGB color system [9].

Table-7. Changing the colors of expressions

MathJax syntax	Expression representation

`$\color{green}{S}= \color{red}{`
`\displaystyle\sum_{i=1}^{x}}`
`\frac{\color{blue}{i^4+i^2+3}}`
`{\color{fuchsia}{\sqrt{i+e^i}}}$`
	$\color{green}{S}= \color{red}{\displaystyle\sum_{i=1}^{x}}\frac{\color{blue}{i^4+i^2+3}}{\color{fuchsia}{\sqrt{i+e^i}}}$

Experimental results.

In MathJax technology, there is an opportunity to increase an expression written in any size without increasing the page [10]. To do this, select the size of the mathematical expression in the settings section (fig. 3).

Fig. 3. Settings window

It is seen the enlarged result by selecting an expression (fig. 4).

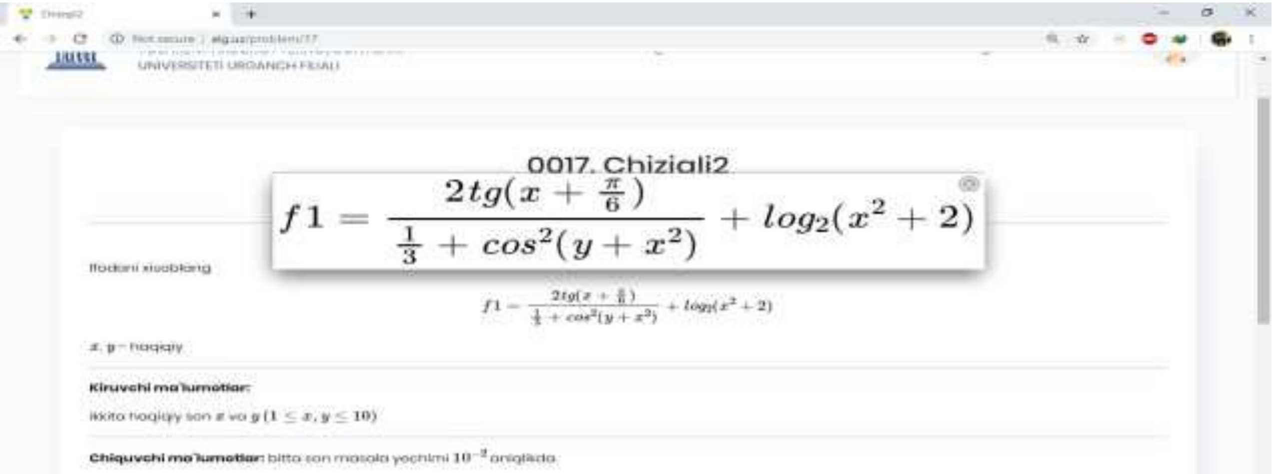


Fig. 4. Enlarged representation of the expression

Using expressions created in MathJax technology instead of graphical expressions in web systems can lead to significant changes in the system.

Table-8. The difference between the normal image and the expression made in MathJax.

1. With the increase in size of the viewing image quality is reduced. 2. The expression cannot be changed 3. Memory expression is ≈ 15360 bytes.	$f1 = \frac{2tg(x+\frac{\pi}{6})}{\frac{1}{3}+cos^2(y+x^2)} + log_2(x^2+2)$

4. The image can be erased as it is stored in a separate directory, not in the database.	
1. Since the expression is in the form of text, the image quality does not decrease when you zoom in. 2. The expression can be changed at will. 3. the amount of expression memory is ≈ 69 bytes. 4. The expression can be stored in the database along with other information. 5. Create expressions quickly and easily.	$f1 = \frac{2tg(x+\frac{\pi}{6})}{\frac{1}{3}+cos^2(y+x^2)} + log_2(x^2+2)$

The complex mathematical expression was created in MathJax technology and in the form of pictures.

$$\int_k^1 [(1-w^2)(k^2-w^2)]^{-1/2}dw = \frac{4}{(1+\sqrt{k})^2} K\left(\left(\frac{1-\sqrt{k}}{1+\sqrt{k}}\right)^2\right)$$

Fig. 5. The result generated in MathJax technology

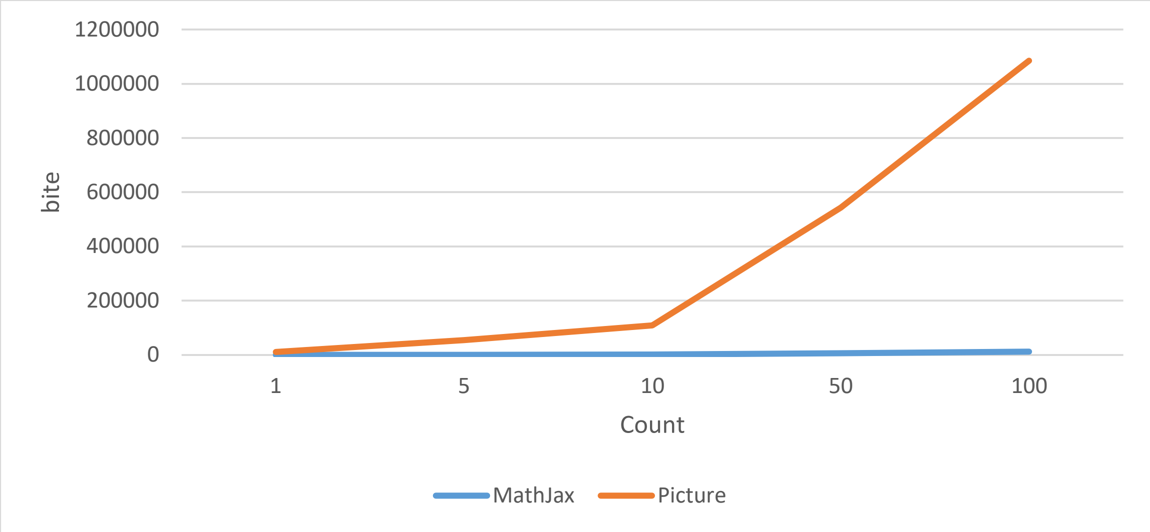
$$\int_k^1 [(1-w^2)(k^2-w^2)]^{-1/2}dw = \frac{4}{(1+\sqrt{k})^2} K\left(\left(\frac{1-\sqrt{k}}{1+\sqrt{k}}\right)^2\right)$$

Fig. 6. The result in the form of an expression image

The full size of results was calculated.

• MathJax expression size (122 bytes)

• Picture (956 x 126) (10854 bytes)



Conclusion

Currently, the Internet is evolving at a rapid pace, because data transmission over the Internet is very fast and convenient. This is why almost all articles, news, literature, tasks, exercises, etc. are available online. Among them is a large number of mathematical expressions. Creating such data can reveal some difficulties for the data Creator, so it is possible to create information in a simple and beautiful way, using MathJax technology is one of the modern and optimal solutions. Users will not only be able to view this information efficiently, but they will also be able to edit expressions.

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NUMERICAL SOLUTION OF VOLTERRA INTEGRAL EQUATION OF THE SECOND KIND.

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АННОТАЦИЯ. Назарий ва амалий жиҳатдан муҳим аҳамиятга эга бўлган физика, механика масалалари интеграл тенгламалар усули билан ечилади. Математик физика масалаларни ечишда интеграл тенгламаларидан фойдаланилади. Шунинг учун интеграл тенгламаларни ечимларини топишнинг аҳамяти каттадир, лекин ҳар доим ҳам интеграл тенгламаларнинг аналитик ечимларини топишиниг имконни йўқ. Шу сабабли интерал тенгламаларнинг сонли усулларини ўрганамиз. Ушбу мақолада МАТЛАБ дастури ёрдамида Волтерранинг иккинчи тур интеграл тенгламасининг сонли ечимлари топиш кўрсатилган. Натижалар аниқ ечим билан таққосланади.

Калит сўзлар: сонли усуллар, интеграл тенгламалар, Волтерра интеграл тенгламаси.

АННОТАЦИЯ. Задачи физики, механики теоретического и практического значения решаются методом интегральных уравнений. Математическая физика использует интегральные уравнения для решения задач. Поэтому важно найти решения интегральных уравнений. Но не всегда можно найти аналитические решения интегральных уравнений. Поэтому мы изучаем численные методы интегральных уравнений. В этой статье показано, как найти численное решение интегрального уравнения Вольтерры 2-го рода с помощью программы MATLAB.

Результаты сравниваются с точным решением с помощью компьютерного моделирования.

Ключевые слова: численные методы, интегральные уравнения, интегральные уравнения Вольтерра.

ABSTRACT. Problems of physics, mechanics of theoretical and practical importance are solved by the method of integral equations. Mathematical physics uses integral equations to solve problems. Therefore, it is important to find solutions to integral equations. But it is not always possible to find analytical solutions of integral equations. Thus, we study the numerical methods of integral equations. This paper shows how to find numerical solutions to Volterra equation of the second kind using the MATLAB program. The results are compared with the exact solution by using computer simulations.

Keywords: numerical methods, integral equations, Volterra equation.

Introduction

The linear Volterra equation of the second kind has the following form:

$$u(x)-\int_a^x K(x,s)u(s)ds = f(x) \qquad (1)$$

where $u(x)$ is an unknown function, $f(x)$ is a known function, and $K(x,s)$ is another known function of two variables, often called the kernel of the integral equation. The homogeneous equation (for $f\equiv 0$) has only a trivial solution, and the conditions for the existence of a solution of an inhomogeneous equation (1) are related to various restrictions on the kernel $K(x,s)$ and $f(x)$ ([1],[2]). In particular ([3]), a solution exists and is unique in the class of functions continuous on the interval $[a,\, b]$ if the kernel is continuous inside and on the sides of a triangle bounded by straight lines $s=a$, $x=b$, $x=s$ and the function f (x) is continuous on [a, b].

Equation (1) contains the integral operator

$$A\varphi(x)=\int_a^x K(x,s)\varphi(s)ds. \qquad (2)$$

It is clear that the values of the function $\psi(x)=A\varphi(x)$ for any x are determined by the values of function $\varphi(s)$ only for $s < x$. The integral operators characterized by this property are called Volterra operators and are widely used in the description of processes with aftereffect and feedback [1].

Research Methodology.

In the numerical solution of integral equations, the integrals entering into them are usually replaced by finite sums [4], [5], [6]. We calculate the integrals using a quadrature formula based on

$$X = \left\{ x_k = a + kh,\ h = \frac{b-a}{N},\ k = 0,1,\dots,N \right\}$$

grid. According to the quadrature method, the integral operators are replaced by the sums obtained using various quadrature formulas [7], [8], [9],[10]:

$$\int_a^b g(x)dx = \sum_{i=1}^{n} d_i g(x_i) + R. \tag{3}$$

Here $a \le x_1 < x_2 < \dots < x_n \le b$ — nodes, d_i, $i = 1, 2, \dots, n$ are weights and R is the approximation error of the quadrature formula.

To apply the quadrature method to the solution of equation (1), it is necessary to use the following equalities:

$$u(x_i) - \int_a^{x_i} K(x_i, s)u(s)ds = f(x_i),\ i = 1, 2, \dots, n. \tag{4}$$

They are obtained from the original equation for fixed values x_i of independent variable x. Grid nodes x_i can be selected in a special way or predefined if, for example, the right part $f(x)$ is specified by a table.

We take the values x_i as the nodes of the quadrature formula and use it to replace the integral in (4) with a finite sum. We get following system

$$u(x_i) - \sum_{j=1}^{i} d_j K(x_i, x_j)u(x_j) = f(x_i) + R_i,\ i = 1, 2, \dots, n, \tag{5}$$

where d_j are weights of the quadrature formula, R_j are approximation errors.

We set errors R_j small and discard them. We get a system of linear algebraic equations:

$$u(x_i)-\sum_{j=1}^{i} d_j K_{ij} u_j = f(x_i),\ i=1,2,...,n. \tag{6}$$

Here $u_i = u(x_i)$, $u_i = u(x_i)$, $u_i = u(x_i)$. The solution of the system of equations (6) gives approximate values of the desired function at nodes x_i. We bring the system (6) to the following form:

$$-\sum_{j=1}^{i-1} d_j K_{ij} u_j + (1-d_i K_{ii})u_i = f_i,\ i=1,2,...,\ n, \tag{7}$$

more details,

$$\begin{pmatrix} 1-d_1K_{11} & & & \\ -d_1K_{21} & 1-d_2K_{22} & & \\ \vdots & \vdots & \ddots & \\ -d_1K_{n1} & -d_2K_{n2} & \dots & 1-d_nK_{nn} \end{pmatrix} \begin{pmatrix} u_1 \\ u_2 \\ \vdots \\ u_n \end{pmatrix} = \begin{pmatrix} f_1 \\ f_2 \\ \vdots \\ f_n \end{pmatrix}. \tag{8}$$

We rewrite the system of linear algebraic equations (8) in the form

$$DU = F, \tag{9}$$

where

$$D = \begin{pmatrix} 1-d_1K(x_1,x_1) & & & \\ -d_1K(x_2,x_1) & 1-d_2K(x_2,x_2) & & \\ \vdots & \vdots & \ddots & \\ -d_1K(x_n,x_1) & -d_2K(x_n,x_2) & \dots & 1-d_nK(x_n,x_n) \end{pmatrix},$$

$$U = \left(u(x_1), u(x_2), ..., u(x_n)\right)^T,$$

$$F = \left(f(x_1), f(x_2), ..., f(x_n)\right)^T.$$

According to (9), the equality

$$U = D^{-1}F$$

The fulfillment of conditions $(1-d_iK_{ii}) \neq 0, i=1,2,...,n$ can be achieved by choosing the nodes of the quadrature formula and ensuring that the coefficients d_j are sufficiently small.

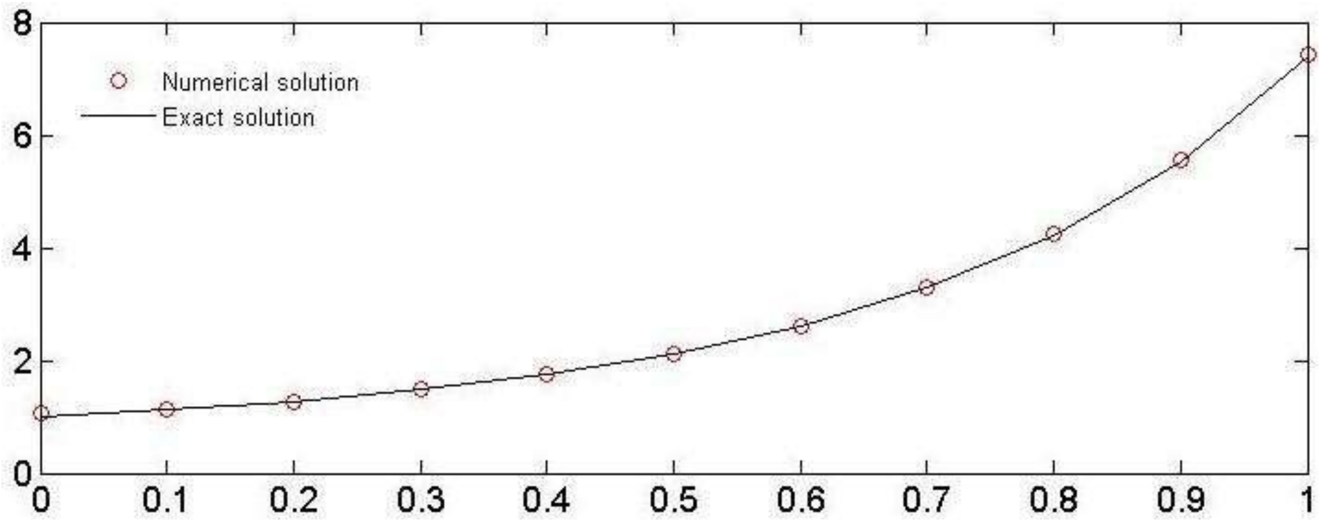
Analysis and results.

The values of all parameters are selected equal to $\{h=0.1,\ n=11\}$ for area $[0,1]$. Let $K(x,s)=e^{x^2-s^2}, f(x)=e^{x^2}$. In this case, according to the linear Volterra equation of the second kind (1), we obtain the exact solution in the form

$$u(x) = e^{x^2+x}.$$

Numerical and exact solutions of Volterra integral equation of the second kind is shown at n=11 as following.

x_i	**Numerical solution**	**Exact solution**
0.0	1.0526315789473684	1.0
0.1	1.1191691602040643	1.1162780704588713
0.2	1.2746479812240938	1.2712491503214047
0.3	1.4810532734217747	1.4769807938826427
0.4	1.7556461476306326	1.7506725002961012
0.5	2.1231915887628814	2.117000016612675
0.6	2.619553495173338	2.611696473423118
0.7	3.2972452268817323	3.2870812073831184
0.8	4.234100033501857	4.220695816996553
0.9	5.546983448652364	5.528961477624004
1.0	7.413759872283178	7.38905609893065



Conclusion.

In this work, we have used a numerical method to get approximate solution of the linear Volterra equation of the second kind. The analyzed examples illustrated the ability and reliability of the present method. The obtained solutions, in comparison with exact solutions admit a remarkable accuracy.

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