

**ZAMONAVIY FAN, TA'LIM VA TARBIYANING DOLZARB
MUAMMOLARI**

**АКТУАЛЬНЫЕ ВОПРОСЫ СОВРЕМЕННОЙ НАУКИ,
ОБРАЗОВАНИЯ И ВОСПИТАНИЯ**

**ACTUAL PROBLEMS OF MODERN SCIENCE,
EDUCATION AND TRAINING**





CONTENTS

Section 1. MODERN PROBLEMS OF PEDAGOGY AND PSYCHOLOGY.....4

BAROTOVA SHOXSANAM BAXTIYOR KIZI /// THEORY OF GIRLS' SOCIAL ACTIVITY DEVELOPMENT ON THE BASIS OF GENDER APPROACH IMPLEMENTATION.....4

ISMOILOVA SURMAXON AMANOVNA /// DEVELOPING STUDENTS' LOGICAL THINKING ABILITIES USING INTERACTIVE METHODS IN TEACHING MOTHER TONGUE.....8

KADIROVA NILUFAR MIRZAAKBAROVNA /// SPECIFIC FEATURES OF THE FORMATION OF CREATIVE APPROACHES IN STUDENTS.....12

MUKHAMEDOVA GULCHEHRA RIXSIBAYEVNA, PARPIYEVA NODIRA TULKUNOVNA, GOIBNAZAROVA GULNORA NORMATOVNA, LATIPOVA ALMIRA RAVILYEVNA /// IMPROVING THE METHODS OF TEACHING MATHEMATICS IN UZBEKISTAN IS A REQUIREMENT OF THE PERIOD.....16

SAGDULLAEVA LAURA KHAKIMJANOVNA /// PSYCHOLOGICAL FACTORS OF SUCCESSFUL STUDY OF UNIVERSITY STUDENTS.....20

ZAYNOBIDDINOV DILSHODBEK QOBILOVICH /// PROBLEMS OF PEDAGOGY, OF PHYSICAL EDUCATION.....24

MASHARIPOV AZAMAT KOMULJONOVICH /// THE ROLE OF TOURIST TRAVEL IN INCREASING THE LEVEL OF PHYSICAL FITNESS OF STUDENTS AND ITS IMPACT ON SPECIAL TESTS.....29

GULMURODOV ABBOS GULMUROD OGLU /// NATIONAL AND FOREIGN EXPERIENCE IN TRAINING HIGHLY QUALIFIED PERSONNEL.....35

BAXRANOVA UMIDA ISLOMOVNA /// METHODOLOGY OF USING VIRTUAL LABORATORIES IN TEACHING SUBJECTS OF THE DEPARTMENT OF ELECTROMAGNETICS OF PHYSICS.....40

Section 2. MODERN PROBLEMS OF PHILOLOGY AND LINGUISTICS.....46

CHI DAOJIA /// THE CONTRASTIVE ANALYSIS OF CHINESE PREPOSITIONS "GĚI, DUÌ" AND CORRESPONDING UZBEK AUXILIARIES/AFFIXES.....46

RAJABOV FERUZ UMARKULOVICH /// LINGUOPOETIC PROPERTIES OF ANTHROPONYMS IN THE ARTISTIC TEXT (ON THE EXAMPLE OF "BOBURNOMA").....53

KHUJANIYAZOVA GUZAL YULDASHEVNA, KHAJIYEVA DILFUZA ADAMBAEVNA, BOZOROVA OZODA XUSAINOVNA /// CHARACTERISTICS OF FOREIGN LANGUAGE COMPETENCE IN THE



**STRUCTURE PROFESSIONAL COMPETENCE OF THE FUTURE
TEACHER OF VOCATIONAL EDUCATION.....57**

Section 3. MODERN PROBLEMS OF TOURISM AND ECONOMICS.....62

**SALAEV SANATBEK KOMILOVICH, SADOQAT RAXIMOVA /// THE
ROLE OF MEDICAL TOURISM IN THE DEVELOPMENT OF THE
MARKET OF MEDICAL SERVICES.....62**

**KONSTANTIN IVANOVICH KURPAYANIDI, ILYOSOV ASRORJON
AHRORJON UGLI /// PROSPECTS FOR THE USE OF MECHANISMS
BASED ON THE CLUSTER APPROACH IN THE DEVELOPMENT OF
EXPORTS OF INDUSTRIAL PRODUCTS67**

**KHOLMUROTOV FOZIL SARIBAEVICH /// FACTOR ANALYSIS OF
PRODUCTION PROCESSES IN AGRICULTURE SECTOR OF THE
REGION.....73**

Section 4. MODERN PROBLEMS OF TECHNICAL SCIENCES.....80

**KURAMBAEV SHERZOD RAIMBERGANOVICH, BAKHTIYAROV
SARDORBЕК BAKHTIYAROVICH, KHUSAINOVA MUBORAK
SAPARBAYEVNA, KHUJAEV SARVAR AZAD OG'LI, BAKHTIYAROVA
KAMOLA SARDORBЕК KIZI /// LIPID MODIFICATION WITH THE USE
OF VEGETABLE AND ANIMAL RAW MATERIALS BY BLENDED
METHOD.....80**

**ESHMURADOV DILSHOD ELMURADOVICH, ELMURADOV
TEMURMALIK DILSHOD UGLI, SULAIMONOV ANVAR ALAMOVICH ///
ISSUES OF AIR SPACE INTENSITY IN THE REPUBLIC OF
UZBEKISTAN.....90**

Section 5. ACTUAL PROBLEMS OF NATURAL SCIENCES.....95

**AZHIEV ALISHER /// PROSPECTS FOR USING THE GENE POOL OF WILD
RELATIVES OF CULTIVATED PLANTS OF THE KARAKALPAK
USTYURT FLORA.....95**

**AZHIEV ALISHER /// FORMS OF EXISTENCE OF WILD RELATIVES OF
CULTIVATED PLANTS IN THE FLORA OF KARAKALPAKSTAN AND
KHOREZM.....101**

UDK: 371.2; 53**THEORY OF GIRLS' SOCIAL ACTIVITY DEVELOPMENT ON THE BASIS OF GENDER APPROACH IMPLEMENTATION**

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Аннотация. Жамиятда ёшлар ижтимоий фаоллигини ривожлантириш давр талаби эканлигидан келиб чиқиб, ушбу мақолада гендер ёндашув асосида талаба-қизлар ижтимоий фаоллигини оширишнинг психологик-педагогик жиҳатлари ёритилган.

Калит сўзлар: гендер ёндашув, механизмлар, анъанавий қадриятлар, ижтимоий фаоллик, педагогик-психологик адаптация, ижтимоий таснифлаш.

Аннотация. Развитие повышения социальной активности молодёжи в обществе является требованием сегодняшнего времени. В данной статье освещены психологически -педагогические стороны социальной активности студентов - девушек на основе гендерного подхода.

Ключевые слова: гендерный подход, механизмы, традиционные моральные ценности, социальная активность, педагогически-психологическая адаптация, социальная классификация.

Abstract. The social activity of young people's development in society is requirement of a nowadays. There is lightened in the article the psycho-pedagogical aspects of students-girls social activity from the point of view of gender approach.

Key words: gender perspective, mechanisms, traditions, social activity, psycho-pedagogical adaptation, social characteristics.

Introduction. Only in some countries of the CIS region, in particular in Uzbekistan and Kazakhstan, new mechanisms have been created for universal human rights, including women's rights, such as the Ombudsman's Office and the Institute for Children's Affairs. At the same time, expanding the powers of such institutions and ensuring their effectiveness has become one of the most pressing issues of our time.

After the collapse of the official communist ideology, the space created in its place was filled with traditional values and traditions. The practice of treating women as mothers and wives in the traditional way has become dominant at all levels. Such an operation had a significant impact on the choice of women, especially in rural areas.[6] Even today, discriminatory attitudes, customs, and beliefs are not uncommon. Today the level of legal culture of the population is growing. The situation is exacerbated by the fact that educated women do not know their rights or how to exercise them. Positive work is being done in our country to eliminate these shortcomings, to turn women into equal, equal creators of civil society based on new, democratic principles.

Literature review. The concept of gender as a category of socio-economic analysis is a novelty for the CIS region. Currently, in Russia, Kazakhstan, Kyrgyzstan, Ukraine and other republics, work is underway to increase the social activity of university students on the basis of gender studies.

Conducting research on the theory and practice of developing the social activity of students in the universities of the country on the basis of gender orientation is based on the latest analytical achievements in the world of social activity of specialists.[11]

In this regard, research on gender orientation has further developed the comprehensive, world-class training of students and with their help will further enhance the spiritual and material well-being of women in our country.

The formation of women's social activity in society has formed the basis of the scientific directions of our scholars in the history of pedagogy, such as the Eastern thinkers Abu Nasr Farobi, Alisher Navoi, Abdullah Avloni, Elbek (Mashrik Yunusov).[8]

In modern conditions, it is obvious that research on the formation of women's social activity in society is carried out in philosophical, social, psychological and economic areas.[2] Their philosophical and methodological aspects are Simona de Beauvoir, R. Howe, J. Lorber, K. West and D. Zimmermann, E. Kuchkina, V. Fesenko, in the social sphere VM Khvostov, O. Voronina, B. Friedan, E. Zdravomislova, on the basis of the humanitarian approach, has been deeply analyzed in the scientific works, monographs and textbooks of such scientists as N. Wolf, K. Mishar-Marshall, K. Ribery, G. Moore.

M.Kuronov, S.Nishonova, O.Musurmonova, N.Egamberdieva, E.Turdikulov, A.Zunnunov, S.Ochil, J.Hasanbaev, U.Makhkamov, R.Safarova are among the pedagogical scientists who are actively involved in the scientific research of women in the society.[10] Attention is paid to some features of the formation.

The problem of developing the social activity of female students in society in Uzbekistan has not been studied in detail, but some studies have focused on certain aspects of the problem. From Uzbek scientists N. Egamberdieva (pedagogical bases of development of professional and social activity of youth), M. Tilavova (pedagogical bases of formation of general labor skills in students on the basis of gender equality and differences); O. from Russian scientists. Воронина, Т. Клименкова, М. Malisheva (systematization and ordering of existing views on the concept of gender); foreign scholars Ellen Six, Kate Millet (historical, psychological, sexual, and racial experience of women), r. Hofning (Emergence and Development of Gender Studies), K. Kest and D. Zimmermann (Gender Creation), J.W. The Lorberts (as a gender social category) have explored some aspects of this issue in their scientific work from the point of view of research objects.[3]

Based on world operations in modern conditions, this preliminary research was supported by the United Nations Development Program, UNESCO, and the Open Society Institute. In particular, the development of social activity of students, their transformation into equal creators of our society is one of the most pressing issues of today.

Research Methodology. In modern society, a social analysis of this concept is carried out consistently and effectively. The concept of "gender" is primarily embodied

in the social modeling or organization of gender. There is a system of normative behaviors in society that require certain gender roles; respectively, in this society there is a series of perceptions about the characteristics of "men" and "women." Gender is a set of characteristics that are not determined by nature, but are endowed by social events.[4] Gender is the cultural mask of gender, our perception of gender within our own socio-cultural perceptions. Moreover, gender is only a gender, that is, something that forms gender as a result of its socialization. The definition, identification and development of the social activity of students in modern society is studied on the basis of social, political, economic and humanitarian relations based on gender orientation. [7]

The theory and practice of the development of social activity of students on the basis of gender orientation in the system of higher education are covered with philosophical and social features, as well as pedagogical and psychological features. The focus of this analysis on gender has been developed from the perspective of the study of gender symbolism. In particular, ethnographers have focused on forms of gender symbolism in the study of family and marriage ceremonies, the upbringing of children, and so on, emphasizing that mass gender stratification is the only way to ensure the existence of humanity through gender symbolism. The contrasting representation of the symbols of masculinity and femininity plays a classifying role in the formation of the world model. The contradiction between masculinity and femininity requires the essence of creativity, the existence of the world and the active, creative (creative) cooperation of the opposition, which is its guarantor.

Analysis and results. Gender similarity serves as a psychological and pedagogical adaptation of the characteristics of men and women, as a result of the process of cooperation between "I" and others. The study of social sciences and humanities by students in higher education helps to develop the social activity of students on the basis of gender orientation.[1]

The idea of national independence, the foundations of spirituality, sociology, cultural studies, history of Uzbekistan, history of pedagogy, theology, which are taught in the system of higher education, allow students to increase their social activity and adapt to society. At present, the educational value of social institutions such as family, education, religion, culture in the development of social activity of students increases the effectiveness of this process. Gender differences and gender stratification in the system of higher education are justified from a social and pedagogical point of view. J. Stanley put forward a scientific theory of gender differences. Gender differentiation is a process in which biological differences between men and women have a social meaning and are used as a means of social classification.[5]

The role of gender is the social expectations that come from perceptions around gender, as well as behaviors in the form of speech, behavior, clothing, and gestures. The ideas of men and women, according to people, are mutually exclusive, and in some cultures role-specific behaviors may be polarized: weakness - feminine, activism - masculine. Guidelines for gender-specific behavior are particularly evident in the division of labor into male and female labor.

At the present time, the philosophical, social, pedagogical and philosophical features of the training of girls with a well-developed, broad outlook on the basis of

specialization and the further development of the spiritual and material well-being of women in our country with their help.[8]

Conclusion/Recommendations. Theories of the dynamics of political and social participation of students in society in the modern system of higher education, the activity in the acquisition of scientific competence, the level of employment in the labor market, the historical period of activity based on valuable approaches to marriage. The development of students' social activity on the basis of gender identity and respect for the individual today serves to raise the level of education and the spiritual level of young people.

In conclusion:

- Development of scientific bases and technologies for the development of social activity of students in higher education on the basis of research;
- It is necessary to create a model for ensuring gender differences among students through the study and analysis of the pedagogical conditions for the development of social activity of students on the basis of gender orientation in higher education.

References:

- [1]. National training program. // Bulletin of the Oliy Majlis of the Republic of Uzbekistan, 1997, 11-12-sleep, Article 295.
- [2]. Boboeva Z., Usmanova Z. Chrestomathy of the course of basics of gender research. - T.: "Uzbekistan", 2003. –276-p.
- [3]. Big explanatory sociological dictionary. COLLINS. T. 1. - M.: "AST", 1991. -C. 182.
- [4]. Shaburova OV Gender. // Modern philosophical dictionary. / Under total. ed. Doctor of Philosophy, Professor V.E. Kemerova. - London, Frankfurt-am-Main, Paris, Luxembourg, Moscow, Minsk: "Panprint", 1998. –P. 180-183.
- [5]. Bock G. History, history of women, history of sexes. // "Woman, man, family", 1994, №6. –C. 170-200.
- [6]. Hof R. The emergence and development of gender studies. / Gender, tender, culture. // Ed. E. Shore and K. Haider. - M.: 1999. –S. 23-53.
- [7]. Report on the Millennium Development Goals. Uzbekistan 2006. UN Office in Uzbekistan. Tashkent.
- [8]. Uzbekistan-Beijing Platform and Action Program (PP PD), UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), Millennium Development Goals Center for Civil Initiatives. Tashkent.
- [9]. Goziev E.G., Mamedov K.Q. Occupational psychology. - T.: «Uzbekistan», 2003.
- [10]. Alimkhodjaeva S.N., Haydarov F.N. A set of methods of psychological diagnosis, part 2. Study guide. - T., TDPU. 2009.
- [11]. Snayder D. Prakticheskaya psychology for teenagers, or how to find your place in life. - M: TK Velbi, izd-vo «Prospekt

UDK : 330.567.28**DEVELOPING STUDENTS 'LOGICAL THINKING ABILITIES USING INTERACTIVE METHODS IN TEACHING MOTHER TONGUE****Ismoilova Surmaxon Amanovna****Andijan State University****Faculty of Pedagogy****Department of Methods of Primary****Education, senior teacher****E-mail: btm.is.69@mail.ru**

Annotatsiya. Maqolada ona tili dars mashg'ulotlarida interfaol usullardan foydalanish xususida so'z boradi. Ayniqsa, ona tili darslarini olib borishda «Keys-stadi», «Pantomimo», «Bir jumladan iborat hikoya» va «Qaynoq koptokcha» kabi usullardan foydalanish mumkinligi batafsil yoritiladi.

Аннотация. В статье рассматривается использование интерактивных методов на уроках родного языка. В частности, подробно описано использование таких приемов, как «Ключи-стади», «Пантомима», «Одноэтажный рассказ» и «Горячий мяч» при проведении уроков родного языка.

Annotation. The article discusses the use of interactive methods in native language lessons. In particular, the use of such methods as "Keys-stadi", "Pantomime", "One-story story" and "Hot ball" in the conduct of native language lessons is described in detail. а в других языковых группах.

Kalit so'zlar: interfaol usullar, ona tili, tafakkur, muloqot, metod, keys-stadi, pantomimo.

Ключевые слова: интерактивные методы, родной язык, мышление, общение, метод, тематическое исследование, keys-study, пантомима.

Key words: interactive methods, native language, thinking, communication, method, case study, pantomime.

Introduction. The growing need for human capital in the world makes it possible to consider the categories of "mind and logic" as a necessary measure that monitors the various cultural, educational and socio-economic relations and evaluates the activities of young people. The ability of students to think logically and effectively in the development of students' intelligence and outlook in the world's leading educational institutions through the teaching of native languages, integrated interactive learning technologies, the introduction of virtual and experimental projects.

Analyzing the concept of "mind" as a broad concept in the world, directing students to logical thinking in the teaching of the native language, expanding the content of the competence requirements of education to the level of logical thinking on the basis of knowledge, criteria and characteristics.[6]

As a result of consistent reforms in our country to create conditions for the full development and prosperity of man, the realization of his interests, to raise the quality and effectiveness of education to a new level, students in general secondary schools are able to think in the educational process.

There is also a need to expand the content of technologies for the development of logical thinking skills of students in mother tongue teaching. The Action Strategy for

the Further Development of the Republic of Uzbekistan calls for "further improvement of the system of continuing education, capacity building of quality educational services, support and promotion of the creative and intellectual potential of the younger generation." It is important to analyze, define the criteria of logical thinking, to develop recommendations for the intellectual development of students and the acquisition of skills in accordance with their abilities and inclinations.

Literature review. It is difficult to imagine today's educational process without interactive methods. The interactive methods used in the teaching process should focus on the main goal of the subject taught in certain groups. Otherwise, the interactive method used will be irrelevant.[8] The method chosen by the teacher is to ensure that the child is active during the lesson, to communicate properly with adults and peers, to understand the content of new words and phrases that are present in the language but unfamiliar to the student, to remember, it is necessary to form the skills to try to apply in the communication process.

I. Y. Lerner, one of the well-known didactic scholars, wrote "Development of thinking skills" on the formation of creative thinking skills in students. (M. Prosvesheniye, 1982): "Does thinking develop with the acquisition of knowledge?" and answers "No" to this question. In the chain of knowledge, if there are no connections - connections, comparisons, cause-and-effect relationships, it cannot give thinking, that is, the person who has been brought up. There are different means, ways and means of acquiring knowledge, imparting knowledge to the learner, instilling in him / her skills, abilities, habits and shaping his / her nature [3,39].

Research Methodology. The use of a number of interactive methods in the teaching of mother tongue serves to increase the effectiveness of the lesson. For example, the case-study method.

"Case-study" is an English word ("case" - a real situation, event, "study" - to study, analyze) a method aimed at the study of specific situations, the implementation of teaching based on analysis is calculated.

In native language classes, texts that are primarily educational are selected for the case study. For example:

One day, Amir Temur attacked one of the distant tribes. Naturally, Timur's large and well-armed army easily conquered the tribe. They brought the chief of the tribe to the master. To Amir Temur, the chief of the tribe:

"O Temur, if you are an executioner, take our lives, if you are a butcher, kill us, if you have been,"

Keys assignments:

1. Continue the text, replacing the dots with the appropriate words.
2. Select the appropriate title for the completed text.
3. Analyze the text according to the topic of the lesson. For example, if the topic of "Morphemic Analysis" is being studied according to the plan, the text will be subjected to morphemic analysis.[4]

Students can continue this case from their own perspective, relate it to the present, and conclude.

Answer to the task:

"O Timur, if you are an executioner, take our lives. If you are a butcher, kill us. If you are a just king, show us your justice!"

When the great commander heard this, he thought. After all, isn't the motto "Power is in justice" his lifelong goal? Timur and his whole army left the tribe without any spoils. The elder's ingenuity and wisdom helped the tribe survive.

The title is "Wise Elder"; It could be in the form of a "just king."

Today, in world literature, as well as in Uzbek literature, there is an experiment of writing short stories that can affect anyone, consisting of only a few words. Such stories serve to sharpen thinking, to expand the scope of independent thinking of students.[9]

"I'm always happy to have an extra strap when I buy new shoes." This short story is thought-provoking. The first thing that comes to mind is a grateful person, even if he doesn't have one leg. We can call this story *"Thanksgiving"*. Students reinforce both their educational and theoretical knowledge by analyzing such stories.

Hizr asked the young man, "Let my feet go!" "She was expecting something in return, but she said, 'I can't walk.'

Like, "He hit the boy in his car and ran away, and in the evening he put his son in the grave."

Analysis and results. Students will be given a task to analyze the text phonetically, lexically, morphemically, morphologically and syntactically.[10]

Each language has its own synonyms, antonyms, homonyms and paronyms. The next task is based on these words. Usually when we say one of the synonyms or antonyms, the other comes to mind.[5] This task is called "Hot Ball" and the teacher throws the ball to any student by saying any word from the synonymous or antonymous line. Without thinking, the student grabs the ball and throws it back to the teacher. A student who answers incorrectly or holds the ball for a long period of time is considered "burned". He is automatically disqualified. For example:

Relevant - relevant before - after

It's just a trick - it's simple

Ashula - song high - low

Asking questions is the answer

Brave - bold positive - negative

The world - the world is objective - subjective

Help - help heat - cool

Intelligent - intelligent cry - laugh

To seek is to be humble

Ahil - to raise peace - to bring down

Strength - to lose weight - to gain weight

A worthy applause is a curse

Light is black and white

Food - food long - close

Polite - to fly politely - to land

Pedestrian - pedestrian sad - happy

True - ugly - beautiful

Row - row new - old

In the final stage of the lesson in the native language classes, you can play the game "Pantomime". Students are divided into 3 groups. One person from each group is taken to the board. [6] They are given a list of different words. They should explain the words to the rest of the group through gestures and actions without saying a word:

Tumor ostrich

Swing jewelry triangle

Baker computer

Strong manners and dexterity

The short idiot is sad

Spacious beautiful delight

Call write write laugh

The cockroach smells bitter

The lame rich giant

Beggar book sun

Stop the golden stone

Rabbit belt rice

The sky is the limit

Nightingale cloud wind

You will be given 1 minute to complete the task.

During the condition, the group members write down the words they find in their notebooks. They can analyze words phonetically, morphemically, lexically, morphologically, and syntactically, depending on the topic.

Conclusion/Recommendations. So a number of interactive methods can be used effectively in mother tongue lessons. It is important to focus on developing students' thinking and independent work skills.

References:

- [1]. Hojiev A. Explanatory dictionary of synonyms of the native language. - Tashkent: Teacher, 1974. - 308 pages.
- [2]. Rakhmatullayev Sh., Mamatov N., Shukurov R. Explanatory dictionary of antonyms of the native language. - Tashkent: Teacher, 1989. - 232 pages.
- [3]. Yuldasheva D. The gradual development of the purpose of the native language. - Tashkent: National Encyclopedia of Uzbekistan, 2013. - 168 pages.
- [4]. Azizxodjaeva N.N. Pedagogical technologies and pedagogical skills. - T .:, 2003. - 192 p.
- [5]. Ishmuhamedov R., Abdukodirov A., Pardayev A. Innovative technologies in education. - T .: Talent Fund, 2008. - 180 p.
- [6]. Ishmuhamedov R.J., Yuldashev M. Innovative pedagogical technologies in education and upbringing. - T .: Nihol, 2013, 2016.
- [7]. Karimov B. Literary methodology (textbook) - T .: Editor, 2011.
- [8]. Kadyrov P. Til va el. - T .: Gafur Gulom Publishing House, 2005.
- [9]. Mahmudov N. In search of ways of comprehensive study of language // "Uzbek language and literature" magazine, 2012. № 5.
- [10]. Xojiyev A. Glossary of Linguistic Terms, Tashkent, 1985.

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SPECIFIC FEATURES OF THE FORMATION OF CREATIVE APPROACHES IN STUDENTS

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Annotatsiya: Maqolada shaxsning kreativligi, kreativlik potentsiali, o'quvchilarda kreativ yondashuvlarni shakllantirishning o'ziga xos xususiyatlari, texnologiya fani darslarida o'quvchilarda kreativlik sifatlarini rivojlantirish bosqichlari haqida ilmiy farazlar bayon etilgan.

Kalit so'zlar: shaxsning kreativligi, kreativ layoqat, kreativ faollik, kreativ potentsial, ijodiy qobiliyat, shaxsning kreativlik potentsiali. **Аннотация:** В статье описаны научные гипотезы о креативности личности, творческом потенциале, особенностях формирования творческих подходов у студентов, этапах развития творческих качеств у студентов на технологических занятиях.

Ключевые слова: творчество человека, творческие способности, творческая деятельность, творческий потенциал, творческие способности, творческий потенциал человека. **Abstract:** The article describes scientific hypotheses about the creative abilities of an individual, creative potential, the peculiarities of the formation of creative approaches in students, the stages of development of creative qualities in students in technological classes.

Key words: and concepts: human creativity, creativity, creative activity, creativity, creativity, human creativity.

Introduction. Today, the problem of developing technologies for the formation of creative approaches among students is one of the most multifaceted pedagogical and psychological social tasks, one of the most urgent tasks of social development and progress of society.

We can say that creativity is a striving for creativity, a creative approach to life, a constant critical look and analysis.[6] On the basis of modern psychological and pedagogical dictionaries, human creativity can be characterized as the level of his thoughts, feelings, communication, a specific type of activity, a creative approach, knowledge. A person's creativity is his or her ability to find different, unique ideas in tough, limited, or lightly constrained environments. Analysis of scientific literature allows us to identify the following interrelated components of creativity:

1. Intelligent.
2. Ethical (self-government).
3. Motivational (targeted).

4. Emotional (feeling aroused).

Creativity consists of the following interrelated parts:

1. Creative goal.
2. Creative striving.
3. Creative construction.
4. Creative direction.
5. Creative expressive act.
6. Creative self-government.
7. Creative activity.
8. The level of creative aspirations.

Literature review. Human creative abilities are manifested and developed in his creative activity.[1] Rogers asks one of the most important questions for a creative person in his book “Creativity Is Self-Enhancement”: “Am I happy with my lifestyle or am I interpreting it correctly? A person's answer to this question shows how he strives for professional and creative heights, strives for complete creative self-expression”. Thus, creativity manifests itself in the creative activity of a person in his creative aspirations, creative abilities, creative goals, direction and self-control, and his activity, self-control means that he becomes a mature, growing person.

Human creativity is reflected as a common trait. This is the first condition and result of creative activity. [7] This quality represents a person's possession and willingness to show a little. In addition, on the basis of creative potential, the individual abilities, natural and social potential of each specialist are manifested as a whole.

Research Methodology. Creativity is closely related to learning-oriented creativity. Unlike traditional thinking, human creativity manifests itself in the following:

- speed and flexibility of thinking;
- the ability to create new ideas;
- not thinking the same way;
- originality;
- initiative;
- tolerance for uncertainty.

The creative potential of a person includes the following components:

Purposeful motivational approach (creative activity is appreciated and is reflected in the interests, motives, aspirations of the individual to organize the activity).

A meaningful approach (reflects knowledge, skills and competencies of a personal, psychological, special and innovative nature).

A quick approach (represents a certain intellectual and logical thinking, as well as practical (special, technical, technological) methods of activity).

Reflexive assessment (it presupposes an understanding of the essence of personal creative activity, introspection and self-esteem).[4]

The implementation of a variety of creative activities, creative and innovative work of a person further develops his creative potential. In the result a person:

- gets used to creative thinking;
- thoroughly masters the skills of creative search;

- independently reviews personal or collegial achievements and opportunities to benefit from best practices;
- is actively involved in the implementation of creative innovative activities carried out by the team.

The self-development and self-expression of each person is directly related to his creative abilities. Usually, the ability of people to be creative is provided by the desire to solve problems of their professional activities and achieve creative cooperation.[9]

Analysis and results. When assessing the effectiveness of professional activity, it is important to assess the level of a person's creativity - creative potential. The criteria for determining the level of a person's creative potential are:

- organization;
- creative activity;
- Creative skills;
- search capability.

These criteria allow us to determine the creative potential of a person on three levels:

1. High level. Regularly promotes various initiatives, consistently demonstrates creative abilities, is creatively very active, inquisitive.

2. Middle. Sometimes puts forward this or that initiative, creativity is not regular, but manifests himself/herself, tries to be creatively active and inquisitive.[2]

3. Low degree. Although insufficiently grounded, he/she is inclined to initiative, does not show sufficient creative abilities, does not strive for curiosity.

People can't be creative on their own. Their creative abilities are formed over a certain period of time through constant participation and learning in their work activities, work on themselves, and they gradually improve and develop. As with any professional, during the school years the foundation is laid for the creative abilities of students with a varied future career and consistently develops in the organization of professional activity.[6]

In order to teach students to think creative, to form their creative thinking, first of all, the teacher should be a creative person. If he does not have some creative qualities, how can he induce students think creatively?

While the teacher will be less ingenious, students will receive the same child. The point is not, creative teacher or not, but to organize lessons in the spirit of creativity, try new ideas in the learning process.[10] In the lessons, the teacher moves in the following 4 directions according to the creative road map, and the actions in them are signs reflecting the work of students:

- to demonstrate the skills of creative thinking;
- to be able to use strategies that prompted students to study objects with interest;
- innovative approach and creative approach to solving various tasks;
- expected result.

Conclusion/Recommendations. Based on the analysis and generalization of the idea set out, we tried to highlight the stages of the development of creative qualities in students of technological classes. [5] At the same time, we concluded that the

development of creative qualities of students on technological classes will be effective in four stages, this is:

Step 1. Formation of creative thinking skills. The main emphasis is on the formation of creative thinking skills, focusing on students' abilities to express the essence of creative actions through questions.

Step 2. Develop the practical skills of creative movement. Teachers of technological education are used in the lessons demonstration methods and techniques for the formation and development of students in students creative movements.

Step 3. Organization of creative activity processes. This stage encourages students to think creatively in the process of solving problems and promoting innovative ideas. Although creative methods and techniques are not actively used in these processes, creative thinking occurs.

Step 4. Use of creative products (development). At this stage, the teacher may ask the students to create a presentation on the sewing tissue on sewing machines using Power Point or multimedia. During the preparation of the presentation, students are actively developing creative thinking skills. [3]

Students can demonstrate their creative thinking in a comfortable setting. If students have a sense of fear of failure, a distortion of distortion or criticism, they will not be able to effectively form or develop creative thinking skills. Only by making creativity with the habit of students, you can successfully form the skills of creative thinking.

References:

- [1]. Sharipov Sh.S., Muslimov N.A. Technical creativity and design. Methodical manual. Tashkent: TDPU, 2007. 94 p.
- [2]. Karimov I. Adapted technologies for organizing creative activities of students in labor education: monograph. T.: Navruz, 2015. - 172 p
- [3]. Kudryavtsev T.V. Psychology of technical thinking. M., 1975.
- [4]. Pedagogy: Large modern encyclopedia. / Comp. Es Rapasevich - Minsk: Contemporary Word, 2005. - 720 p.
- [5]. Polytechnic dictionary. M.: Sov.Ncyclopedia, 1989. - 656 p.
- [6]. Rubinstein S. Basics of general psychology. - St. Petersburg: Peter, 2006. - 713 p.
- [7]. Sharipov Sh.S. Theory and practice of ensuring the continuity of professional creativity of students: ped. fan. Doc. Diss. T., 2012. - 306 p.
- [8]. Gosijev E. Psychology of thinking: Tutorial. T.: Teacher, 1990. - 184 p.
- [9]. Guilford J. P., Hoepfner R. The analysis of intelligence. N.Y., 1971. - 212 p.
- [10]. Torrance E.P. Guiding Creative Talent – Englewoodcliffs. N.V.: Prentice–Hall, 1962. – 250 p.

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**IMPROVING THE METHODS OF TEACHING MATHEMATICS IN
UZBEKISTAN IS A REQUIREMENT OF THE PERIOD**

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Annotatsiya. Ushbu maqolada O'zbekistonda matematika fanini o'qitish metodikasini takomillashtirish haqida so'z borgan. Matematika fanini rivojlanish asoslari, boshqa fanlarning rivojlanishi kabi, insoniyat faoliyatining amaliy ehtiyojlaridan kelib chiqadi. Fanning rivojlanishi bu ishlab chiqarishning shakllanishi bilan asoslanadi. Matematika fani qadimiy va doimiy navqiron fandir. U kishilik jamiyati paydo bo'lgandan boshlab rivojlanib, taraqqiy etib kelmoqda.

Kalit so'zlar: matematika, metodika, pedagogika, fan, ta'lim-tarbiya, fikrlash qobiliyati, bilim, metod.

Аннотация. В данной статье рассматривается совершенствование методики преподавания математики в Узбекистане. Основы развития математической науки, как и развитие других наук, вытекают из практических потребностей человеческой деятельности. Развитие науки основано на формировании этого производства. Математика - древняя и постоянно развивающаяся наука. Он развивался и развивался с момента зарождения человеческого общества.

Ключевые слова: математика, методология, педагогика, наука, образование, мыслительные способности, знания, метод.

Abstract. This article discusses the improvement of methods of teaching mathematics in Uzbekistan. The foundations of the development of the science of mathematics, like the development of other sciences, stem from the practical needs of human activity. The development of science is based on the formation of this production. Mathematics is an ancient and constantly evolving science. It has been evolving and evolving since the dawn of human society.

Key words: mathematics, methodology, pedagogy, science, education, thinking ability, knowledge, method.

Introduction. At present, special attention is paid in our country to the education and upbringing of young people. Education has always been the foundation of society. Because man is at the center of all relationships in society. The revolution in science, technology and information has turned man and his scientific and educational potential into a decisive factor in socio-economic development.

The problems of ensuring sustainable economic growth, taking a worthy place in the international division of labor, ensuring the competitiveness of the national economy largely depend on the knowledge, skills and ability of the workforce to work according to the situation. In order to achieve the great goals we need to achieve in the future, we must first of all train highly qualified, modern specialists.

Literature review. The foundations of the development of the science of mathematics, like the development of other sciences, stem from the practical needs of human activity.[3] The development of science is based on the formation of this production. "Mathematics, like other sciences, came into being as a result of the practical needs of human beings: measuring the surface of the earth, measuring the capacity of vessels, measuring time, and the elements of mechanics." F.Engels.Andi - Dyuring.

In Uzbekistan, as in all disciplines, the methodology of teaching mathematics has been radically improved.

The current period of reconstruction of the whole national economy and social life requires the most advanced means of technology.[10] This can be achieved only on the basis of strong interaction between science and production. In particular, the development of technology puts before our mathematicians a number of issues that need to be developed theoretically.[4] The solution of these problems, in turn, will lead to the development of mathematical science, the achievement of new successes. Such a rapid development of technology and science requires the younger generation - future production personnel and fans of science to master the achievements of science at the level of using them in accordance with the requirements of life.

It is known that the purpose of teaching mathematics in higher education is to acquaint students with the basic apparatus of mathematics and the elements of mathematics necessary for solving theoretical and practical problems, to be able to independently study innovations and master their applications. teaching, developing students' logical thinking skills, translating mathematical research and engineering problems into mathematical language. The struggle for the successful achievement of these goals, in turn, raises the issue of improving the methodology of teaching mathematics.[6] Methods of teaching mathematics are related to mathematics, psychology and pedagogy. It is tasked with defining the content of mathematics as a subject and ensuring its relatively easy mastery by learners.

It follows from the above sentence that mathematics as a subject must be clearly distinguished even in higher education. Mathematics as a subject (subject) is a system of scientific facts and theories, as well as specially selected examples and problems, which are in fact artificially created and organized on the basis of clear principles. This system is created on the basis of practical requirements, in accordance with clear pedagogical rules, in order to acquaint students with scientific facts and theories. In particular, mathematics as a subject does not seek to state as many facts as possible,

but involves the need for facts that meet the intended purpose. Mathematics as a subject, then, does not have to be limited to a single subject if the program requires access to a mixed subject area.[2] Thus, mathematics as a subject should be able to cover the facts created in the process of development of modern science, taking into account the knowledge and thinking skills of students there, at the request of a special educational institution.

Research Methodology. While the subject of mathematics speaks of figures and sizes, the methodology of teaching approaches them from the point of view of men. The goal of the methodology should be to find out how students can enjoy those shapes and sizes and how they can arouse their interest.[7] Because only if students are interested in learning these figures and sizes can they master the subject with great success. From the above, the goal of the methodology is to provide as complete a system of knowledge as possible in a short period of time and to develop students' thinking skills.

It is well known that there are two types of mathematical thinking in teaching mathematics:

Category 1 are individuals with deep abstraction who accept mathematics as a profession;

Category 2 people, on the other hand, can use mathematics effectively as representatives of other disciplines.

In a broad sense, it is considered a natural requirement that all individuals have a certain level of knowledge in mathematics, according to their profession, social status. Therefore, both the problems of teaching mathematics and the problems of creating appropriate methodologies and didactics are different and even depend on the period and educational system. For example, the German model of the education system requires students to have as deep and comprehensive knowledge as possible in all areas, while the other, say, the US model, requires the formation of in-depth knowledge focused on specialization. To date, these requirements have been redesigned as the education system relies on pedagogical and information technologies, regardless of the model.[1]

The introduction of information and computer technology into the education system has expanded the possibilities and scope of mathematics. Traditional activities - educational-information, educational-games, experimental-research activities, independent activities are added directly to the computer-based learning activities of students. As the student's computer-based learning activity is based on new information technologies, including network technologies, it allows him to gain a deeper understanding of abstract concepts, master theoretical knowledge and comprehensively develop practical skills. This opportunity is provided, on the one hand, by the teacher, first of all, by the initial didactic developments, and, on the other hand, by a set of programs based on high-level multimedia technologies.

Analysis and results. It is known that this issue is gradually being successfully addressed in the leading universities of developed countries, as a result of which graduates are able to directly apply the knowledge acquired during their student years in science, education, technological processes. Today, in higher education, special attention is paid to updating the content and quality.[9]

It should be noted that at the same time as the introduction of an information-based education system, all the problems faced by students in teaching (problem questions, assignments, problem puzzles, etc.) are solved with the help of computer, more precisely, it cannot find its solution using different software environments. That is, the computer, no matter how powerful the information technology, can not replace the traditional technology, as well as the teacher, and in turn can not find a solution to the problem posed.

Conclusion/Recommendations. With this in mind, it can be said that any knowledge, any innovation, the learning process will be effective only if it is discovered as a result of the student's research, deep and comprehensive thinking and creative approach to finding solutions to any problem. In general, despite the existing problems and shortcomings in the education system, especially in the higher education system, the process of informatization in the system is carried out very rapidly. As a result, the problems in the industry are gradually being resolved.[5]

It can be said that the training process can be achieved through the use of information technology in the training of competitive, highly qualified specialists who meet the requirements of the times, based on the requirements of the training system.

The level of development of society, the transformation of our time into the information age shows that it is not enough to teach young people on the basis of traditional methods alone in order to train them as mature, qualified professionals who can quickly assess the situation and make the right and wise decisions in any situation.[8] This requires the extensive use of world experience in the education system, without forgetting its mentality. Liberalization of the economy in our country and in this area the deepening of the reforms also increased the demand for knowledge and the study of the mysteries of mathematics. That's it in turn, it requires not only the training of mathematicians with the right decision-making skills, but also the training of educators who teach them. It's a teacher who teaches math to young people knowledge of the sciences, skillful use of teaching methods. At the same time, it is necessary to have a deep knowledge of pedagogy, psychology and other sciences.

References:

- [1]. Sayidahmedov N. "New pedagogical technologies". T. «Finance» 2003.
- [2]. Farberman V. "Advanced pedagogical technologies". T. "Science" 2000.
- [3]. Ishmatov Q. "Pedagogical technology". Namangan 2004. 30
- [4]. Ways to increase the effectiveness of education. Asian Development Bank Secondary Special, Vocational Education Development Project. Tashkent-2002.
- [5]. K.Hashimov, S.Nishonova. History of pedagogy. Publishing House of the National Library of Uzbekistan named after Alisher Navoi Tashkent— 2005, 304 p.
- [6]. Yuldashev Z. H., Ashurova D.N. Innovative-didactic program complex and new formalized model of education. Malaysian Journal of Mathematical Sciences 6 (1) :, 2012, 97-103 p.
- [7]. Yuldashev Z.H., Ashurova D.N. Problems of preparation of IT specialists in Uzbekistan. «Informatizatsiya obrazovaniya i nauki», № 2 (14) (April) 2012. S. 173-181.
- [8]. Yunusova D. Modern technologies of teaching mathematics. Textbook. - T. : Science and Technology, 2011. - 200 p.

- [9]. Yunusova D. Theory and practice of preparing future mathematics teachers for innovative activities. - T.: Fan, 2009. - 165 p.
- [10]. Yunusova D.I. Organization of mathematics education on the basis of educational technologies. T., "University", 2005, 131 p.

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PSYCHOLOGICAL FACTORS OF SUCCEFUL STUDY OF UNIVERSITY STUDENTS

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Annotatsiya: Ushbu maqolada talabalarning sifatli bilim olishlariga ularning psixologik hamda psixofiziologik jihatlari yetakchi omil ekanligi, shuningdek professor o'qituvchi bilan talaba umumiy til topishishi o'quv jarayoni samaradorligini oshishiga yordam berishi ko'rsatilgan.

Kalit so'zlar: psixologik, psixofiziologik, muammo, ta'lim, muvaffaqiyat, o'ziga ishonch, o'qituvchi, talaba, universitet.

Аннотация: Эта статья посвящена психологическим и психофизиологическим особенностям студентов, а также их влиянию на успешность обучения, что помогает учителям лучше понимать ученика, находить с ними общий язык с целью повышения эффективности учебного процесса.

Ключевые слова: психологический, психофизиологический, обучение,
Abstract: The article is devoted to the individual psychological and psycho physiological characteristics of students as well as their influence on the success of learning helps teachers better understand the student, find a common language with them in order to increase the effectiveness of the educational process.

Key words: psychological, psycho physiological, learning, success, self confidence, teacher, student, university.

Introduction. As it is known, adulthood is a phenomenon which is directly connected with the development of higher education. K.D.Ushinsky called this age is the most decisive process, because this period determines the future of a person as well as it is very active time of intensive work on oneself.[1] Moreover, there are many factors influence on the success of student's learning in higher education. They are: health status, age, marital status; the level of pre-university training; possession of the skill of self-organization, planning and control of activities (primarily educational); motives for choosing a university; the adequacy of the initial ideas about the specifics

of university education; form of study (full-time, evening, part-time, distance learning, etc.); availability of tuition fees and its value; organization of the educational process at the university; material base of the university; the level of qualifications of teachers and service personnel; the prestige of the university and finally, the individual psychological characteristics of students.[5] This article is devoted to the analysis of these features, methods of assessing and taking them into account in order to increase the effectiveness of the educational process.

Literature review

There are many points of view related to theme of the article. Scientists such as C.S.Dweck, I.P.Pavlov, K.D.Ushinsky, R.Meili, A.N.Poddyakov, A.NNyutten, J.Dyachenko, M.I.Kandybovich, L.A.Kachalova L.M.Bogolepova and S.F.Plyplin brought their scientific views on the current topic.

Research Methodology

The study mainly analyzes the formation of students educational process considering their psychological and psycho physiological issues. Therefore, the study used data collection and data analysis methods.

Analysis and Results

The most important factor in successful education is the nature of educational motivation, its energy level and structure that gives to move forward to achieve all planned goals. Moreover, any experienced teacher has to be aware of psychological and psycho physiological characteristics of the students and make friendly educational environment which leads to successful obtaining high level of knowledge.[8]

Why do some students work hard, willingly on mastering knowledge and professional skills and the difficulties which appear on their way only help them to raise their energy as well as desire to achieve their goals, while others do everything as if under a stick and the appearance of any significant obstacles dramatically reduces their activity up to the destruction of learning activity? Such differences can be observed under the same external conditions of educational activity such as socio-economic situation, organization and methodological support of the educational process and teacher qualifications, etc. While explaining this phenomenon, psychologists and teachers most often appeal to such individual psychological characteristics of students as the level of intelligence (the ability to assimilate knowledge, skills that successfully apply them to solve problems); creativity (the ability to develop new knowledge yourself); learning motivation that provides strong positive experiences in achieving learning goals, high self-esteem, leading to the formation of a high level of aspirations, etc.[6] Thus, neither each of these qualities individually, nor even their combination is sufficient to guarantee the formation of a student's mindset or master the knowledge and professional skills. Fairly, frequent or long-term failures are inevitable in any complex activity. Each teacher can give examples from their teaching practice, when a very capable and creative student with high self-esteem and initially strong learning motivation can be broken down, faced with serious difficulties in one or another form of learning activities and stop moving forward, while much less gifted peer successfully overcome these difficulties and eventually achieve much more than others. Coming to the answer of this question, it's necessary to consider at least the main types of psychological and psycho physiological

characteristics of people, as well as the available data on their influence on the educational activity of students. According to E.Kretschmer, the following types are distinguished: leptosomatic (asthenia) - average or above average growth, underdeveloped muscles, narrow chest, elongated limbs, elongated neck and head; [2] large internal organs, shortened limbs, not very muscular development, short neck, overweight; athletic average or above average height, well-developed muscles, large chest volume, broad shoulders, narrow hips, proportional head; dysplastic sharp imbalances in the structure of the body (for example, too long limbs, wide hips and narrow shoulders in men, etc.). Asthenics need less repetition of material and can be given harder tasks than others. According to I.P. Pavlov, the features of human neurodynamics act as the physiological basis of temperament. The properties of the nervous system and temperament are of a genotypic nature and practically do not change during life, but a person with any temperament is capable of getting any social achievement. [3]

Organizational forms of education in a modern school and university are more favorable for people with a strong and mobile nervous system. Students with a weak nervous system can be distinguished with the following difficulties: long and hard work, responsibility, requiring neuropsychic or emotional stress, independence, control or examination work, especially with a lack of time, the work in conditions when the teacher asks an unexpected question and requires an oral answer (the situation of a written answer is much more favorable), work after an unsuccessful answer, assessed negatively by the teacher; the process in a situation requiring constant distraction (to the teacher's remarks, to the questions of other students), the work in a situation requiring the distribution of attention or its switching from one type of work to another; the work in a noisy, hectic environment. [9]

To mitigate negative effects, it is desirable to use the following techniques: do not put the student in a sharp time limit situation, but give enough time to prepare; often allow the student to provide written answers; split complex and large-volume material into separate information blocks and introduce them gradually, as the previous ones are mastered; do not force to answer according to the newly learned material; often encourage the student to relieve tension and increase his self-confidence; in a mild form give negative assessments in case of an incorrect answer; give time to check and correct the completed task; if possible, do not distract the student's attention to other work until the completion of the work already started. A student with an inert nervous system has difficulties in the following situations: when tasks are offered at the same time, various in content and methods of solution, when the material is presented by the teacher at a sufficiently high pace, when the time to complete the work is strictly limited, when you need frequent distraction from the main task for additional types of work, for answers to the teacher or comrades, when the productivity of the assimilation of the material is assessed at the initial stages of its comprehension or memorization, when you need to give a quick answer to an unexpected question, etc.[5]

Conclusions. The statement about the influence of abilities on the success of students' learning seems trivial, but the nature of this influence was not as unambiguous as it seems at first glance. Much depends on the place of abilities in the personality structure of a particular student, in the system of his life values and how they affect the

development of other personal qualities. In many studies, fairly high correlations of the level of general intellectual development with the academic performance of students have been obtained. At the same time, only slightly more than half of the students increase the level of general intelligence from the first year to the fifth, and, as a rule, such an increase is observed in weak and average students and the strong often leave the university with the same thing which they came. All teachers are well aware of the phenomenon when a very capable and “shining” student in the first year of study develops inadequately high self-esteem, a feeling of superiority over others; he stops working systematically and sharply reduces the success of his studies. This phenomenon also found its expression in almost all typologies of student personality. [10] The vast majority of authors consider high self-esteem, self-confidence and high level of aspirations are important positive factors for successful student’s learning. A student who is not confident in his abilities often simply does not tackle difficult problems and admits defeat in advance. However, as noted by A. Dweck, in order to have high self-esteem, students should be praised first of all not for an objectively good result, but for the degree of effort that the student had to put in to get it as well as for overcoming obstacles on the way to goals. Praise for quick success often leads to the formation of self-confidence, fear of failure and avoidance of difficulties, the habit of tackling only easy-to-solve problems. The emphasis on the value of efforts, rather than a specific result, leads to the formation of an attitude towards mastery... But the question remains how should be the ideal student from the point of view of teachers and students themselves?

All in all, the individual psychological and psycho physiological characteristics of students considered as well as their influence on the success of learning will help teachers better understand the student, find a common language with one while solving issues of increasing the effectiveness of educational activities and the level of professional training that are important for both sides. This knowledge is also important for the organization and planning of work of the psychological service of the university.

References:

- [1].Dyachenko M.I., Kandybovich L.A. Psychology of higher education. Minsk, 1993.
- [2].Kachalova L.M., Bogolepova S.F., Plyplin V.V. Alpha rhythm and the rate of assimilation of knowledge. M., 2002..
- [3].Kornilova T.V. Diagnostics of motivation and risk appetite. M., 1997.
- [4].Lichko A.E. Types of character accentuations and psychopathies in adolescents. M., 1999.
- [5].Meili R. Personality structure. Experimental psychology..M., 1975.P.196-283.
- [6].Nyutten J. Motivation. Experimental psychologies. 1975.P. 115-110.
- [7].The lifestyle of the modern student. L., 1991
- [8].Poddyakov A.N. Higher education pedagogy and psychology. Rostov Don, 2002.
- [9].Dweck C. S. Self-theories: Their role in motivation, personality. And development. Philadelphia, 1999.
- [10].Radford J. & Burton A. Thinking: Its Nature and Development. L., N.Y., Sydney, Toronto, 1974.

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PROBLEMS OF PEDAGOGY, OF PHYSICAL EDUCATION

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Annotatsiya. Maqolada "Eng yuqori yutuqlar sporti" mustaqil fanining jismoniy tarbiyasini o'qitishda tanlovning asoslanishi va "Eng yuqori yutuqlar sporti nazariyasi va metodikasi" fani tasvirlangan.

Kalit so'zlar: jismoniy tarbiya, jismoniy tarbiya nazariyasi va metodikasi, jismoniy madaniyat nazariyasi va usullari, eng yuqori yutuqlarga erishgan sport nazariyasi va usullari.

Аннотация. В статье излагается обоснование выбора в преподавании физического воспитания самостоятельной науки «спорт высших достижений» и учебной дисциплины «Теория и методика спорта высших достижений».

Ключевые слова: обучение физическому воспитанию, теория и методика физического воспитания, теория и методика физической культуры, теория и методика спорта высших достижений.

Abstract. The article lays out the rationale for selection in teaching physical education independent science «Sports of the highest achievements and educational discipline "Theory and methods of sports of the highest achievements"».

Key words: teaching physical education, theory and methods of physical education, theory and methods of physical culture, theory and methods of sports of the highest achievements.

Introduction. The pedagogy of physical education was defined in the 50s of the last century, becoming a relatively independent science, known to us as «Theory and Methods of Physical Education». We define this science as relatively independent because at the initial stage it was based on knowledge and information from related sciences - pedagogy, psychology, physiology, anatomy [1].

Over time, the theory and methodology of physical education formed its own conceptual and methodological apparatus. Synthetic knowledge of related sciences was transformed into their own specific knowledge. The subject and object of science, methods and techniques of research, methods and techniques of teaching were determined.

Literature review. The subject of science «Theory and methodology of physical education» was defined physical exercises and sports technique of numerous sports. A certain «immensity» of the declared subject of science led to the need to revise the framework of the subject of science, which led to the allocation of an independent science - «Theory and Methodology of Physical Culture».

At the moment, this is the subject taught in colleges and universities. It is on this subject that textbooks are written. What happened to sports?

Sports, and everything related to sports - theory and methodology of sports, research methodology in sports, specific purposeful training in sports technique; sport, as a vivid social phenomenon, and much more, were in the shadow of another science.[5]

As a «compensation», in the course «Theory and Methods of Physical Culture» a section entitled «Theory of Sports» is taught.

A huge independent array of knowledge, practice, human breakthrough into the unknown and record-breaking, found itself on the margins of science, not becoming, until now, an independent science.

Research Methodology. For a long time, the indecision of teachers and scientists to differentiate the pedagogy of physical education has hindered the final formation of the theory and methodology of sports as an independent science.

First, to differentiate the theory of physical education into two independent branches - «theory and methodology of physical culture» and «theory and methodology of elite sports».[6]

This kind of differentiation is a vital thing and it is latently solved and reflected in the plans and programs of colleges and universities.

Secondly, it is necessary to be realistic and recognize that pedagogy of subject teaching, pedagogy of physical culture and pedagogy of elite sports are different branches of knowledge, different sciences. These sciences are fundamentally different: the subject of training, goals and objectives of training; forms, methods, means and teaching methods.

Common to these sciences are the requirements for the content of the learning process - scientific, systematic, as well as didactic principles of teaching. At the same time, each of the listed sciences has special distinctive features and educational focus.

The focus of subject training is the solution of educational and educational problems [1].

Special, distinctive features of the theory and methodology of physical culture are its educational, upbringing, health-improving, hygienic, communicative and recreational orientation of training.

The special, distinctive features of the theory and methodology of elite sports are a highly specialized, professional orientation of training, followed by the implementation of the learning outcomes in the system of sports competitions.[5]

General pedagogy, in relation to the specifics of the subject of study in various sciences, is differentiated into several types:

- pedagogy of cognitive subject teaching;
- pedagogy of teaching a motor orientation;
- education of professional and military training; - pedagogy of teaching people with mental and physical disabilities.

The goal of subject teaching is the development of theoretical (subject) knowledge, presented in the form of texts, formulas, tables, codes of laws and regulations.

Analysis and results. Mastering knowledge presupposes its understanding, memorization, reproduction (examination) and / or application (life, practice). The objectives of subject teaching are educational, educational. The areas of the learner involved are mental, cognitive.[8]

General pedagogy and didactic principles of teaching are more focused on the subject teaching of large groups of students, numbering 15-40 people. At the same time, the declared didactic principle of individualization of teaching is realized only to a small extent.

The subject of training in physical culture is physical exercises of a wide range of orientation, serving the general development of trainees and their recreation, as well as the basics of sports technique of certain sports without in-depth development (specialization) [2].

Physical culture pedagogy is focused on teaching large and medium groups of students, from 40 to 15-12 people.

Goals and objectives of training.

The goals and objectives of training in physical culture are:

- acquaintance with a specific type of human activity in the field of culture - physical exercises;
- mastering the skills and practical skills of physical exercises;
- mastering the technique of certain sports;
- forming knowledge in the field of physical culture;
- implementation of the developmental possibilities of physical exercises in professional and household activities;
- implementation of the recreational possibilities of physical exercises and techniques of certain sports in everyday activities and everyday life.

The goals and objectives of the subject «physical culture» are voluminous, broad-oriented: educational, upbringing, health-improving, hygienic, recreational and communicative [2].

Spheres involved - physical, physical, functional, cognitive, emotional.

The knowledge gained is specific. It is expressed in the motor activity of trainees, regulated by the requirements for the sports technique of certain sports, the technique of performing specialized physical exercises.

The subject of training in elite sports is the sports technique of specific sports. The pedagogy of «elite sports» is focused on teaching medium and small groups of education - from 15-12 to 5-2 people. The principle of individualization of training in elite sports is implemented in full.[7]

Goals and objectives of training in the sport of the highest achievements - the mastering of the most perfect examples of sports equipment of the chosen kind of sport. The goals and objectives are specialized, professional, specific. The ultimate goal of training is to achieve the highest, record achievements in the chosen sport.

Spheres involved - motor, functional, cognitive.

The knowledge gained is professional, highly specialized.

Methods and forms of training in general pedagogy, pedagogy of physical culture and pedagogy of elite sport.

In general pedagogy, this is a story, an explanation, a demonstration of clarity. The form of training is a lesson. Teaching methods - verbal, visual, experienced, practical.

In the pedagogy of physical culture - demonstration, explanation, testing, consolidation of performance to the degree of skill, less often - skill. The form of training is a lesson, training [3].

In the pedagogy of elite sports - demonstration, explanation, testing, consolidation of performance to the degree of specialized skills. The form of training is a lesson, training, specialized training, competition (competition) [3].

Means and methods of teaching.

In general pedagogy, the main teaching tool is the educational material presented by the teacher in the form of a story or explanation, as well as textual material to be memorized and subsequent control reproduction - exam, practice.

In the pedagogy of physical culture, the main means of teaching is physical exercises, which are subject to mastering and subsequent reproduction. Reproduction can be assessed - passing standards or tests, or arbitrary - the use of physical exercises for professional, health-improving or recreational purposes.

In the pedagogy of elite sports, the main teaching tool is physical exercises that reproduce the basis and details of the sports technique of a particular sport, as well as preparatory, training, special and specialized exercises focused on this sport.[9]

The ultimate goal of training in sports of the highest achievements is the reproduction of sports equipment in its most perfect form in the conditions of competition [4].

Learning principles.

Common to the pedagogy of subject teaching, the pedagogy of physical culture and the pedagogy of elite sports are the general principles of teaching - the principles of scientific and systematic nature, as well as didactic principles of teaching [4].

At one time, the didactic principles of teaching were set out for subject teaching and have so far undergone only minor semantic clarifications.

Without any semantic interpretation, they are used in the pedagogy of physical culture and pedagogy of elite sports.[6]

It should be recognized as a fact that their application in the pedagogy of physical culture and pedagogy of high performance sports is quite justified if we consider training in physical education as a pedagogical process in general.

However, the learning process in physical education has its own characteristics, and, consequently, the corresponding interpretation.

Conclusion/Recommendations. As mentioned above, the special distinguishing features of the theory and methodology of physical culture are its educational, upbringing, health-improving, hygienic, recreational and communicative orientation of training, and the special, distinctive features of the theory and

methodology of elite sports are a highly specialized professional orientation of training.[10]

Consequently, these features should be, first of all, reflected in the principles, methods, means, methodological techniques and forms of education.

With regard to the issues of physical education, physical culture and elite sports, general pedagogical didactic principles of teaching should be interpreted in accordance with the specifics of the subject of instruction, goals, objectives, means and methods of teaching in these sections of knowledge, as well as modern trends in the development of these sciences.

What is the fundamental difference between the orientation of training in «physical culture» and training in «high performance sports»?

«Physical culture» is a way to improve the quality of your health through physical exercise.

«Sports of the highest achievements» is the realization of the potential of one's health and the acquired professional skills for money (professional sports), or in the name of one's reputation (amateur sports) [3].

References

- [1]. Ashmarin BA Theory and methodology of physical education: textbook. for pedagogical institutes. Moscow: Education, 1990.287 p.
- [2]. Belinovich VV Teaching in physical education: monograph. M .: FiS. 1958.262 s.
- [3]. Matveev LP General theory of sport and its applied aspects: textbook for universities. SPb .: Publishing house «Lan», 2005.384 p.
- [4]. Matveev LP Theory and methodology of physical culture: textbook for universities. M .: FiS., 2008.543 p.
- [5]. Akramov AK, History of physical culture and sports in Uzbekistan. textbook. T., Publishing House of UzSWLI 1997
- [6]. Ashmarin B.A. Theory and methods of physical education. Enlightenment, M, 1978
- [7]. Arnautov V.V., Monakhov V.M., Optimization uchebnogo protsessa-obuchenie Moscow: Mikhailovka. MTSOP. 1997
- [8]. Abdullaeva Sh.A. and others. Pedagogy T., “Fan” 2004y
- [9]. Botirov HA, History of physical culture in Uzbekistan, popular book T., Ibn Sino 1993
- [10]. Bril M.S. Otor v sportivnix igrax.- M., 1980y 11. Bepalko V.T., Pedagogy and progressive teaching technology, -Moscow: IRPO. 1995

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THE ROLE OF TOURIST TRAVEL IN INCREASING THE LEVEL OF PHYSICAL FITNESS OF STUDENTS AND ITS IMPACT ON SPECIAL TESTS

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Annotasiya. Ushbu maqolada “Alpomish” va “Barchinoy” maxsus testlari dasturida turizmni o’rni va ahamiyati bayon qilingan. Shuningdek talaba yoshlarni jismoniy tayyorgarlik darajasini oshishida turizm vositalarining samaradorligi va uni maxsus testlar orqali nazorat qilish masalalari yoritilgan.

Kalitso’zlar: dastur, turistiksayr, maxsus testlar, vosita, nazorat, Alpomish, Barchinoy, jismoniy tayyorgarlik, test, natija.

Аннотация. В статье рассказывается о роли и значении туризма в программе специальных тестов «Алпомиш» и «Барчиной». Также охватывает эффективность туризма в повышении уровня физической подготовки студентов и ее контроль с помощью специальных тестов.

Ключевые слова: программа, туристическое путешествие, специальные тесты, инструмент, контроль, Альпомиш, Барчиной, физическая подготовка, тест, результат.

Abstract. This article describes the role and importance of tourism in the program of special tests "Alpomish" and "Barchinoy". It also covers the effectiveness of tourism in increasing the level of physical fitness of students and its control through special tests.

Keywords: Program, touristic travel, special tests, tool, control, Alpomish, Barchinoy, physical training, test, result.

Introduction: The outbreak of the COVID-19 coronavirus pandemic in the world has shown that Uzbekistan, as well as other countries in the world, has a weak degree of healthiness, physical health and a healthy lifestyle. COVID-19 coronavirus infection has primarily affected the health of our citizens suffering from cardiovascular and respiratory diseases, as well as obesity (overweight). The conclusion is that we all need to get rid of bad habits, engage in regular sports, and make a healthy lifestyle as inseparable part of our daily lives. Ensuring that every citizen has a strong immune system against the disease through regular physical activity and mass sports and the formation of life skills for a healthy lifestyle, the abandonment of harmful habits, as well as mass physical activity. In order to systematically and effectively organize events, create the appropriate infrastructure and other necessary conditions in this regard: In the development of mass sports and the promotion of healthy lifestyles among the population in the Republic - walking, running are identified as priority sports [1].

In our country one of the priorities is considered to be the improvement of the culture of social life of the population, the development of physical culture and sports on a large scale in order to promote a healthy lifestyle. In accordance with the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated May 27, 1999 No 271 "On measures to further develop physical culture and sports in Uzbekistan" and for its implementation there is developed a set of special tests like "Alpomish" and "Barchinoy"; its emergence and implementation in 2000 played an important role in leading the great generations to physical and spiritual maturity [2].

In the new edition of the Annex to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated January 29, 2019 No 65 "On the promotion of healthy lifestyles in Uzbekistan and the involvement of the population in physical culture and mass sports" the purpose of special tests in the Regulations on the procedure for receiving and conducting special tests "Alpomish" and "Barchinoy" is to develop them physically and intellectually, physical abilities and movement through the development of physical culture and sports among all segments of the population, to improve activity, to achieve physical and mental perfection, to increase working capacity, to prevent harmful habits and various diseases and to form healthy lifestyle skills, to strengthen in young people such qualities as will-power, self-confidence and courage through sports competitions, courage, patriotism and devotion to the fatherland. The purpose of special tests is to develop the system, to organize systematic work on the selection of talented athletes among young people [3].

Analysis of the relevant literatures: The study of scientific sources of native and foreign scientists shows that a number of scientific studies have been conducted to improve the level of physical fitness and health of students, the education and development of physical qualities. Including L.P. Matveev., A.A. Fedyakin., K.Yarashev., R. A. Abdumalikov., T.S. Usmonho'jaev., PH.Ho'jayev., RSSalomov., A.Abdullayev., Sh.H.Khonkeldiev., K.M.Mamikjonov., The scientific sources of T.T. Yunusov, R.Q. Qudratov, T.X. Kholdarov, E.Yu.Daurenov, and a number of other leading scientists have played an important role.

Research Methodology: The main part is pedagogical experience

The age category of special tests is divided into three stages and twelve groups, and in special tests the types of tests are divided into two, which are mandatory tests and voluntary tests.

Mandatory tests are designed to develop the following physical qualities based on a set level and level of complexity.

- a) The level of development of resilience capabilities;
- b) The level of development of power capabilities;
- c) The levels of development of flexibility capabilities.

Voluntary tests are designed to develop the following physical qualities based on a defined level and level of complexity.

- a) The level of development of speed and voltage capabilities;
- b) The level of development of the ability to coordinate actions;
- c) Levels of development of acquired practical skills.

Tourism is an integral part of the physical culture system. Exercise is the main tool in physical development, tourism is also given a special place as a means of physical

education, and exercise is divided into gymnastics, games, sports and tourism. As the main form of exercise, the means of tourism are the main factors of the system of physical education. Tourism is richer in physical exercises, which can be used in real life atmosphere, than other physical education factors. Accordingly, they are distinguished by their vitality and practicality. Table 1, which gives a special place to tourism by age categories in the special tests "Alpomish" and "Barchinoy".

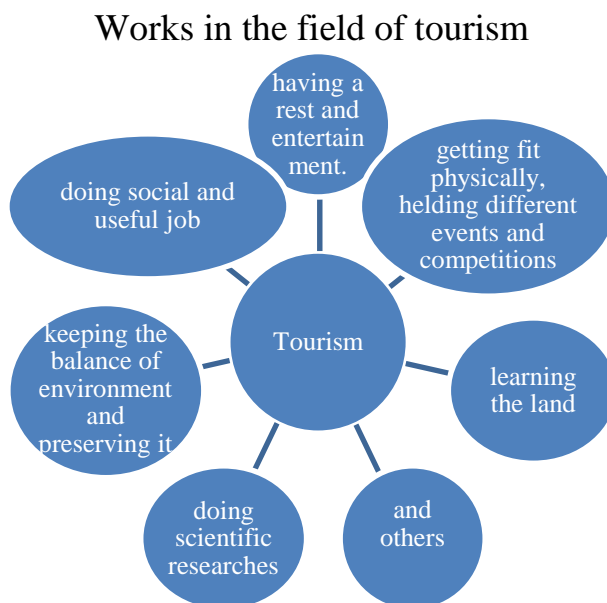
Table 1

The role of tourism in special tests "Alpomish" and "Barchinoy"

According to age category				Activities	Unit of measurement	boys	girls
Steps		Groups					
1	Till 6-17 yearsold	1	6 -8 yearsold				
		2	9 -10 yearsold				
		3	11 -12 yearsold	Picnic 5 0 km	hour	3	
		4	13 -15 yearsold	Picnic 5 0 km	hour	3	
		5	16 -17 yearsold	Picnic 5 0 km	hour	3	
2	Till 18 -33 yearsold	6	18 -25 yearsold	A trip to resorts 5km	hour	3	
		7	26 -33 yearsold	A trip to resorts 5km	hour	3	
3	Till 34 ages and so on	8	34 -41 yearsold	Tourist trip to the mountains, mountain slopes 5 km	hour	5	
		9	42 -49 yearsold	Tourist trip to the mountains, mountain slopes 5 km	hour	5	
		10	50 -59 yearsold	A trip to resorts 3 km	hour	5	
		11	60 -69 yearsold	A trip to resorts 3 km	hour	5	
		12	70 years and older	A trip to resorts 3 km	hour	5	

According to the organizational and methodological guidelines for conducting special tests "Alpomish" and "Barchinoy", tourism consists of the following criteria: picnics, trips and travels, excursions in the lowlands of nature (parks, forests, fields, mountains, river banks, lakes, etc.). 2.5 km with light movements and stops, walks and runs the distance. Tourism combines a wide range of socio-educational and cultural processes, the content of which includes the solution of the most important tasks, such as expanding the scope of knowledge, intellectual development and education of physical fitness [Figure 1].

Figure 1



In our study, the tests of the second stage of the special tests "Alpomish" and "Barchinoy" were selected because of the different age categories of students. The types of exercises in the special tests, as well as the means of tourism, have their own content, as they are aimed at educating and further improving the physical fitness of students. Because the normative requirements of each species require sufficient physical qualities. In our research work, the following control tests were used to increase the level of physical fitness of students and to determine their physical qualities (speed, endurance, agility)Table 2.

Table 2Criteria for determining physical fitness

No	Control tests	Attributes
1.	Running to 60 meters	Speed
2.	Running to 3000 meters	Overall durability
3.	Long jump from standing position	Fast power

This research work is being conducted in the 2019-2020 academic year. In the study, students were divided into two groups: experimental and control groups where 80 students participated. Prior to the study, tests were taken on students' physical development and fitness. Initial tests at the beginning of the experiment showed that there was almost no difference between the level of physical development and physical fitness of students in the experimental and control groups. As a result, there was no difference.

We involved the students of the experimental group on a tourist trip. On weekends, students are taken on a tourist trip in accordance with the organizational and methodological guidelines for conducting special tests "Alpomish" and "Barchinoy", in accordance with the methodological recommendations and guidelines developed by us.

The students in the control group continued their classes in the traditional, traditional way and participated as they were. The control group students were not taken on a tour.

Analysis And Results: Preliminary tests at the beginning of the experiment showed that there was almost no difference between the level of physical development and physical fitness of students in the experimental and control groups, i.e. no statistical difference was achieved. The experimental results are presented in Table 3.

Table 3

The results of experiments conducted between the experimental and control groups are at the beginning of the study

n=80 (Gr.exp=40+ Gr.con=40)

№	Control tests		Gr.exp	Gr.con	t	p
	Contents	Measurement				
1	Running to 60 meters	seconds	9,42 ± 0,37	9,49 ± 0,33	0,94	p> 0,05
2	Running to 3000 meters	min.seconds	14:35 ± 0,41	14:39 ± 0,45	0,44	p> 0,05
3	Long jump from standing position	centimeter	208,0 ± 8,7	209,2 ± 8,4	0,64	p> 0,05

Note: TG-the group of experiment, NG- the group of control

As can be seen from the table above, we did not identify reliable statistical differences in terms of speed, endurance, and speed-force movement qualities. This allows the experimental and control groups to carry out the pedagogical experiment purposefully, substantiating the conclusion that students with the same level of preparation were selected at the beginning of the study.

At the end of the study, the Alpomish and Barchinoy special tests were taken on a tour of the organization, and the Experimental Group participated in the training on our methodological recommendations and guidelines. a comparative statistical analysis of the indicators of physical development and level of physical fitness of students and control group students who participated in classes on the traditional program. The experimental results are presented in Table 4.

Table 4

The results of the experiments between the experimental and control groups are at the end of the study

n=80 (Gr.exp =40+ Gr.con =40)

№	Control tests		Gr.exp ($\bar{X} \pm \delta$)	Gr.con ($\bar{X} \pm \delta$)	t	p
	Contents	Measurement				
1	Running 60 meters	seconds	9,33 ± 0,37	9,45 ± 0,33	1,54	p> 0,05
2	Running 3000 meters	min.seconds	13:7 ± 0,45	14:5 ± 0,46	7,52	p < 0,01
3	Long jump from stand ing position	centimeter	213,4 ± 5,2	210,2 ± 7,5	2,23	p < 0,05

Note: TG-the group of experiment, NG- the group of control

The measurement results at the end of the study show that we can observe an improvement in the qualities of speed, endurance, fast-force movement, endurance, fast-force movement. The 60-meter run parameters selected to determine the quality of agility did not reveal to us the statistical differences between the experimental and control groups, which were $9,33 \pm 0,37$ seconds in the experimental group and $9,45 \pm 0,33$ seconds in the control group. found ($t = 1,54$; $p > 0,05$).

At the end of the 3000-meter test, we found reliable statistical differences. It can be seen that the students of the experimental group had a significant advantage over the students of the control group, and this was confirmed by statistical analysis. Here, the result in the experimental group was $13,7 \pm 0,45$ and in the control group was $14,5 \pm 0,46$ ($t = 7,52$; $p < 0,01$). At the end of the experiment, we found a statistically significant difference in the long jump performance. In this case, $213,4 \pm 5,2$ cm in the experimental group and $210,2 \pm 7,5$ cm in the control group, which showed a large statistical difference ($t = 2,23$; $p < 0,05$).

Conclusions And Recommendations: 1. Tours in the Alpomish and Barchinoy programs are a means of promoting a healthy lifestyle, engaging the population in physical culture and mass sports, improving their health and well-being, and increasing their physical fitness at various stages of life.

2. Special tests "Alpomish" and "Barchinoy" play an important role in improving the physical fitness of students. For this reason, along with travel, hiking is very important in strengthening human health. Walking is a guarantee of longevity and long-term preservation of physical qualities.

3. The pedagogical experience of studying the impact of tourist trips, means of tourism on the level of physical development and physical fitness of students revealed the high effectiveness of tourism as a tool. Including:

- Statistical differences were found at the end of the experiment on the general physical training, 3000meter running test. There were statistically significant positive changes in the students in the experimental group. The results were $13,7 \pm 0,45$ in the experimental group and $14,5 \pm 0,46$ in the control group ($t = 7,52$; $p < 0,01$).

- At the end of the experiment, we found a statistically significant difference in the long jump performance. At the same time, $213,4 \pm 5,2$ cm in the experimental group and $210,2 \pm 7,5$ cm in the control group, which showed a large statistical difference ($t = 2,23$; $p < 0,05$).

4. In order to improve the health of the population in our country, it is necessary to increase the popularity and strengthen the social significance of tourism among all segments of the population.

REFERENCES

- [1]. Decree of the President of the Republic of Uzbekistan PF-6099 "On measures for the widespread introduction of a healthy lifestyle and further development of mass sports" October 30, 2020 in Tashkent
- [2]. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On measures to further develop physical culture and sports in Uzbekistan" No. 271 of May 27, 1999 in Tashkent.
- [3]. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On the promotion of a healthy lifestyle in Uzbekistan and the involvement of the population

in physical culture and mass sports" No. 65 and the new edition "Alpomish" "And" Barchinoy" Regulations on the Procedure for Acceptance and Conduct of Special Tests and Competitions January 29, 2019 Tashkent.

[4]. L.P. Matveev Theory and methods of physical education M.: 1991.

[5]. A.A.Fedyakin. Theoretical and methodological bases of health tourism: Author's ref. diss.dok. ped. science. - M.: 2001. g.

[6]. K.Yarashev., R.Abdumalikov. Ways to popularize a set of special tests "Alpomish" and "Barchinoy". Textbook. T.: 2002

[7]. T.S. Usmonhojaev, F.Khojaev Moving games. T.: Teacher, 1992

[8]. A.Abdullayev, Sh.Kh.Khonkeldiyev "Theory and methods of physical education". T.:2005

[9] T.T.Yunusov, Yu.M.Yunusova Special tests "Alpomish" and "Barchinoy". T., 2000 y.

[10]. K.M.Makhkamjanov Theory and methods of physical culture textbook T.: 2008

[11]. E.Yu.Daurenov., R.Q. Qudratov "Establishing touristic trips". Methodical manual. T., USIWL (Uzbekistan state institute of world languages) printing house. 1995.

[12]. E. Yu. Daurenov, "Tourism". Textbook. Tashkent. 2014.

[13]. H. Tulenova, T. Koldar[13]. H. Tulenova, T. Koldarov, "Tourism", Tashkent. 2010.

[14]. R.S. Salamov "Theory and methodology of Physical training". Textbook. Tashkent, 20015.

[15].R.A.Abdumalikov.,T.Kh.Kholdorov "Tourism". Manual. Tashkent "Teacher", 1988.

[16]. BBMusaev., A.Akbarov "Sports metrology" Textbook Tashkent 2015

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NATIONAL AND FOREIGN EXPERIENCE IN TRAINING HIGHLY QUALIFIED PERSONNEL

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Аннотация. Ушбу мақолада муаллиф томонидан таълимни замон талаби даражасида ислоҳ қилиш, унинг сифатини юксак талаб даражасига кўтариш муаммолари атрофлича кўриб чиқилган бўлиб, юқори малакали кадрлар

тайёрлашда миллий ва хорижий тажриба кенг ёритилган. Шунингдек, мақолада юқори малакали кадрлар тайёрлашда таълим жараёнининг сифатини белгиловчи асосий хусусиятлар кўрсатиб берилган ҳамда олий ўқув юртидаги сифат тизими тушунчасини асосини ифодаловчи қоидалар келтирилган. Сифат менежменти тамойилларига асосланган бошқарув тизимига оид бешта универсал элементларни асослаб берилган ва бу элементлар ҳар қандай ташкилотга хос деб белгиланиши таҳлил қилинган.

Калит сўзлар: Таълим, социал менежмент, глобаллашув, бошқарув, координация, мутахассис, кадрлар, олий таълим, жараён, маданият, концепция, меҳнат тақсимоти.

Annotation. In this article, the author discusses in detail the problems of reforming education at the level of modern requirements, raising its quality to a high level of demand, the national and foreign experience in training highly qualified personnel. The rules that represent the basis of the concept of quality system in higher education are given. Five universal elements of the management system based on the principles of quality management are substantiated and analyzed to determine whether these elements are specific to any organization.

Key words: Education, social management, globalization, management, coordination, specialist, human resources, higher education, process, culture, concept, division of labor.

Introduction. Today, we live in an era when not only globalization, but also integration, innovation processes and cooperation are accelerating and intensifying. The ability to quickly adapt to these processes, to study the situation and evaluate it objectively, to analyze, requires a high level of skill from a mature specialist. If you analyze the system and structure of any developed country, you can see that the education system, in particular, certainly pays special attention to the formation of a goal-oriented system by the government in them.

Therefore, like many countries, we pay great attention to the development and support of modern education and personnel policy. Personnel policy has always been one of the priorities of the country's policy. Issues and urgent tasks related to the training of spiritually mature and highly educated employees in the railway system of Uzbekistan also reflect the requirements of such a period.

The current stage of global scientific and technological development is characterized by the rapid development and widespread introduction of new information technologies. The information revolution, which permeates all spheres of our life, expands the opportunities for the development of international cooperation. As a result, such an integrated information space is being formed, in which information is becoming a valuable part of national wealth, its strategic resource. Today, fierce competition is on the rise around the world. In such a complex environment, the widespread introduction of modern science and innovation is required. Because the management of modern society is becoming increasingly complex. It requires man to rule on the basis of new advanced ideas. It is known that one of the main socio-political and economic needs in the transition to modern society is the organization, improvement and reform of the management system. In the process of transition to market relations, the management function becomes even stronger. Management is the

function of a special body of the organization, which is a clearly organized activity to achieve the highest result with the least amount of resources (time, effort, resources) [1].

Literature Analysis. The new theory of public administration emerged as the theoretical basis of the administrative reforms of 1980-1990. One of the works devoted to this problem is David Osborne and Ted Gelber's "Reconsidering Management". This book is of particular importance as it focuses mainly on solving economic problems. Market-oriented behavior promotes reform, the need to achieve change, and the organization of governance accordingly. When analyzing management, more attention is mainly paid to its models. The industry has had many successes during its development and has also contributed to the rise in all areas. During the 20th century, the practice of management has gone through several stages of its development. By the beginning of the 20th century, the autocratic model of governance was widespread, and it was mainly applied and analyzed in relation to political governance. Because it is based on the authority of the leader, his direct instructions, it is a priority for each employee to be personally subordinate to his boss, and the executive is highly valued. Over time, by the middle of the last century, liberal, mixed, and democratic governance ideas began to receive more attention in the management of the economic system instead of autocratic governance. This system relied more on economic coercion and financial incentives than on power. One of his high demands is that he expects initiative from the most active employees.

The idea of management has long been the focus of thinkers and scholars and has led to unique ideas. For example, Confucius exhorts rulers: "Forget to rest and relax while you are in charge!", "Be conscientious and honest when you are in charge!" According to Cicero, the active participation of citizens in the management of society is the highest expression of their qualities and duty. O. Toffler states: "The use of force and threats are limited and used in "poor quality" management; and wealth is a resource of medium-quality power, which is characterized by both positive and negative influences; In "high" quality governance, the information resource is widely used, which, due to its democratic nature, openness and inexhaustibility to all, subdues both power and wealth, and becomes an important resource of power" [2]. Toffler's idea is characterized primarily by its focus on managing an informed society.

It can be said that the scientists who contributed to the development of social management were A. Fayol, F. Taylor and G. Emerson. A. Fayol focused on high-level management. The principles of governance he substantiated apply not only in economics but also in government, that is, they are universal. A. Fayol substantiated five universal elements of the management system, which are defined as specific to any organization. These are: 1) planning; 2) organization; 3) management; 4) coordination; 5) control. A. Fayol also considers the following principles important in his ideas: responsibility for the decision; solitude; hierarchy in management (tree); subordination of personal interests to common interests; specialization; discipline; appropriateness of incentives; job satisfaction; employee suitability for work; employee permanence; encourage initiative; common interests. G. Emmerson, on the other hand, identifies the following as the most important principles in management: That is, a clear goal; economic approach; involvement of specialists; full control and

accounting; process customization; economic norms; providing conditions; standardization of operations; stimulating productivity.

F. Taylor described management as “the art of knowing exactly what to do and how to do it carefully and cheaply. F. Taylor divides the principle of management into nine groups: 1. Goal selection; 2. Tool selection; 3. Preparation of the tool; 4. Control the result; 5. Scientific selection of the worker; 6. Scientific training of the worker; 7. Specialization of the worker; 8. The importance of factors in motivating the desire to work; 9. The correct division of labor responsibilities of the manager and the employee [3].

In his principles, Weber focuses mainly on: a clear division of labor, leading to the formation of highly qualified professionals; a hierarchical category of management in which the lower level is controlled from the top and subordinated to the top; the existence of a common system of interrelated rules and standards that set tasks and ensure the performance of the same tasks; reducing the official independence of officials, which reduces the effectiveness of subjective errors; hiring an employee on the basis of qualification requirements.

Research methodology. It can be said that two levels have been formed in the science of personnel management: 1) the management of labor processes, the influence on the behavior of workers and employees; 2) social management (public administration). In this area, in recent years, “employee inclination”, “strategic management” is developing as a more effective mechanism. As many experts acknowledge, special attention is now being paid to enlightened management. This is a European management, which is based on high literacy, thorough knowledge of their work, high culture, the ability to work in any conditions. In addition, it is noted that there is a “success formula” specific to each national culture or to each enterprise (organization). That is, each nation will have its own formula for success. The successful management of an organization or company can be said to have risen to a high state of the art. Mastering this art, we also have all the conditions for the development of the right direction and management of human resources.

A new innovative approach to the training of higher education is being introduced in Uzbekistan. Today, many scientists consider the 21st century in which we live – a century dominated by intellectual wealth, a period of rapid growth of industries based on modern and advanced technologies. In this regard, President Shavkat Mirziyoev said, “In the field of governance, we must first of all introduce clear criteria and procedures for improving the activities of the executive branch, the rational use of human and material resources” [4].

Today, Uzbekistan does not ignore the priority of national values in the process of reforming the system of training qualified personnel. It is a fact that highly qualified specialists can conscientiously contribute to the development of the country. In-depth teaching of social sciences and humanities in all existing educational institutions will focus on the formation of such qualities as a sense of homeland, national honor and national pride in the minds of tomorrow's owners.

Conclusions and suggestions. In a country where the training of mature personnel is well established, there will be a comprehensive development. Because the

development of any industry depends on the potential of personnel in this field and their effective use of scientific achievements.

The Resolution of the President of the Republic of Uzbekistan dated July 27, 2017 “On measures to further expand the participation of industries and sectors of the economy in improving the quality of higher education” [5] states that: promising scientific and pedagogical staff, primarily engineering and architectural education, training of teachers of higher education institutions in developed countries, in particular, in South Korea, Japan and Germany for 2-3 months at the expense of agreements on cooperation, sponsorship and grants from international organizations, as well as training of interns of the President of the Republic of Uzbekistan abroad. and the organization of education through the Fund “Istedod” to organize advanced training aimed at acquiring new knowledge in their field, the regular involvement of leading foreign specialists in the educational process in higher education institutions. Today, more than 350 experienced foreign professors and teachers come to Uzbekistan every year to teach. As an example, Dasong Choi, a professor at Gachon University in South Korea, spoke at a seminar with professors at the Tashkent Railway Institute about the current problems in the higher education system: “First, the higher education system is lagging behind in technology, and secondly, the knowledge gained now is becoming obsolete tomorrow, and thirdly, education is increasingly losing its productivity. This is because with the development of the Internet, the ability to find all the information on social networks has expanded”. Therefore, today's professors and teachers are required to conduct research in line with the times.

We believe that the establishment of mutually beneficial cooperation in the field of science and education with countries that meet the world standards of the higher education system will yield positive results.

References:

- [1]. Kholbekov A., Idivov U. Sociologiya (izohli lughat-malumotnoma). – T.: Abu Ali Ibn Sino, 1999, - P. 24.
- [2]. Sociologiya: Enciklopedy / Composers A.A. Grisanov, V.L. Abushenko, F.M. Evelkin, G.N. Sokolova, O.V. Tereenko. – MN.: Knijniy dom, 2003, - P. 1074.
- [3]. Toffler O. Smeshenie vlasti: znanie, bogatstvo i prinujdenie naporoge XXI veka. - M.: 1991. – P. 52.
- [4]. On November 15, 2017, a video conference chaired by the President of the Republic of Uzbekistan Shavkat Mirziyoyev was held on the implementation of the tasks set in the country on crime prevention and fight against crime, the existing problems and their solutions. // <http://uza.uz/oz/politics/tartib-intizom-va-masuliyatni-kuchaytirish-zhinoyatchiliknin-15-11-2017>
- [5]. Resolution of the President of the Republic of Uzbekistan No. PQ3151 of July 27, 2017 “On measures to further expand the participation of industries and sectors of the economy in improving the quality of training of highly educated specialists” – www.lex.uz

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METHODOLOGY OF USING VIRTUAL LABORATORIES IN TEACHING SUBJECTS OF THE DEPARTMENT OF ELECTROMAGNETICS OF PHYSICS

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Annotation: The article provides an analysis of the didactic possibilities of using educational simulators and virtual laboratory stands and methodological recommendations for the organization of the educational process using programmed teaching aids, electronic textbooks, training simulators and virtual laboratory stands, in particular, teaching electromagnetism in physics in higher education.

Key words: programmed teaching aids, electronic didactic tool, electronic textbook, training simulators, virtual laboratory stand, electronic constructor.

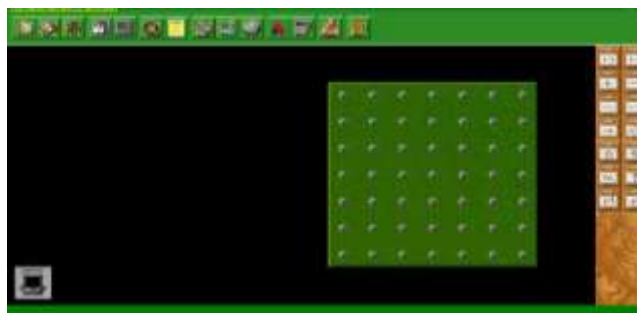
Introduction

We know from pedagogical experience that the use of information technology in higher education institutions, especially in the teaching of humanities and natural sciences in the field of technological education, plays an important role in increasing the effectiveness of education. Programmed learning tools have a special place in this.

The psychological and physiological effectiveness of programmed learning tools is determined first of all by the level of students' mastery of learning materials, upbringing and intellectual development, performance indicators, levels of motivational stability. Second, it is related to the teacher's activity, which is determined by the concepts of teaching, indicators of rational use of pedagogical technologies and teaching aids, stable motivation of the teacher to work, ability to work.

It is important to take into account the psychological and physiological characteristics of students in the development of programmed learning tools. The functional, psychological and physiological capabilities of students must be taken into account in the formation of students' independent learning skills and competencies based on the use of programmed educational tools. In this regard, the virtual laboratory stand, part of the programmed e-learning tool developed in the department of "Electromagnetism" in physics, designed to improve the methodology of professional competence of future teachers of technology, designed for students of higher education 5112100-Technological Education (Future Teachers of Technology) .

The program consists of an electronic constructor, which allows you to display the assembly process of electrical circuits on a monitor screen, to study their mode of operation, to measure electrical quantities as in real experiments. [1;2].



Picture-1. View of the virtual stand head window.

One of the main features of the complex is that it is able to reflect the real physical process to the maximum.

Literature review

Based on the important tasks described above, to educate future teachers of "Technology" as teachers with high intellectual potential in "Physics", professionally mature, creative thinking and observation on the basis of innovative achievements of science. and the creation of a new generation of virtual learning tools programmed to train competitive, highly qualified personnel.

Of A.R. Juraev "Improving the methodology for the formation of professional competencies of future teachers based on training software" In the dissertation of Doctor of Philosophy (PhD) in pedagogical sciences, on the basis of programmed teaching aids (convenience, visual, practical orientation) by developing didactic opportunities for the formation of general technical skills in the qualification requirements through the use of programmed teaching aids in the preparation of future teachers (expansion-computational-graphic, technological-design, creative design), improving the development of interactive teaching methods on the basis of the laws of virtual reality.

Research Methodology

The following is an example of a laboratory lesson from the Department of Electromagnetism in Physics:

The purpose of the work: to determine the specific resistance of the conductor and compare it with the quantity in the table.

1. Brief theoretical information

In 1826, the German physicist Georg Om (1787-1854) determined that the ratio between the voltage U between the ends of a metal conductor, which is part of an electrical circuit, and the current I in the circuit was a constant value.

$$R = \frac{U}{I} = \text{const} \quad (1)$$

This is called the electrical resistance of an R -sized conductor. Electrical resistance is measured in Om. In a part of a circuit with a current of 1 A with an electrical resistance of 1 Om, the voltage is 1 B:

$$1 \text{ Om} = \frac{1 \text{ B}}{1 \text{ A}}$$

Experiments show that the electrical resistance of a conductor is directly proportional to its length L and inversely proportional to the cross-sectional area S of the chain:

$$R = \rho \frac{L}{S}; \quad (2)$$

The constant parameter for this substance is called the specific electrical resistance of the substance. Relative resistance is measured at $\text{Om} \cdot \text{m}^2 / \text{m}$.

Below are photos of the procedure and the process of conducting laboratory classes using a virtual stand:

The method “Logically confusing chain”

The method “Logically confusing chain” – new concepts on the subject in the course of the lesson, to ensure the connection between the ideas expressed, to ensure the correctness of the stages of a technological process, to help them to express and place them logically in a consistent sequence. [3;4].

The task of students is to correctly place the logically and sequentially misrepresented information (steps), to correct the logical confusion, to "connect" the broken chain by placing the ideas in the right order.

Application of the method in training is carried out in the following order:

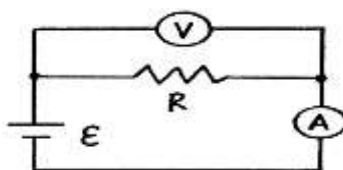
- students are divided into 3 or 4 small groups;
- handouts (cards) with confusing information are distributed to groups;
- Students try to “connect” the broken chain by identifying the logical errors and confusions expressed in the cards;
- At the end of the allotted time, one member of each group states the group's response;
- The teacher evaluates the opinions of the groups, demonstrates the correctness of the process using programmed teaching aids, interprets and summarizes the ideas.

2. The order of work

2.1. Assemble the wiring diagram shown in the figure on the assembly table:

2.2. Select nickel as the conductive material, specify the length and cross-sectional area dimensions:

$L = 100 \text{ m}; S = 0.1 \text{ mm}^2;$



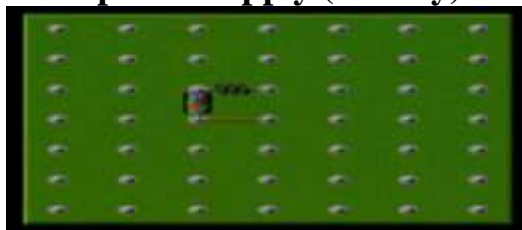
Picture-2. View of the electrical circuit.



Picture-3. Place the conductor on the mounting table.



Picture-4. Place the AC power supply (battery) on the mounting table.



Picture-5. Place the real conductor on the mounting table.

2.3. Determine the current in the circuit using a multimeter.

Connect the multimeter in series with the circuit, taking into account the alternating current and polarity, and turn it on in measurement mode. Record multimeter instructions.



Picture-6. Place the multimeter (to measure current) on the mounting table.

2.4. Using a multimeter, determine the voltage across the conductor experimentally.

To do this, the multimeter must be connected in parallel to the conductor, in the mode of measurement of constant voltage, taking into account the polarity. Record multimeter instructions.



Picture-7. Place the multimeter (for measuring voltage) on the mounting table.

2.5. Calculate the conductor resistance by formula (1).

$$R = \frac{U}{I} = \frac{1,27}{0,74} = 1,71 \text{ Ом}$$

2.6. Determine the specific resistance of nickel by formula (2).

Experience 1: ($L = 100 \text{ м}$; $S = 0.1 \text{ мм}^2$;))

$$\rho = \frac{RS}{L} = \frac{1,71 \cdot 0,1 \cdot 10^{-6}}{100} = 0,17 \cdot 10^{-8} = 1,7 \cdot 10^{-9} \text{ Ом} \cdot \text{м}^2/\text{м}$$

2.7. By changing the length, 2.3 - 2.6. calculate the points, however, do not change the conductive material and the cross-sectional area.

Experience 2: ($L = 200 \text{ м}$; $S = 0.1 \text{ мм}^2$;))

$$\rho = \frac{RS}{L} = \frac{1,71 \cdot 0,1 \cdot 10^{-6}}{200} = 0,08 \cdot 10^{-8} = 0,8 \cdot 10^{-9} \text{ Ом} \cdot \text{м}^2/\text{м}$$

Experience 3: ($L = 300 \text{ м}$; $S = 0.1 \text{ мм}^2$;))

$$\rho = \frac{RS}{L} = \frac{1,71 \cdot 0,1 \cdot 10^{-6}}{300} = 0,05 \cdot 10^{-8} = 0,5 \cdot 10^{-9} \text{ Ом} \cdot \text{м}^2/\text{м}$$

2.8. Enter the measurement results in the table:

Experience №	Length, м	Voltage, В	Electric current, А	Resistance, Ом	Specific resistance, Ом · м ² /м
1	100	1,27	0,74	1,71	$1,7 \cdot 10^{-9}$
2	200	1,27	0,74	1,71	$0,8 \cdot 10^{-9}$
3	300	1,27	0,74	1,71	$0,5 \cdot 10^{-9}$

2.9. Find the average value of the specific resistance and compare it with the quantity in the table.

$$\Delta \rho = \frac{\rho_1 + \rho_2 + \rho_3}{3}$$

$$\Delta \rho = \frac{1,7 \cdot 10^{-9} + 0,8 \cdot 10^{-9} + 0,5 \cdot 10^{-9}}{3} = 1 \cdot 10^{-9} \text{ Ом} \cdot \text{м}^2/\text{м}$$

2.10. Directly, measure the resistance of the conductor using an ohmmeter. Compare the results obtained.

Describe the results of the work done.

Conclusion

The virtual laboratory stand, which is part of the programmed e-learning tool developed by the Department of Physics "Electromagnetism" in improving the methodology of formation of professional competencies of future technology teachers, consists of developing theoretical skills and practical skills in laboratory experiments, programmed teaching aids. serves as an electronic didactic tool.

The constructor can be used in the teaching of physics in the direction of 5112100-Technological education and for independent creative work of students, within its capabilities and in other matters.

References:

- [1]. Kakhhorov S.K., Zhuraev A.R. Method of application of virtual stands in teaching subjects of electrical engineering, radio engineering and electronics// LXII International correspondence scientific and practical conference «International scientific review of the problems and prospects of modern science and education» (Boston. USA. September 22-23). 2019. – P. 44-47.
- [2]. Zhuraev AR. The choice of the optimized content of labor education and the methodology of its training (5A112101 – Methodology of labor training). Tashkent - 2014 from 107.
- [3]. Zhuraev A.R., Aslonova M.S., Bakhranova U.I. Methodology of using electronic textbooks in teaching the direction "Technology and design" of the subject of technology // "Problems of Pedagogy" scientific and methodological journal № 3 (35) / Russia, Moscow. 2018 .- P. 23 - 25.
- [4]. Zhuraev A.R., Raufova N.R. Methods of using the Flash program in teaching the subject of technology in the direction of "Technology and design" // "Asademy" scientific and methodological journal № 6 (33) / Russia, Moscow 2018 .- P. 79 - 80.

- [5]. Zhuraev A.R. Research and methodology background to the optimization of labour and professional training curriculum in general secondary education // International scientific journal. № 7 (35) / Russia Volgograd. International scientific journal. № 7 (35) / Russia Volgograd. Impact factor of the journal «Science and world» – 0.325 (Global Impact Factor 2013, Australia) 2016. – P. 70-71.
- [6]. Zhuraev A.R. Improvement of the methodology for the formation of professional competencies of future teachers on the basis of teaching software. Abstract of a PhD thesis in pedagogical sciences. 13.00.05 - Theory and methodology of vocational education. Tashkent - 2019 from 56.
- [7]. Zhuraev A.R. Methods of applying virtual laboratories in teaching hydraulics and heat technology // “European Journal of Research and Reflection in Educational Sciences”. -Great Britain. 2019. №7 (7). – P. 35-40.
- [8]. Zhuraev A.R. Types of education and importance of ensuring the coherence of education content in terms of subject. “Science and world” International scientific journal. № 7 (35) / 2016, Russia Volgograd. Pg, 67-69.
- [9]. Zhuraev A.R., Bakhranova U.I. The use of tasks and concepts related to geometric shapes for the integrated teaching of labor education with the subject of geometry. "Advances in Science and Education" monthly scientific - methodical journal № 7 (8) / 2016 - Russia, Moscow, p. 83 - 85.
- [10]. Bakhranova U.I., Khaidarova F.Sh., On the Fredholm determinant associated with the family of generalized Friedrichs models // "Advances in Science and Education" monthly scientific - methodological journal № 7 (8) / 2016 - Russia, Moscow P 5 - 7.

UDC 811.11

**THE CONTRASTIVE ANALYSIS OF CHINESE PREPOSITIONS "GĚI, DUÌ"
AND CORRESPONDING UZBEK AUXILIARIES/AFFIXES**

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Аннотация: Китайский - изолированный язык. Предлоги используются для выражения грамматических значений. Как правило, предложные фразы состоят из существительных. Целые предложные фразы в основном используются как наречия перед предикатами предложения. Узбекский - связный язык, в нем много аффиксов и вспомогательных средств. Аффиксы помещаются после частей речи, чтобы выразить грамматические значения, такие как местоположение, время и объект. В узбекском языке нет классификации "предлогов", и большинство из них соответствует китайским предлогам как "аффиксы или вспомогательные числа". В этой статье используются четыре этапа "сравнительного анализа". Во-первых, он описывает китайские предлоги "Gěi (для/к), Duì (для/к)" и соответствующие им узбекские аффиксы или вспомогательные символы. Во-вторых, китайские предлоги "Gěi (для/к), Duì (для/к)" сравниваются с соответствующими узбекскими аффиксами или вспомогательными числами. Наконец, на основе результатов сравнительного анализа, эта статья предсказывает перенос в усвоении китайских предлогов "Gěi (для/к), Duì (для/к)" носителями узбекского языка.

Ключевые слова: китайский язык, узбекский язык, препозиция, сравнительный анализ, языковой перенос.

Аннотация: Xitoy tili - ajratilgan til. Bosh gaplar grammatik ma'nolarni ifodalash uchun ishlatiladi. Odatda, predlogli iboralar otlardan tuzilgan. Butun bosh gapshakllar asosan gap predikatlari oldida ergash gap sifatida ishlatiladi. O'zbek tili yaxlit tildir, qo'shimchalar va yordamchilar ko'p. Affikslar gapning tana qismlaridan keyin joylashish, vaqt va predmet kabi grammatik ma'nolarni ifodalash uchun joylashtiriladi. O'zbek tilida "bosh gap" tasnifi mavjud emas va ularning aksariyati "qo'shimchalar yoki yordamchilar" kabi xitoycha prepozitsiyalarga mos keladi. Ushbu maqola "qarama-qarshi tahlil" ning to'rtta bosqichini o'z ichiga oladi. Birinchidan, unda xitoycha "Gěi (-ga), Duì (-ga)" so'z birikmalari va unga tegishli o'zbekcha qo'shimchalar yoki yordamchilar tasvirlangan. Ikkinchidan, xitoycha "Gěi (-ga), Duì (-ga)" so'z birikmalari o'zbek tilidagi tegishli qo'shimchalar yoki yordamchilar bilan taqqoslanadi. Va nihoyat, qarama-qarshi tahlil natijalariga asoslanib, ushbu maqolada xitoycha "Gěi (-ga), Duì (-ga)" prepozitsiyalarini o'zbek tilida so'zlashuvchilar tomonidan sotib olinishi taxmin qilinmoqda.

Калит so'zlar: xitoy tili, o'zbek tili, prepozitsiyalar, qarama-qarshi tahlil, til uzatish

Abstract: Chinese is an isolated language. Prepositions are used to express grammatical meanings. Generally, prepositional phrases are composed of nouns. The whole prepositional phrases are mostly used as adverbials in front of sentence predicates. Uzbek is a cohesive language, affixes and auxiliaries are abundant. Affixes are placed after body parts of speech to express grammatical meanings such as location, time and object. There is no "preposition" classification in Uzbek, and most of them correspond to Chinese prepositions as "affixes or auxiliaries". This paper adopts four steps of "contrastive analysis". Firstly, it describes the Chinese prepositions "Gěi(for/to), Duì(to)" and its corresponding Uzbek affixes or auxiliaries. Secondly, the Chinese prepositions "Gěi(for/to), Duì(to)" are compared with the corresponding Uzbek affixes or auxiliaries. Finally, based on the results of contrastive analysis, this paper predicts the transfer in the acquisition of Chinese prepositions "Gěi(for/to), Duì(to)" by Uzbek speakers.

Key words: Chinese language, Uzbek language, preposition, contrastive analysis, language transfer

Introduction

The so-called "contrastive analysis" refers to a method of linguistic analysis that compares the systems of the two languages to reveal their similarities and differences. In 1957, Lado pointed out in the book *Intercultural Linguistics* that projects that are similar to the learner's mother tongue are easier for them, and it is difficult to learn from their different mother tongue projects (Cited by D. J. Chi & S. Hashimova, 2019). Therefore, a systematic comparison of the two languages can predict where the learner may or may not have difficulty in learning the target language, thus adopting more effective second language teaching measures in the teaching. According to Lado (1957), the process of contrastive analysis generally has four steps:

First, description. The target language and the learner's first language are described in detail and in detail as the basis for comparison. In this paper, the modern Chinese prepositions and corresponding Uzbek auxiliaries/affixes are described in detail.

Second, selection. Choose some meaningful language projects or structures to compare between the two languages.

Third, comparison. Compare the selected language items or language structures in the two languages to find the same points and differences between the two languages.

Fourth, prediction. On the basis of comparison, predict the difficulties and errors that may occur in the learning of second language (Cited by D. J. Chi 2019).

Chinese and Uzbek belong to two completely different grammatical systems. Chinese belongs to the Sino-Tibetan language family and is an isolated language. Uzbek belongs to the Altai language family and is an adhesive language. The grammatical structure of the two languages is quite different. There is no "preposition" in Uzbek, only some "affixes" or "auxiliaries" corresponding to Chinese prepositions. Therefore, many Uzbek students find it difficult to learn Chinese prepositions. In addition, Chinese prepositions themselves are rich and diverse, and their usage is changeable, if the teaching methods used by teachers are not scientific enough, it will

inevitably lead to a large number of errors in the use of Chinese prepositions by beginners.

This paper selects Chinese prepositions "Gěi(for/to), Duì(to)" and compares them with its corresponding Uzbek auxiliary words or affixes to find out their similarities and differences, and predicts the transfer that Uzbek speakers may have in their learning.

Comparison overview

According to the "Chinese Proficiency Test Vocabulary Outline", a total of 41 prepositions were collected. There is no such classification as "preposition" in Uzbek, but there are "affixes" or "auxiliaries" corresponding to the meaning of Chinese prepositions. The specific comparison is as follows:

Table 2-1 The comparison of Chinese Prepositions and Uzbek Affixes /Auxiliaries

No.	Chinese preposition	Corresponding Uzbek	No.	Chinese preposition	Corresponding Uzbek
1	按àn	-ga ko'ra	22	和hé	bilan
2	按照ànzào	-ga asoslanib	23	跟gēn	bilan
3	依照yīzhào	-ga tayanib	24	同tóng	bilan,hamda
4	照zhào	-ga asoslanib	25	随suí	bilan
5	对duì	-ga	26	与yǔ	bilan
6	给gěi	-ga	27	将jiāng	-ni
7	往wǎng	-ga qarab	28	把bǎ	-ni
8	向xiàng	-ga	29	叫jiào	tomonidan
9	朝cháo	-ga	30	被bèi	tomonidan
10	从cóng	-dan	31	比bǐ	nisbatan
11	从...到 cóng...dào	...dan...gacha	32	趁chèn	foydalanib
12	从...起 cóng...qǐ	-dan boshlab	33	冲chōng	asoslanib
13	除chú	-dan tashqari	34	当dāng	qachonki
14	打dǎ	-dan	35	关于guānyú	haqida
15	距jù	dan...gacha(masofa)	36	经过jīngguò	orqali
16	距离jùlí	dan...gacha(masofa)	37	就jiù	darhol
17	离lí	-dan(masofa)	38	顺shùn	bo'ylab
18	为wèi	uchun	39	通过tōngguò	orqali
19	为了wèile	uchun	40	由yóu	sababli
20	以yǐ	uchun,maqsadida	41	由于yóuyú	sababli
21	在zài	-da (joyga nisbatan)			

It can be seen from the above table that Chinese prepositions are rich and varied,

while the number of affixes or auxiliary words corresponding to Chinese prepositions in Uzbek is relatively less, and the same affix or auxiliaries are often translated into multiple Chinese prepositions. For example, the suffix "-ga" in Uzbek can be used to translate nine prepositions into Chinese: "Dùi(to)、Gěi(for/to)"、Wǎng(toward)、Xiàng(toward)、Cháo(toward)、àn(according)、zhào(according)、ànzhào(according to)、yīzhào(according to)"; the auxiliary word "billan" in Uzbek can be translated into five Chinese prepositions: "Hé(and)、Gēn(and)、Tóng(with)、Suí(follow)、Yǔ(and)". Although the semantics of some prepositions in Chinese are similar, the specific usages are not the same, which makes a certain difficulty in acquiring Chinese prepositions for Uzbek students.

According to "The Eight Hundred Words of Modern Chinese" (Lu Shuxiang ed. 1999). The donate-accept preposition "Dùi(to)" and "Gěi(for/to)" are selected to contrast with its corresponding Uzbek affixes/auxiliaries. The following is a detailed introduction of the usage of the 2 prepositions and contrast with the corresponding Uzbek.

3. Contrastive Analysis of Chinese Prepositions "Gěi(for/to), Dùi(to)" and Corresponding Uzbek Affixes/Auxiliaries

3.1 The preposition "Gěi(for/to)"

According to "The Eight Hundred Words in Modern Chinese" (Lu Shuxiang ed. 1999), the preposition "Gěi(for/to)" generally has four usages:

(1) Introducing the recipient of the action.

① Chinese: Zuótiān bàba **gěi** wǒ jiǎngle yíge gùshi.

Uzbek: Kecha otam menga **ga hikoya** aytib berdi.

English: My father told me a story yesterday.

② Chinese: Bǎ zhè běn shū jiè **gěi** wǒ kànkàn.

Uzbek: Bu kitobni menga **ga o'qishga** berib tur.

English: Lend me the book to have a look.

"Gěi" indicates the recipient of the introduction action, which can be used before the verb (sentence ①), and its sentence pattern is generally expressed as "A+Gěi(for/to)+B+V.". It can also be used after the verb (sentence ②), its sentence pattern is generally expressed as "A+V.+Gěi(for/to)+B". The affix corresponding to the preposition "Gěi" in Uzbek is "-ga", but there is only one sentence pattern of "A+B-ga+V.". The affix "-ga" is usually attached to action recipient "B".

(2) "Gěi wǒ(give me) + verb"

① Chinese: Wǒde shǒujī bújiànle, gěi wǒ zhǎozhǎo. (for me / help me)

Uzbek: Mening telefonim ko'rinmay qoldi, menga uni qidirishib yubor.

English: My phone is missing, find it for me.

② Chinese: Wǒ bùxiǎng jiàndào nǐ, gěi wǒ chūqu. (Strengthen tone)

Uzbek: Men seni ko'rishni xohlamayman, ketishga ijozat ber.

English: I don't want to see you, get out.

"Gěi wǒ+verb" is used in command sentences. Generally, it has two meanings: one is "for me" or "help me" (sentence ①); the other is to strengthen the mood to express "command" (sentence ②). The first usage, there is a corresponding usage "Menga" in Uzbek. But for the second, there is no corresponding usage in Uzbek, and

only through free translation.

(3) Indicate "to; toward"

① Chinese: **Gěi** xiǎohái jiǎnggùshi.

Uzbek: Yosh bolalarga ertak aytish.

English: Tell a story to children.

② Chinese: **Gěi** lǎoshī xínglǐ.

Uzbek: O'qituvchiga salm bermoq.

Give a salute to the teacher.

③ Chinese: Qǐng **gěi**tā dàoqiàn.

Uzbek: Iltimos, **Undan** uzur so'ramoq.

English: Please apologize to him.

"Gěi" indicates the object of the action, the meaning is like "to" or "toward", and its sentence is generally expressed as "Gěi(to)+B+V.". There is also a corresponding usage in Uzbek. The same as "Gěi(for/to)" is also the affix "-ga", and its sentence is generally expressed as "B-ga+V." (sentence ①②). But before some verbs, Uzbek can't be translated into "-ga", but "-dan" (sentence ③).

(4) Indicates passive.

Chinese: Tā **gěi** lǎoshī pīpíng le.

Uzbek: U o'qituvchisidan tanbeh oldi.

English: He criticized by the teacher.

"Gěi" indicates passive, used for passive sentences, and is similar to the expression of "Bèi (by)、 Jiào(called) and Ràng(let)", and its sentence is generally expressed as "A+ Gěi(by)+B+V.". There is also a corresponding usage in Uzbek, but the corresponding is not the affix "-ga", but the auxiliary word "tomonidan", and its sentence is generally expressed as "A+B+tomonidan+V.". The Uzbek language has only one word for passive expression, and the object of the application is in front of "tomonidan".

3.2 The preposition "Duì(to)"

(1) Indicates the object of the action;

Wǒ yǐjīng **duì** māma shuōle

Men allaqachon onamga aytdimki.

I already said to my mother.

"Duì" indicates the object of the action, and its sentence is generally expressed as "A+Duì(to)+B+V.". There is also a corresponding usage in Uzbek. The same as "Gěi(for/to)" is also the affix "-ga", and its sentence is generally expressed as "A+B-ga+V.". The affix "-ga" is also attached to the action object "B".

(2) Indicates treatment.

Bàba **duì** wǒmen hěn guānxīn.

Otam menga juda qayg'uradilar.

Dad is very concerned about us.

"Duì" indicates treatment, the usage is similar to the first usage, and its sentence is generally "A+Duì(to)+B+V.". The corresponding Uzbek is also the affix "-ga", and the sentence is also "A+B-ga+V.".

(3) "Duì...láishuō"(For ...) . E.g:

Duì wǒ láishuō, xuéxí hěn kuàilè.

Men uchun o'qish juda qiziqarli.

For me, study is very happy.

"Duì" means that from the perspective of someone or something, it is often used in the fixed sentence pattern "for...". There is no such usage in Uzbek, and sentences can only be translated through "meaning translation."

Chinese prepositions are rich and varied, and they are difficult to use. Students often avoid using them because "the use of prepositions and collocations is limited. It is this limitation that enables learners to use only one preposition in combination with other words and master prepositions in syntactic changes" (Zhao Kuixin 2002).

Conclusion:

Based on the above Contrastive Analysis, the following transfer predictions are proposed for Chinese learners whose mother tongue is Uzbek.

Because there are no preposition classification in Uzbek language, the prepositions in Chinese and the corresponding in Uzbek language are mostly affixes or auxiliary words, and the word order of affixes or auxiliary words in Uzbek language is different from that in Chinese prepositions. Therefore, most learners will produce negative transfer effect when they acquire Chinese prepositions. The details are as follows:

When "Gěi" indicates passivity, used for passive sentences, and is similar to the expression of "Bèi (by)、 Jiào (called) and Ràng (let)". The word "Bèi" is often used to express passivity in Chinese, but learners may strange that "Gěi" can also express passivity. Therefore, when learners do translation exercises, they may not know this usage, but translate the meaning of "Gěi" into the commonly used "to/for(-ga)". E.g: "Tā gěi lǎoshī pīpíng le (U o'qituvchisidan tanbeh oldi)", the learner may produce errors "*U o'qituvchisiga tanbeh oldi".

The same affixes or auxiliary words in Uzbek can express multiple Chinese prepositions, which is prone to errors. For example: the affix "-ga" in Uzbek can express the grammatical meaning of object, treatment, space, direction, etc. It can be translated into nine prepositions in Chinese: "Duì (to)、 Gěi (for/to)、 Wǎng (toward)、 Xiàng (toward)、 Cháo (toward)、 àn (according)、 zhào (according)、 ànzhào (according to)、 yīzhào (according to)". Influenced by the negative transfer of mother tongue and knowledge of the target language, learners may confuse the usage of the above nine prepositions. E.g: "Bàba **duì** wǒmen hěn guānxīn (Otam menga juda qayg'uradilar)", the learner may produce errors "*Bàba **gěi** wǒmen hěn guānxīn".

References:

- [1] 2001 National Chinese Proficiency Test Committee Office Examination Center "Chinese Level Vocabulary Chinese Character Grade Outline", China: Economic Science Press.
- [2] 2002 Chinese Language Proficiency Test Department of the Chinese Language Proficiency Test Office, "Chinese Proficiency Level Standards and Grammar Grades" Higher Education Press.
- [3] Brown, H. D. 2005. Principals of language learning and teaching (5th ed.). New

York: Pearson Education.

[4] Chi Daojia 2019 The Contrastive Analysis of Modern Chinese and Uzbek Consonants. American Journal of Research, No.3-4, Michigan,USA.

[5] Chi Daojia, Hashimova S. 2019 The Contrastive Evaluation On Modern Chinese and Uzbek Vowels. International Journal of Engineering and Advanced Technology (IJEAT), Volume-9 Issue-1. India: Blue Eyes Intelligence Engineering & Sciences Publication

[6] Ellis, R. 1985. Understanding second language acquisition. Oxford: Oxford University

[7] Gass & Selinker 2008 Second language acquisition: An introductory course (Third edition). New York: Routledge.

[8] Gulibanumu 2015 Uzbek Language Course, Beijing: Central University for Nationalities Press

[9] Huang Borong, Liao Xudong 2011 Modern Chinese (updated five editions), Beijing: Higher Education Press.

[10] James, C. 1980. Contrastive Analysis. London: Longman.

[11] Liu Xun 2000 Introduction to Teaching Chinese as a Foreign Language, Beijing: Beijing Language and Culture University Press.

[12] Liu Xun 2002 Practical Chinese Textbooks [M], Beijing: Business Press

[13] Lu Shuxiang 1999 "Modern Chinese 800 Words" (Revision) , Beijing: Commercial Press

[14] Shao Jingmin 2008 General Introduction to Modern Chinese (2nd Edition), Shanghai: Shanghai Education Press .

[15] Whitman, R. L., 1970. Contrastive Analysis: Problems and Procedures. Language Learning, Volume 20, pp.191-197.

[16] Yang Jizhou 1999 Chinese Course, Beijing Language and Culture University Press

[17]

[18] Zhao Kuixin, 2002, "Investigation of Foreign Students Studying and Using Chinese Prepositions" World Chinese Teaching, No. 2, P100-106

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LINGUOPOETIC PROPERTIES OF ANTHROPONYMS IN THE ARTISTIC TEXT (ON THE EXAMPLE OF "BOBURNOMA")

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Аннотация. Ушбу мақолада “Бобурнома” бадиий матнида келтирилган антропонимларнинг лингвопоэтик хусусиятлари, Бобурнинг лингвистик ва поэтик бирликларни қўллаш маҳорати баён этилган.

Калит сўзлар: Лингвопоэтика, антропонимлар, ийҳом, талмеҳ, ўхшатиш, метафора, таърих, аллюзия. **Аннотация.** В статье описаны лингвопоэтические особенности антропонимов в художественном тексте «Бобурнома», умение Бобура использовать лингвистические и поэтические единицы.

Ключевые слова: лингвопоэтика, антропонимы, ихом, талме, сравнение, метафора, история, аллюзия.

Annotation. This article describes the lingvopoetic features of anthroponyms in the literary text "Boburnoma", Bobur's ability to use linguistic and poetic units.

Key words: linguopoetics, anthroponyms, iyhom, talmeh, simile, metaphor, history, allusion.

Introduction. Because language is a powerful tool for influencing the listener, the science of linguistics is inextricably linked with literature, and this has given rise to the science of lingvopoetics. “Linguopoetics is an abbreviated form of linguistic poetics, which studies the artistic and aesthetic functions of linguistic units (phonetic, morphemic, lexical, etc.) used in works of art, the connotative function of language. In other words, lingvopoetics is the branch of linguistics that studies artistic speech” [1; 163].

Linguopoetics allows to study the works of writers and poets, to get acquainted with examples of language and literary language. The work covers not only the language but also the content aspect, and only a linguopoetic analysis can show the harmony of the content and form of the text.

Literature review. The need to study the means of expression in literary texts and their aesthetic impact on the reader, poetics, the need to study the means of language that serve the imagery, connects it closely with lingvopoetics. For this reason, elements of poetic language are considered as the subject of lingvopoetics. From this point of view, the onomastic units used in the literary text of the work "Boburnoma" are the basis for their interpretation as anthroponyms for their functional activity, especially since the role of historical anthroponyms in the literary text is wide. The historical anthroponyms mentioned in the text indicate the purpose of the creator. We

can see this goal in the poetic passages or prose texts cited in the play. The creator cites a fact in the history of the activity of the person who caused an important date or event:

*Улугбек баҳри улум-у хирад,
Ки дунёв-у динро аз ӯ буд пушт.
Зи Аббос шаҳди шаҳодат чашид,
Шудаи ҳарфи таърих: “Аббос кушт”. [2; 111]*

or

*Абдуллатиф хисрави Жамиид фар ки буд,
Дар силки бандагонаи Фаридун-у Зардухушт.
Бобо Ҳусайн кушт жумъааш ба тир,
Таърихаи ин нависки “Бобо Ҳусайн кушт” [2; 112]*

“The method of "referring to historical events, famous works, religious, mythological narratives, and the like, which are well known to the general public, or bringing their fixed concepts into the literary text" [3; 124] is called allusion. Through the antronyms *Ulugbek*, *Abbas*, *Abdullatif*, *Bobo Hussein* mentioned in these verses, historical figures are mentioned and give information about their place in history and serve as an allusive name. However, the anthroponyms "*Abbas killed*" and "*Bobo Hussein kusht*" have lost their meaning, and now these words, in addition to the name of the person, also represent the date of a particular event and provide additional information. In this way we can know the date of a particular event and the person who caused that event.

In the play, when Babur conquered Samarkand for the second time, the poets told the poetic story of this victory:

*Боз гуфто хирад, ки таърихаи:
“Фатҳи Бобур баҳодур аст”, бидон. [2; 148]*

This verse also refers to the event and the cause of the event through the list of words "*The conquest of Babur is a hero*", while Babur Mirza was praised by contemporary poets.

We know that in lyrical genres, analogy, ihham, tariz, nido and other artistic means are used.

*Абдуллатиф эди Жамиидсимон шоҳ,
Қуллар сафида Фаридун, Зардушт.
Бобо Ҳусайн отди жума кеч уни,
Таърихини ёзгин: “Бобо Ҳусайн кушт”*

This poetic history is about Abdulatif, and in the first stanza of the poem, Abdulatif is likened to the legendary king Jamshid and ridiculed. In the poetic text, Jamshid has been the standard of imitation. In the second stanza, both Faridun and Zoroaster use metaphors and sarcasm to refer to their companions by familiar names.

In this passage, mentioned in the “Boburnoma”, we can see that the art of ihham was used through anthroponyms:

Ул сарвинг ҳаримиға гар етсанг , эй сабо,

Бергил бу ҳажр хастасидин ёд кўнглига.

Раҳм айлабон соғинмади Бобурни, бор умид

*Солғай Худой раҳми **Фўлод** кўнглига. [2; 333]*

We know that the anthroponym Fomad, quoted in verse 4 of the Continent, is used in two different senses. The first meaning is Fulad (sultan) meaning "person's name", the second meaning means " *нўлат* " (solid body).

Research Methodology. "From the point of view of artistic and aesthetic value, linguopoetic weight, free analogies have a special place in artistic speech as one of the means of demonstrating a writer's skill. The writer creates a variety of original analogies in accordance with the purpose of his artistic description, which impresses the reader with its unpredictability and complexity, the reader's mind is aware of a certain mental or physical state, character, object. [4; 88]

Analysis and results. Mythological anthroponyms also receive the status of mythopoetonyms only if they are related to art. In these four, the mythopoetonyms mentioned in the Boburnoma also expressed their linguopoetic features.

*Абдуллатиф хисрави **Жамшид** фар ки буд,*

*Дар силки бандагонаш **Фаридун-у Зардухуш**.*

Бобо Ҳусайн кушт жумъааш ба тир,

Таърихаш ин нависки "Бобо Ҳусайн кушт". [2; 111]

In this poetic history, the mythopoetonyms Jamshid, Faridun and Zoroaster expand the onomastic scope of the text. "Names, stable phrases, sentences and texts of a person who is well known to certain speakers of language and are remembered in their linguistic memory, frequently referred to in speech activity" are presidential units "[8; 87]. These names are widely known as presidential names and are associated with them. Mythopoetonyms perform similar functions in the literary text, such as analogy, comparison, onomastic metaphor.

"There is a spring below Obburdan and a tomb is standing on top of it. Above this spring is Mascho. Kuisi belongs to Palgar. At the beginning of this spring, I engraved these three verses on the stone above it:

*Шунидамки, **Жамшеди** фаррухсиришт,*

Ба сарчаишмае бар санге навишт:

"Бар ин чаишма чун мо баче дам заданд,

Бирафтанд то чаиш барҳам заданд.

Гирифтанд олам бо марди-ю зўр,

Ва лекин набурдем бо худ ба гўр".

In this mountainous place, it is customary to carve a stone and finish things. " [2; 163] The anthroponym Jamshed mentioned in these verses is a well-known name. These verses are quoted in Sheikh Saadi's Buston. Here Babur does not mention the author of the verses. However, these verses tell the custom of the representatives of this region and the tomb is mentioned in the text, which is probably why a king like Jamshid was buried in the cemetery or comforted himself. The anthroponym Birgina Jamshid introduces the reader to such information. In addition to the poetic texts in the

literary text of the work "Boburnoma", the anthroponyms in the prose texts are both poetic and linguistic. For example, "One of the strange events is that on Wednesday, Sultan Husayn Mirza defeated Badiuzzaman, and in Astrobod Muzaffar Mirzo defeated Muhammad Mumin. The strange thing is that a man named Chahshanba captured Muhammad Mumin Mirza "[2; 102] In this passage, the anthroponym Wednesday means that a person named Wednesday was born on a Wednesday, that is, if the nomination of that anthroponym is known, on the other hand, the event on Wednesday is the reason why Bobur remembers it for a long time. In another verse, Babur used the art of talmeh through anthroponyms:

*Шайху Мулло Шихобу Хондамир,
Келинг уч-уч, икки-икки, бир-бир. [2; 510]*

In these verses, the reader is given an aesthetic pleasure by playing with words through anthroponyms, using the art of rhetoric and publishing. In other words, in the first verse, 3 people are mentioned, and in the second verse, they are used in the sense of 3 people, or 2 people, or one by one. Or the anthroponyms in verse 1 are given in a coherent part, that is, in the tone of counting, and the threat is the basis of the art.

Conclusion/Recommendations. Written monuments of the XV-XVI centuries, in particular, onomastics and anthroponymy of "Boburnoma" have not been specially studied. This is because "Boburnoma" has not studied the socio-political environment of the XV-XVI centuries, the onomastics of Central Asia, Afghanistan, Khorasan, India [10; 124] and linguopoetics. "The names of people in the Boburnoma are a source of special research" [11; 37].

In conclusion, the onomastic units used in the work "Boburnoma" acquire linopoetic features in the literary text. This calls for the analysis of the onomastic units given in this historical text.

References:

- [1]. Нурмонов А. The relationship of linguistics with literature / Selected works. 3 years. - Tashkent: Akademnashr, 2012. - 3 years.
- [2]. Z. M. Bobur "Boburnoma", T.: "Teacher" Publishing and Printing House, 2018.
- [3]. Yuldoshev M. Linguopoetics of literary text. -Tashkent: Fan, 2008.
- [4]. Mahmudov N. and others Mother tongue (11th grade) "National Encyclopedia of Uzbekistan" State Scientific Publishing House, Tashkent - 2018.
- [5]. Kuronov D., Mamazonov Z., Sheralieva M. Literary Dictionary. - Tashkent: Akademnashr, 2013.
- [6]. Andaniyazova D. Linguopoetics of onomastic units in the literary text. Doctor of Philosophy (PhD) in philology author's ref. -Tashkent, 2017.
- [7]. Explanatory dictionary of the Uzbek language. Volume 3, T.: "National Encyclopedia of Uzbekistan" State Scientific Publishing House, 2007.
- [8]. Худойберганаева Д. Anthropocentric study of the text. - Tashkent: Fan, 2013.
- [9]. Begmatov E., Ulukov N. Explanatory dictionary of terms of Uzbek onomastics. Namangan, 2006. pp. 11, 50, 75

- [10]. Холманова З. Vocabulary "Boburnoma". Doctor of Philological Sciences, Dissertation - Tashkent, 2008.
- [11]. Madrahimov Z. Historical toponymy. Tashkent: Navruz Publishing House, 2017.

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**CHARACTERISTICS OF FOREIGN LANGUAGE COMPETENCE IN THE
STRUCTURE PROFESSIONAL COMPETENCE OF THE FUTURE
TEACHER OF VOCATIONAL EDUCATION**

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Аннотация: В статье даётся информация о том, что в настоящее время в психолого-педагогической литературе выделяется несколько подходов к определению феномена профессиональной компетентности, таких как: функционально-деятельностный подход. В рамках него компетентность описывается как единство теоретической и практической готовности к осуществлению педагогической деятельности, к выполнению профессиональных функций, при которой основные параметры задаются функциональной структурой педагогической деятельности.

Ключевые слова: профессиональная компетентность, психолого-педагогическая литература, функционально-деятельностный подход, аксиологический подход, личностно-деятельностный подход, специальная компетентность, социальная компетентность, личностная компетентность.

Аннотация: Maqolada hozirgi kunda psixologik va pedagogik adabiyotlarda kasbiy kompetensiya hodisasini aniqlash uchun bir necha yondashuvlar mavjudligi haqida ma'lumotlar keltirilgan, masalan: funktsional-faoliyat yondashuvi. Uning doirasida kompetensiya pedagogik faoliyatni amalga oshirishga, kasbiy funktsiyalarni bajarishga nazariy va amaliy tayyorgarlikning birligi sifatida tavsiflanadi, bunda asosiy parametrlar pedagogik faoliyatning funktsional tuzilishi bilan belgilanadi.

Tayanch so'zlar: kasbiy kompetensiya, psixologik-pedagogik adabiyotlar, funktsional-faollik yondashuvi, aksiologik yondashuv, shaxs-faoliyat yondashuvi, maxsus kompetensiya, ijtimoiy kompetensiya, shaxsiy kompetensiya.

Abstract: The article is focused on the information that at present in the psychological and pedagogical literature there are several approaches to defining the phenomenon of professional competence, such as: a functional-activity approach. Within the framework of it, competence is described as the unity of theoretical and practical readiness for the implementation of pedagogical activity, for the performance of professional functions, in which the main parameters are set by the functional structure of pedagogical activity.

Key words: professional competence, psychological and pedagogical literature, functional-activity approach, axiological approach, personal-activity approach, special competence, social competence, personal competence.

Introduction. Since the teaching profession is simultaneously transforming and managing, the concept of a teacher's professional competence expresses the unity of his theoretical and practical readiness to carry out teaching activities and characterizes his professionalism.

Currently, in the psychological and pedagogical literature, there are several approaches to defining the phenomenon of professional competence, such as: functional-activity approach. Within the framework of it, competence is described as the unity of theoretical and practical readiness for the implementation of pedagogical activity, for the performance of professional functions, in which the main parameters are set by the functional structure of pedagogical activity.[1]

Literature review. Axiological approach. Here, professional competence is considered as an educational value, which implies the introduction of a person into the general cultural world of values, in the space of which a person realizes himself as a specialist and professional.

Universal approach. According to it, professional competence is associated, on the one hand, with the basic qualifications of a specialist, on the other hand, it allows a person to navigate in a wide range of issues not limited to specialization. This ensures social and professional mobility of the individual, openness to change and creative search, the ability to self-expression, self-creation, and self-education.

Personal-activity approach. It examines the work and personality of the teacher as a person in the profession through the specifics of pedagogical activity, which involves interaction with other people and the impact on them. The scientific literature notes, "Professional competence is a psychological concept that includes, along with cognitive and behavioral aspects, long-term readiness for professional activity as an

integrative personality trait." Thus, professional competence is understood as a complex resource of an individual that provides an opportunity for effective interaction with the outside world in a particular professional sphere and which depends on the required set of certain competencies. According to N.M. Muslimov, the lexical meaning of the concept in English "competence" means "ability", but the term competence is an expression of knowledge, skills, skill and talent.[2]

NV Tarasova interprets the concept of "competence" as "general giftedness based on knowledge, values, abilities that make it possible to ensure the relationship between knowledge and the situation, knowledge and action to solve a problem." Based on the opinion of the author, speaking about competence, based on existing knowledge and life experiences, we can conclude that it is a person's ability to solve a certain problem.

Research Methodology. It is important to emphasize separately that many of the definitions given to the concept of "competence" are set out in conjunction with professional education and professional activity. But, in conjunction with general secondary education, this concept has an innovative characteristic, in this regard, there is a separate need to identify its essence.[3]

Competence is anticipation of social requirements (norms) for a predetermined educational preparation of a student, necessary for effective productive activity in a particular area.

There are various approaches to classifying the types of competence. Including N.A. Muslimov and M.B. Urazova from the point of view of professional education, the following types of competence are distinguished:

special competence - mastering one's professional activity at a sufficiently high level, the ability to design subsequent professional development;

social competence - joint professional activity, mastering cooperation, social responsibility to the results of one's own work;

personal competence - methods of personal independent reflection and independent development, assimilation by a person of the means of resisting professional deformations;

individual competence - mastering the methods of independent application and development of personality and within the framework of the profession, professional and personal growth, preparation of an independent organization and independent rehabilitation; core competencies - intercultural and interdisciplinary knowledge, abilities and skills of the individual for adaptation and fruitful creativity.[4]

Analysis and results. In the process of research, the lack of a generally recognized meaning of the concept of "competence" and a single characteristic of competencies was revealed. At the same time, the results of the analysis make it possible to speak about the generality of approaches to the problem in foreign and national pedagogy and the acme logical orientation of the competence of the individual.

Methodological competence includes possession of various teaching methods, knowledge of didactic methods, techniques and skills to apply them in the learning process, knowledge of the psychological mechanisms of knowledge assimilation and

the subject taught. Differential psychological competence includes the ability to identify personal characteristics, attitudes and orientation of trainees, to determine and take into account the emotional state of people, the ability to competently build relationships with leaders, colleagues, and students. Auto psychological competence implies the ability to realize the level of one's own activity, one's abilities, knowledge of the ways of professional self-improvement, the ability to see the reasons for shortcomings in one's work, in oneself, the desire for self-improvement. Thus, the professional competence of a teacher is his possession of the necessary amount of knowledge, skills, and abilities that determine the formation of pedagogical activity and pedagogical communication, as well as an integral multi-level and multifunctional system of interrelated competencies, part of which is methodological competence. In the structure of the teacher's professional competence, the following components are distinguished: theoretical and methodological, cultural, subject, psychological and pedagogical, technological. [5] Professional competence is determined mainly by the level of one's own professional education, experience and individual abilities person, his motivated striving for continuous self-education and self-improvement, creative and responsible attitude to work. The structure of the professional competence of a foreign language teacher is defined as an indissoluble unity of the content and structural components, implemented through the following competencies: communicative, philological, psychological and pedagogical, social, methodological, compensatory, general cultural, information and communication, management; [6]

Professional competence is formed in a higher educational institution, but its development can be carried out only in the process of teaching. Pedagogical practice stimulates the formation of professional competence. Most researchers note that among the professional difficulties that have to be overcome in practice, the most typical are methodological difficulties, which served as the basis for highlighting methodological competence in its expanded presentation. In the last decade, studies have been carried out on improving the quality of teaching in foreign languages and the formation of foreign language, communicative competence in non-linguistic universities. These works were carried out practically in one direction - rationalization and optimization of the methods of teaching foreign languages - and concerned the improvement of technologies, methods of communication. All of the above confirms the position that one of the main goals of higher professional education of a specialist in a non-linguistic university is the formation of a foreign-language communicative competence.

Conclusion/Recommendations. However, despite a fairly large number of studies in domestic and foreign literature, it should be noted that modern teaching a foreign language in a non-linguistic university, and in particular in a technical one, needs a comprehensive improvement of the methods, means, organization of training aimed at the formation of foreign language competence, taking into account the constantly updated requirements of society, the achievements of pedagogical and psychological sciences and its role as a tool for the formation of professional competence and

improving the quality of professional training, that is, the problem of the formation of professionally oriented communicative competence requires additional study.[7]

References:

- [1].Solyankina N.L. Professional competence of a teacher: theory and practice of assessment. - Krasnoyarsk: Publishing house IPKiPP RO, 2008 .- - 105 p. 2
- [2]. Bezukladnikov K.E., Kruse B.A., Oskolkova V.R. Technology for the development of the future teacher's readiness for pedagogical self-realization - Perm: Perm. state ped. un-t, 2011 .-- 133 p. Muslimov N.A. Kasb ta'limi qituvchisini kasbiy shakllantirishning nazari-methods asoslari: Ped. fan. doc. ... diss. - T., 2007 .-- 315 b.
- [3]. Tarasova N.V. World experience in the implementation of the competence-based approach in vocational education // Secondary vocational education. - 2007. - No. 2. - S. 36-38.
- [4]. Muslimov N.A., Urazova M.B., Eshpulatov Sh.N. Kasb talimi qituvchilarining kasbiy competent ligini shakllantirish tekhnologosi. - T .: Fan va texnologiya, 2013 .-- 160 p.
- [5]. Adolf V.A. Updating the process of training teachers based on modeling professional activities. - Krasnoyarsk, 2005.212 p.
E. N. Solovova Methods of teaching foreign languages - M .: Education, 2002. - 239 p.
- [6]. Makhmuryan K.S. Theoretical and methodological foundations of accelerated training of a foreign language teacher in conditions of additional professional education: Author's abstract. dis. ... doct. ped. sciences. Moscow, 2009 .-- 50 p.
- [7]. Tkacheva Yu.V. A systemic and structural approach to defining the goals and content of linguodidactic training for a bachelor of pedagogical education: Author. dis. ... Cand. ped. sciences. - Irkutsk, 2010 .-- 24 p.

MODERN PROBLEMS OF TOURISM AND ECONOMICS**UDC: 338****THE ROLE OF MEDICAL TOURISM IN THE DEVELOPMENT OF THE MARKET OF MEDICAL SERVICES**

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Annotatsiya. Maqolada mamlakatda xizmatlar sohasi rivojlanishida turizmning rivojlanish masalalari keltirilib, bu borada O'zbekistonda olib borilayotgan islohotlar o'rganilgan. Undan tashqari, tibbiy turizm tushunchasi ilmiy tomonidan chuqur taxlillar asosida muallif tomonidan mustaqil ishlab chiqilgan jadvalda aks etgan.

Kalit so'zlar: turizm, tibbiy turizm, turizm xavfsizligi, spa-turizm, spa-sentr, kumush iqtisodiyot

Аннотация: В статье освещается развитие туризма в развитии сферы услуг в стране, проводимые в Узбекистане реформы. Широко освещен опыт ведущих стран мира в сфере медицинского туризма. В результате фундаментального исследования концепция медицинского туризма была тщательно проанализирована ученым и отражена в таблице, независимо разработанной автором.

Ключевые слова: туризм, медицинский туризм, безопасность туризма, курортный туризм, спа-центр, серебряная экономика

Annotation: The article reviews with the reforms implemented for the development of tourism service in the republic of Uzbekistan. In addition, the author's personal concept developed by on the basis of in-depth scientific analysis on medical tourism is reflected in table of scheme.

Keywords: tourism, medical tourism, tourism security, spa tourism, spa center, silver economy.

Introduction. All over the countries of the world medical tourism is being developed with new trends in the new era. This will allow the population not only to live a healthy life, but also to be treated with high quality medical services. The medical tourism has impact on human health by combining simultaneously with several areas - basic elements such as health, recreation, transport, nutrition, treatment, and human health.

In the context of globalization, a man may face with unexpected dangers. The daily stress and disruption of the normal routine of healthy life for some reason may increase the demand for medical services. However, as a result of a significant increase in the level of risk when traveling abroad, ensuring the safety of tourists in the

international tourism market is a priority. Therefore, one of the important elements of the organization of any type of tourism is to ensure the safety of life and health of tourists.

A tourism safety means the personal safety of tourists, the safety of their property and the safety of the natural environment during travel. Ensuring safety involves a number of measures within the framework of national legislation to ensure the safety of movement of tourists in the territory of the state, the safety of their accommodation, health, life and property. In modern circumstances, one of the most important social tasks - the protection of human health, especially those who live in urban areas and those who are actively engaged in economic activity - can be restored in the future. With the assistance of prevention of the negative effects of Rehabilitation, a care and rehabilitation are carried out in medical institutions located in different regions and create conditions for medical tourism.

Research methodology. This research study examines comparative analysis, the history of medical services, and its comparison with highly developed countries. In particular, the development of the market of medical service in the country is widely studied as a direction of research, that is, the concept of the market of medical services, In addition, the impact of the development of health services on the economy will be examined by means of analysis. The terms are related to the industry. Experience of different models of health care systems in foreign countries has been learned by means of allocation of priority directions.

Analysis and results. According to the World Tourism Organization, the international tourism market in 2017 grew by 5% to \$ 1.6 trillion. The number of medical visitors was 14-16 million.[1] According to the World Travel & Tourism Council statistics in consular tariffs in 2018, the international tourism market accounted for 10.4% of the world economy. Medical tourism as a new direction in the international market has developed rapidly in the United States and generated a profit of \$ 13 billion in 2018.[2] According to the Global Wellness Institute, the United States is expected to have the largest share of the international tourism market by 2025 - \$ 140 billion.

Medical tourism is a term that refers to the practice of providing medical care outside the place of residence, combining vacation abroad with highly qualified medical care. For some authors, medical tourism is the best that is not available to the patient in their home country is considered to indicate the possibility of gaining experience. Medical tourism is a journey for treatment through the best prices and high quality medical services. In this regard, many scientists have given different definitions to the concept of medical tourism. Hereby below there is the consideration on it[3]:

Different approaches in defining the concepts of medical tourism

Table 1

The Term and its Interpretation	Basic Rules	Source
Health tourism	Tourism, the main purpose of which is recreation and restoration of physical and psychological health (Recreation and Recreation Tourism)	A. M. Vititnev

Recreational tourism aimed at restoring the health of people in the community in the short term (24 hours)	Restoring or improving health Tourism	S. M. Hall
A trip outside the place of permanent residence for the purpose of business improvement or rehabilitation	Save, improve or health rehabilitation tourism	P. M. Carrera, J. F. Bridges
Health tourism for prevention and recreation.	It is characterized by longer travel times, fewer cities, and stay in one place Disease prevention and recreational tourism	E. L. Dracheva, Yu.V. Zabaev, D.K.Ismaev
Medical tourism.	An international event that characterizes long-distance travelers for entry is usually used by people with high health care costs to travel for tourism purposes, people with queues in the health care system, or people with disabilities.	Economic and social UN Commission Ocean for Asia and the Pacific
Medical tourism - the impact of organized travel on the national health system improve or restore health through medical care	Improving or restoring health tourism	P. M. Carrera, J. F. Bridges
Medical tourism Departure from a temporary permanent residence	Health and heuristic goals	A. M. Vetitnev, L.B.Juravlev
Health tourism	Strengthen the desire to maintain or promote the health of travel to the spa, which is the main motivation Save or strengthen health	H. Müller, E. L. Kaufman
Spa tourism	Health tourism is a unique type of tourism. Health care involves going to various recreational spa zones, and wellness with other treatments.	A. G. Gergishan

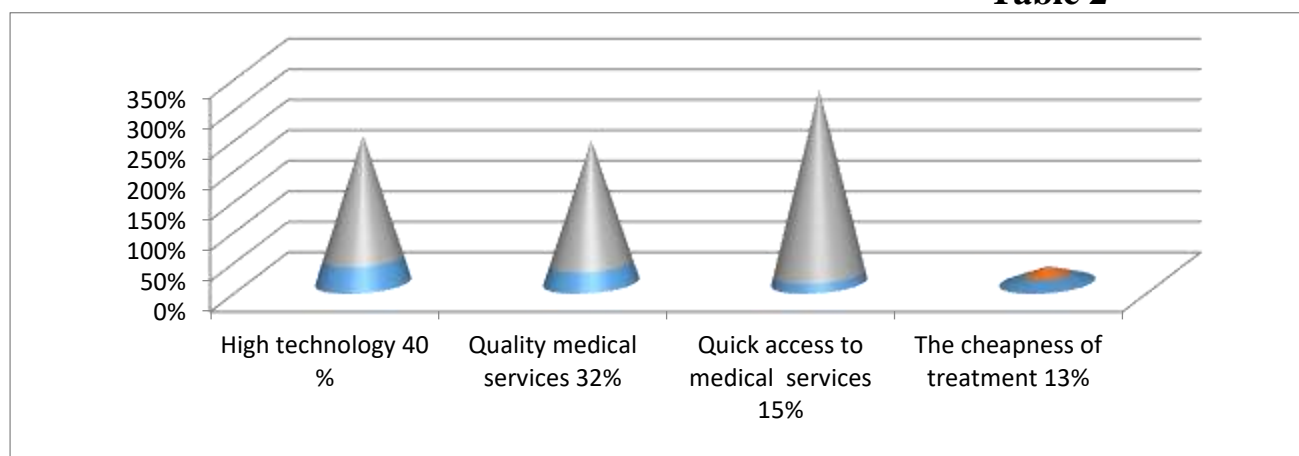
After his research on tourism, A. Sharman describes medical tourism as a global phenomenon where citizens enjoy high quality and affordable medical services while G.Y. Shchekin the term “medical tourism” implies the idea of arranging the provision of medical services to patients outside their permanent place of residence. Medical tourism in the narrow sense can traditionally be understood as the movement of patients to a place of treatment, rehabilitation and recreation in any region or country. Many

scholars structurally distinguish between the concepts of “health tourism” and “medical tourism”.

Health tourism - covers all areas of tourist activity. Medical tourism includes recreational and rehabilitation activities and medical tourism itself, which is gradually becoming a specific type of tourist activity and is distinguished by a purely clinical component.

According to E.V. Pecheritsa the medical tourism is what people call a trip in their own country or abroad to get one or another type of high-quality medical service at affordable prices. When studying the offers of intermediary companies engaged in this activity, it has been stated that “medical” trips can be made in two different directions, such as health tourism and medical tourism. According to “McKinsey and Company” research, the medical tourism should have the following main benefits[4]:

Table 2



Conclusion

The concept of medical tourism, which has been studied for several years, has gained its own attractiveness in the field of tourism in the world. In particular, the countries of Europe and Asia have begun to lead in medical tourism. European countries have the opportunity to provide medical services such as ophthalmology, neurosurgery, plastic surgery, transplantation with the help of innovative technologies. In modern medical care, the country of Israel also has sufficient experience in providing services such as neurosurgery, oncology, ophthalmology, and cardiology. Germany is a country that uses its natural resources in the provision of medical services around the world as well. The treatment of diseases is carried out effectively. The United States has the ability to provide high-tech diagnostic and treatment-based medical care. Singapore, Malaysia, Thailand and China also provide medical and rehabilitation services from Asian countries[5].

The priority is to organize the market of medical services in our country on the basis of world experience and to create a system of quality services. The directions of development of medical tourism in Uzbekistan are as follows[6]:

1. Defining the target market, taking into account the tourist potential of Uzbekistan, the implementation of measures aimed at restoring the health of the elderly (this science is also called "silver economy").
2. Organization of medical services as a result of creating a recreational advantage by strengthening the industrial integration in the regions.

3. Analysis of the development modes.
4. Enrichment through innovation of development mode.
5. Creating a legal framework for the development of the industry.

Based on the above analysis and experience, as a result of the development of medical tourism in Uzbekistan, improve the quality of health care and medical services; investment and private investment in the development of medical infrastructure at public expense; increase in revenues to the state budget (tax revenues) to provide new jobs; business development; emergence of opportunities for the development of other sectors of the economy; recognition of the country in regional and international markets, active marketing strategy, participation in various international exhibitions and forums, international integration for foreign tour operatorx

References:

- [1].UNWTO Tourism Highlights 2018 Edition.
<https://www.eunwto.org/doi/pdf/10.18111/9789284419876>;
- [2]. World Travel & Tourism Council. Travel & Tourism Economic Impact 2019 World. <https://www.wttc.org/-/media/files/reports/economic-impactresearch/region2019/world2019.pdf>;
- [3]. Carrera, P. M., & Bridges, F. P. (2006). Globalization and healthcare: Understanding health care and medical tourism. Expert Review of Pharmacoeconomics and Outcomes Research, 6, 447-454. doi:10.1586/14737167.6.4.447
- [4]. Concept for the development of medical tourism in the Republic of Kazakhstan 2017
- [5]. Economic Review No. 1 229 Lana Tskhai p. 62
- [6]. S.M.Rakhimova. Study of the experience of foreign countries in the development of medical services market in Uzbekistan. Journal of Critical Reviews ISSN-2394-5125. Issue5, 2020, V.

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PROSPECTS FOR THE USE OF MECHANISMS BASED ON THE CLUSTER APPROACH IN THE DEVELOPMENT OF EXPORTS OF INDUSTRIAL PRODUCTS

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Аннотация: Целью данного исследования является систематический анализ использования кластеров в промышленных производственных процессах. Детально изучено использование кластеров в производстве и экспорте промышленной продукции. Они выдвинули концепцию развития высоко промышленных кластеров, направленных на увеличение экспорта промышленной продукции на основе анализа и сравнения систем, статистической группировки и использования рейтинговых методов.

Ключевые слова: кластер, теория кластеров, кластеризация, промышленные кластеры, коммерческие кластеры, локальные кластеры, программа развития промышленного кластера.

Аннотация: Тадқиқотнинг мақсади саноат ишлаб чиқариш жараёнида кластерлардан фойдаланишни тизимли таҳлил қилишдан иборат. Саноат маҳсулотлари ишлаб чиқариш ва экспорт қилишда кластерлардан фойдаланиш масалалари батафсил ўрганилди. Тизимли таҳлил ва таққослаш, статистик гуруҳлаш ва рейтинг усулларида фойдаланиш асосида саноат маҳсулотлари экспортини оширишга йўналтирилган саноат кластерларини ривожлантириш концепцияси илгари сурилган.

Калит сўзлар: кластер, кластер назарияси, кластерлаштириш, саноат кластерлари, савдо кластерлари, маҳаллий кластерлар, саноат кластерларини ривожлантириш дастури.

Abstract: The purpose of this study is to provide a systematic analysis of the use of clusters in industrial production processes. The use of clusters in the production and export of industrial products was studied in detail. They advanced the concept of developing industrial clusters aimed at increasing the export of industrial products based on the analysis and comparison of systems, statistical grouping and the use of rating methods.

Keywords: cluster, cluster theory, clustering, industrial clusters, commercial clusters, local clusters, industrial cluster development program.

Introduction: The development experience of countries around the world shows that clusters are the key to achieving a level of competitiveness at the enterprise level to the level of a national economy that is competitive in the global market. If we analyze the clusters on the example of developed countries, half of the existing enterprises in the United States are grouped into clusters, which account for 60% of GDP [1, p.3]. The economies of Norway, Denmark, and Sweden are almost entirely covered by clusters. Finland has become one of the world's most competitive economies due to clusters, with 0.5% of the world's forest resources, accounting for 25% of world paper exports and 10% of wood products exports [2, p.2].

The word “cluster” (derived from English, head, link, ring, ball) reflects the basic principles of the market mechanism, and market participants seek to unite in clusters in order to gain a competitive advantage. Although the full development of clustering in the world dates back to the 80s of the XX century, scientific research in this area in our country began in 2000, but the practical reforms to transition to this system began to be carried out on the basis of the Action Strategy [3, p.2].

Literature review: Cluster theory was put forward in the 19th century by the German economist Johann Heinrich von Tunen, W. Launhard, and A. Weber.

Soliyev A., Qodirov X. (2019) the use of clusters in strategic planning has been studied.

Kurpayanidi K. (2020) some issues of formation of a modern competitive national innovation system in the Republic of Uzbekistan are analyzed.

Muminova E. (2020) studied blockchain technology, digitization efficiency and basic principles of digitization and a set of blocks that require material resources to develop the national digital economy.

Ilyosov A. (2020) highlights some of the challenges in digital manufacturing and industrial product exports in the context of the digital economy.

Analysis: Today, there are 380 clusters in the United States that operate in the field of computer technology. At the top of them is Silicon Valley, home to world-renowned companies such as Intel, AMD, Oracle, Apple, Cisco, Yahoo !, eBay. There are 206 clusters in Italy, specializing in the production of food and consumer goods. Italian industrial clusters account for 43% of employment, accounting for more than 30% of the country's exports. There are 168 clusters in the UK that specialize in biotechnology and bioresources production. India has created clusters in the field of computer technology, which number 106. The Bangalore cluster has been as successful as Silicon Valley, with an IT turnover of \$ 70 billion. dollars. Tax breaks provided separately for clusters are the key to success [3, p.2]. In France, there are 96 clusters belonging to the pharmaceutical and cosmetics and food industries (Table 1).

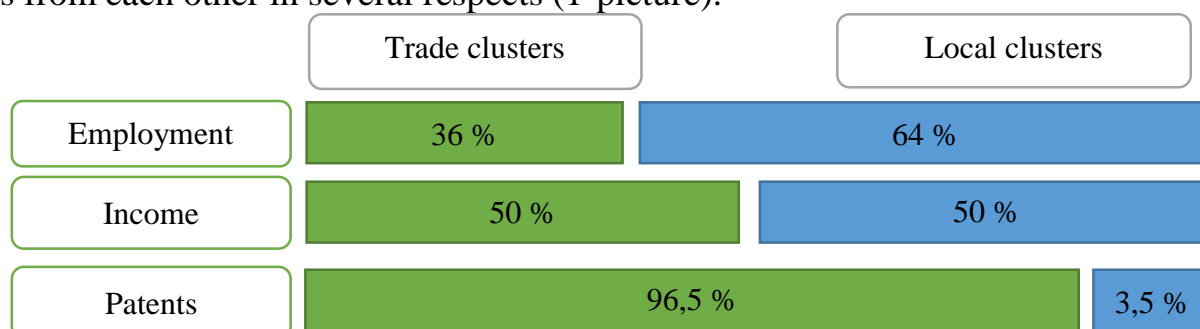
Table 1 - The top five countries in terms of cluster number

№	Country	Number of clusters	Field of activity
1	2	3	4
1.	USA	380	computer technology
2.	Italy	206	production of food and consumer goods

3.	Great Britain	168	biotechnology and bioresources production
4.	India	106	computer technology
5.	France	96	pharmaceutical and cosmetics and food production

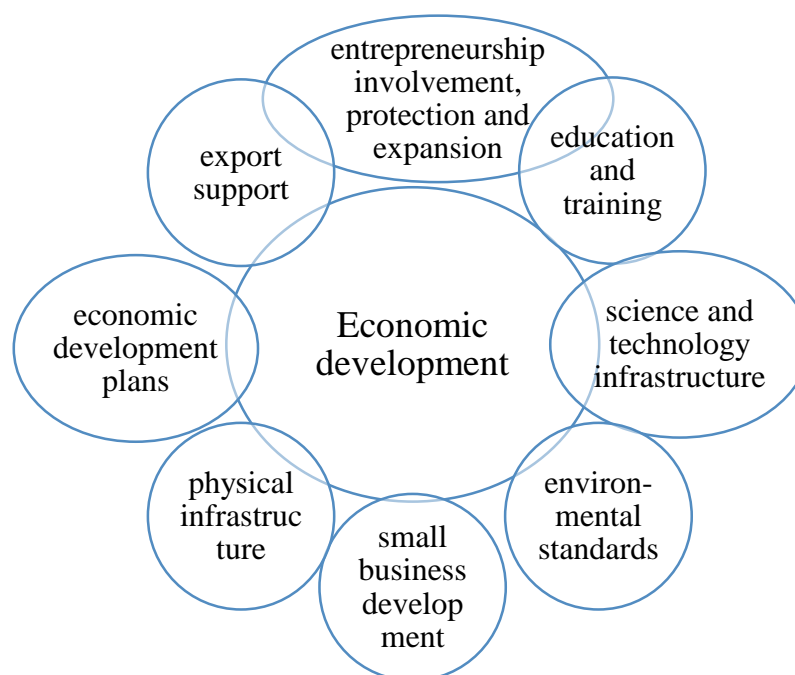
The United States, like other industries, is a world leader in clusters. There are 2 different types of clusters at the regional level in the country, which differ from each other in some respects. Trade clusters are groups of related industries that serve markets outside the region in which they are located [4, p.2]. They determine their location independently (based on the location of natural resources), as a rule, can choose 3 areas that are mainly competitive. Examples of such clusters include Information Technology in Silicon Valley, Financial Services in New York, and Video Production and Distribution in Los Angeles. Trade clusters are the "engines" of the region's economy, without which high economic performance is impossible [5, p.2].

Local clusters are networks that serve the local market. They are located in every region of the country, regardless of competitive advantage. They play an important role in providing regional employment. Also, local clusters will be protected from direct competition because they are connected to a specific area. Examples include local health services such as pharmacies and hospitals, and local commercial services such as dry cleaning [6, p.2]. The role of these two types of clusters in the country's economy differs from each other in several respects (1-picture).



1-picture. The share of trade and local clusters in the U.S. economy.

At the same time, the clusters also serve as an effective tool for cooperation in public policy and industry, as they have access to a variety of programs and directions for economic development [7, p.3]. While the first clusters played an important role in ensuring regional competitiveness and economic development, they are now working to increase labor productivity, create new jobs, encourage innovation, and stimulate the emergence and development of new businesses (2-picture).



2-picture. Clusters and economic development.

The development of clusters depends in many respects on the implementation of government support measures [8, p.1]. One of the main measures in countries with developed clusters is the formation of this infrastructure. For example, the National Planning Agency in France (DATAR), the Cluster Search and Classification Information System (CASIS) in Luxembourg, the US National Competitiveness Council, and the UK LINK cooperation program [9, p.2].

IV. Discussion

Clusters have a number of advantages along with ensuring regional competitiveness. They are:

- efficiency of production scale, ie one of the firms within the cluster serves as the core of innovative activity;
- coverage effect. This can be achieved by reducing transaction costs as a result of the cluster sharing the resources of many enterprises;
- Synergy effect associated with general standardization of products. Through these three different effects, loss-making enterprises in clusters can overcome low profitability, which leads to increased labor productivity and lower production costs. In general, through a cluster, enterprises will have more competitive opportunities;
- Innovative effect. By merging into a cluster, the chances of implementing large-scale innovative projects will increase. Innovative efficiency has a positive impact not only on the enterprise, but also on the competitive advantage of the country in the industry, sector, region. The basis for the development of clusters is the historical production structure in this region. Large enterprises tend to establish supply links with small enterprises, which allows them to quickly introduce new technologies that contribute to economic growth [10, p.2].
- Clusters that stimulate innovation and production are organized horizontally. This in turn provides flexible specialization, accelerates contracting, and accelerates the spread of innovation;

- In pooling resources, cluster members contribute in the form of cash, technology, patents, trademarks, know-how, and skilled personnel. At the same time, they will have the opportunity to consult and share experiences to determine what resources are needed to implement joint projects, what is needed for project effectiveness, and how costs and benefits will be distributed. But they remain independent in other areas of research and production. Such collaboration serves to significantly reduce the risk of participants, reduce the cost of research and development through the use of partner experience and skills, and so on.

In addition to the advantages of clusters listed above, some disadvantages are also noticeable.

- Clusters, as we have noted, are a form of increasing regional and international competition. Increased international competition affects the elasticity of labor demand, which in turn can lead to wage stagnation and rising unemployment;
- In the practice of network clusters, excessive convergence, large-scale cooperation with government agencies and state control of clusters lead to corruption;
- Relying on the development of clusters can have a negative impact on the development of some even more competitive enterprises;
- Ishonch Confidence as a result of associating the term cluster with excessive competition can lead to some inconsistencies and losses.

In general, each process is characterized by its advantages as well as its shortcomings or some contradictions [11, p.3]. This requires the need to identify its possible shortcomings in advance and take the necessary action. Each country or region should focus on these issues in its cluster policy.

Conclusion: A number of normative and legal documents have been adopted in our country with a special focus on clustering policy. In particular, the Decree of the President of the Republic of Uzbekistan dated March 29, 2019 "On additional measures for the accelerated development of fruit and vegetable production in the Republic of Uzbekistan" PF-5388, September 21, 2019 "On approval of the Strategy of innovative development of the Republic of Uzbekistan 2019-2021" and Cabinet of Ministers of the Republic of Uzbekistan dated October 16, 2017 No. 834 "On organizational measures for the organization of youth entrepreneurship clusters", March 31, 2018 "On additional measures for the organization of cotton and textile industries and clusters" On the basis of the Resolution No. 253 of June 18, 2019 "On measures to establish modern seed clusters in the Republic of Uzbekistan" No. 512, Youth Entrepreneurship, Mountain Tourism, Cotton-Textile, Silk, Silkworm, Livestock, Fisheries, Rabbit, Poultry , agrocluster in nursery, fruits and vegetables, food - Measures for the organization of clusters in the areas of food, wine, mini-clusters, gas-chemical, scientific-industrial, public-private scientific, solid waste management.

From the above, it is clear that in our country there are no industrial clusters specializing in the production of high-tech and export-oriented industrial products. In our opinion, based on the experience of foreign countries, it is possible to further increase the export of industrial products and achieve a competitive advantage through the establishment of Industrial Clusters (INCs) in accordance with our national

characteristics. It is expedient to develop programs for the development of SCs in the regions of the country. These programs should consist of the following sections.

1. General rules.
2. Current status of SCs, existing shortcomings.
3. Purpose and priorities of the program.
4. Expected results from the development of SCs.
5. Joint projects of SC participants.
6. Financial support of the program.
7. The main indicators of the effectiveness of the program.

Methodology of cluster formation:

- ✓ formation of organizational and institutional structure;
- ✓ identification of cluster type;
- ✓ Determining the composition of cluster participants;
- ✓ Identification and quantitative analysis of the structure and cooperation between cluster participants;
- ✓ Analysis of the competitive environment and innovation structures of the cluster;
- ✓ Determining the success rate of a cluster.

Based on the above, we consider it expedient to implement the following on the organization of ICs in our country:

- ✓ Organization of SCs based on the characteristics of the regions of the country, based on the study of best practices of industrialized foreign countries;
- ✓ Development and improvement of existing regulations on the regulation of SCs;
- ✓ Development of SC development programs;
- ✓ Creation of organizational structures dealing with the organization, management, coordination and control of the activities of SCs;
- ✓ Development of research activities related to SCs;
- ✓ Development of methodical materials on the organization of SCs.

References

- [1]. Muminova, E., Honkeldiyeva, G., Kurpayanidi, K., Akhunova, S., & Hamdamova, S. (2020). Features of Introducing Blockchain Technology in Digital Economy Developing Conditions in Uzbekistan. In *E3S Web of Conferences* (Vol. 159, p. 04023). EDP Sciences.
- [2]. Ilyosov, A. (2020). Some problems in digital production and export of industrial products in the digital economy. *Economics and finance*, (3), 175.
- [3]. Ilyosov, A. A. (2020). Analysis of the structure of export of industrial products and changes in trends in the export process of the fergana region. *Государственное регулирование социально-экономических процессов в условиях глобального кризиса* (pp. 4-10).
- [4]. Kurpayanidi, K., Abdullaev, A., Ashurov, M., Tukhtasinova, M., & Shakirova, Y. (2020). The issue of a competitive national innovative system formation in Uzbekistan. In *E3S Web of Conferences* (Vol. 159, p. 04024). EDP Sciences.
- [5]. Солиев А., Кодиров Х. (2019). Кластеризация экономики – важнейший фактор стратегического планирования. *Иқтисодиёт: таҳлиллар ва прогнозлар*. Т.: 2019., №1. 104-108 б.

- [6]. Усмонов Б.Ш., Раджабов О. (2017). Изучение опыта развития и управление инновациями в кластерах. Т.: Fan va texnologiya, 2017 г.
- [7]. Абдувалиев А.А. (2017). Миллий иқтисодиётда кластерларни ривожлантиришнинг хорижий мамлакатлар тажрибаси таҳлили. Иқтисод ва молия/Экономика и финансы. 2017 йил 7-сон.
- [8]. The main macroeconomic indicators of the Republic of Uzbekistan for January-December 2019. (2020). Т.: The State committee of the Republic of Uzbekistan on statistics.
- [9]. Mukhsinova, S. O. (2020). Public debt as a tool of the state's macroeconomic policy. ISJ Theoretical & Applied Science, 05 (85), 180-187. Soi: <http://s-o-i.org/1.1/TAS-05-85-39> Doi: <https://dx.doi.org/10.15863/TAS.2020.05.85.39>
- [10]. Abdullayev Alisher Mahmudovich, Konstantin Ivanovich Kurpayanidi (2020) Analysis of industrial enterprise management systems: essence, methodology and problems. Journal of Critical Reviews, 7 (14), 1254-1260. <https://dx.doi.org/10.17605/OSF.IO/E6JFS>
- [11]. Tolibov, I.S (2017) Modern state and the priority directions of further development of economy of Uzbekistan in the conditions of globalization. ISJ Theoretical & Applied Science, 10 (54): 176-185. Soi: <http://s-o-i.org/1.1/TAS-10-54-29> Doi: <https://dx.doi.org/10.15863/TAS.2017.10.54.29>

UDC: 338

FACTOR ANALYSIS OF PRODUCTION PROCESSES IN AGRICULTURE SECTOR OF THE REGION

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Аннотация: Ушбу мақолада қишлоқ хўжалигида маҳсулот ишлаб чиқариш жараёнини моделлаштириш асосида унга таъсир қилувчи омиллар аниқлаган ва уларнинг таъсир даражаси баҳоланган. Ишлаб чиқаришдаги муҳим бўлган ишчи кучи ва капитал омилларининг эластиклик коэффициентлари ҳисобланган. Шунингдек, иқтисодий ўсишнинг интенсив ва экстенсив манбалари аниқланган. Олинган натижалар асосида қишлоқ хўжалигида маҳсулот ишлаб чиқаришни ривожлантиришни қўллаб-қувватлашнинг асосий йўналишлари бўйича таклиф ва ҳулосалар келтирилган.

Калит сўзлар: қишлоқ хўжалиги, маҳсулот, модел, стохастик модел, ишлаб чиқариш функцияси, эластиклик, иқтисодий ўсиш, капитал, меҳнат.

Аннотация: В данной статье определены факторы, влияющие на производственный процесс в сельском хозяйстве, на основе моделирования

производственного процесса и оценен уровень их воздействия. Рассчитаны коэффициенты эластичности труда и капитала, которые являются важными факторами производства. Определены интенсивные и экстенсивные источники экономического роста. По результатам разработаны предложения и сделаны выводы по основным направлениям поддержки развития сельскохозяйственного производства.

Ключевые слова: сельское хозяйство, продукт, модель, стохастическая модель, производственная функция, эластичность, экономический рост, капитал, труд.

Annotation: In this paper identified, the factors influencing the production process in agriculture based on the modelling of the production process and evaluated their level of impact. Calculated elasticity coefficients of labour and capital, which are important factors of production. As well as intensive and extensive sources of economic growth have been identified. Based on the results developed proposals and made conclusions on the main areas of support for the development of agricultural production.

Keywords: agriculture, product, model, stochastic model, production function, elasticity, economic growth, capital, labour.

Introduction. Nowadays, the average population of our country is growing year by year. Since, required further development of production of raw materials, food products and consumer goods. To solve these problems, firstly, it is crucial to improve the production processes in agriculture, as well as to ensure the development of related service industries. The task of “implementation of investment projects for the construction of new processing enterprises, reconstruction and modernization of existing ones, equipped with the latest high-tech equipment for deep processing of agricultural products, production of semi-finished and finished food as well as packaging products”[1] is set in the appendix of “Strategy of actions in five priority areas of development Republic of Uzbekistan in 2017-2021” Appendix No. 1 to the Decree of the President of the Republic of Uzbekistan No. UP-4947 dated February 7, 2017.

In doing so, it is necessary to do an in-depth analysis of many factors of endogenous and exogenous nature that affect the efficiency of the development of production processes in agriculture. Agriculture and its products important for the sustainability of the environment and population, as they meet the basic needs of the population, such as food and medicine, while also providing raw materials to many industries[2]. In addition, the production process in agriculture is more complex, since a number of factors influences it such as weather, environment etc.

Literature review. As a result, the issue of developing a sustainable system of production processes in agriculture that can withstand many challenges remains as a significant task. Currently, crop modeling considered as a main solution to this problem, as this method allows assessing the impact of factors and preventing their negative effects.

Therefore, in recent years, the models of cropping systems have been widely used in the agricultural production system [3]. In particular, it is widely used in the analysis

of processes such as climate change and adaptation [4], food security [5], resource use efficiency [6], profitability [7] analysis.

Research methodology. In the research used secondary data that taken from the State Committee of the Republic of Uzbekistan on statistics and its regional branches. For data analysis used several methods such as structural analysis, statistical analysis, correlation-regression analysis.

Analysis and results. Due to changes in agricultural productivity in country, a new geography of agricultural production is being formed, the impact of the new geography is not limited to production itself, but also affects the economy, employment, income, consumption, migration flows and food security.

It turns out that the use of complex analytical methods based on the use of modern economic-statistical and economic-mathematical methods in substantiating ways to increase the efficiency and intensity of production and processing processes in agriculture serves to develop scientifically based conclusions while ensuring the quality of analysis. Economic analysis of processing describes the state and variation of the main elements of resource potential and the volume of production based on their relationship.

The study of the structure and elasticity of production functions is one of the means of identifying sources of production growth and helps to form a science-based model of production process management. We consider the laws of intensification of agricultural production on an example of Khorezm region through the development and analysis of stochastic and deterministic models of production. The Cobb-Douglas neoclassical model, which is widely applied in research, used for modelling the effect of key production factors to the production volume.

This macroeconomic model allows us to assess the contribution of labour and capital, the level of scientific and technological development that determines the organic structure of capital to the growth of production.

The general view of the function will take the following form:

$$Y = AK^{\alpha}L^{\beta}, \quad (1)$$

Here: Y — volume of production; A — technological coefficient of proportionality of factors of production; K — capital; L — labour;

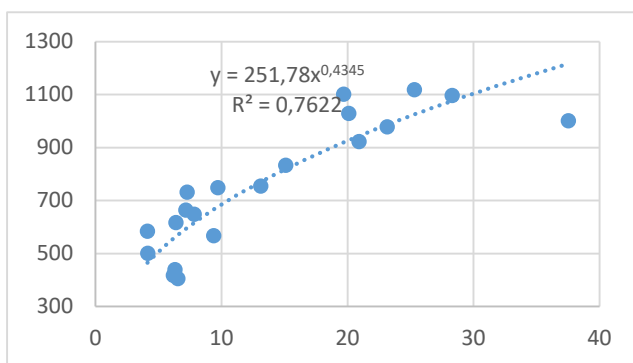
α - elasticity coefficient of production volume on capital;

β - elasticity coefficient of production volume on labour force.

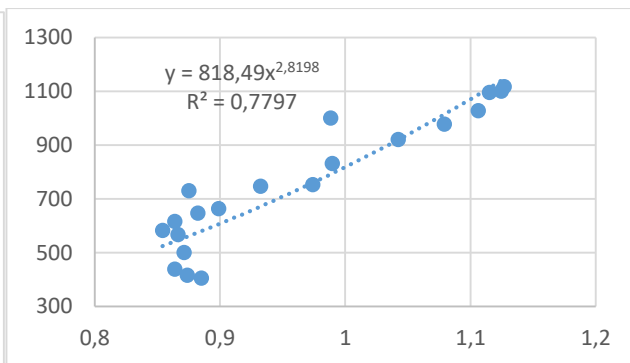
Analysis of stochastic models of production function accomplished according to the following algorithm[8] (graph 1).

Absolute values of data are formed on the basis of annual reports on the financial and economic situation of agricultural producers in the districts of Khorezm region for 2000-2019. We use the correlation-regression analysis method to create one-factor models of the relationship between production volume and key production factors.

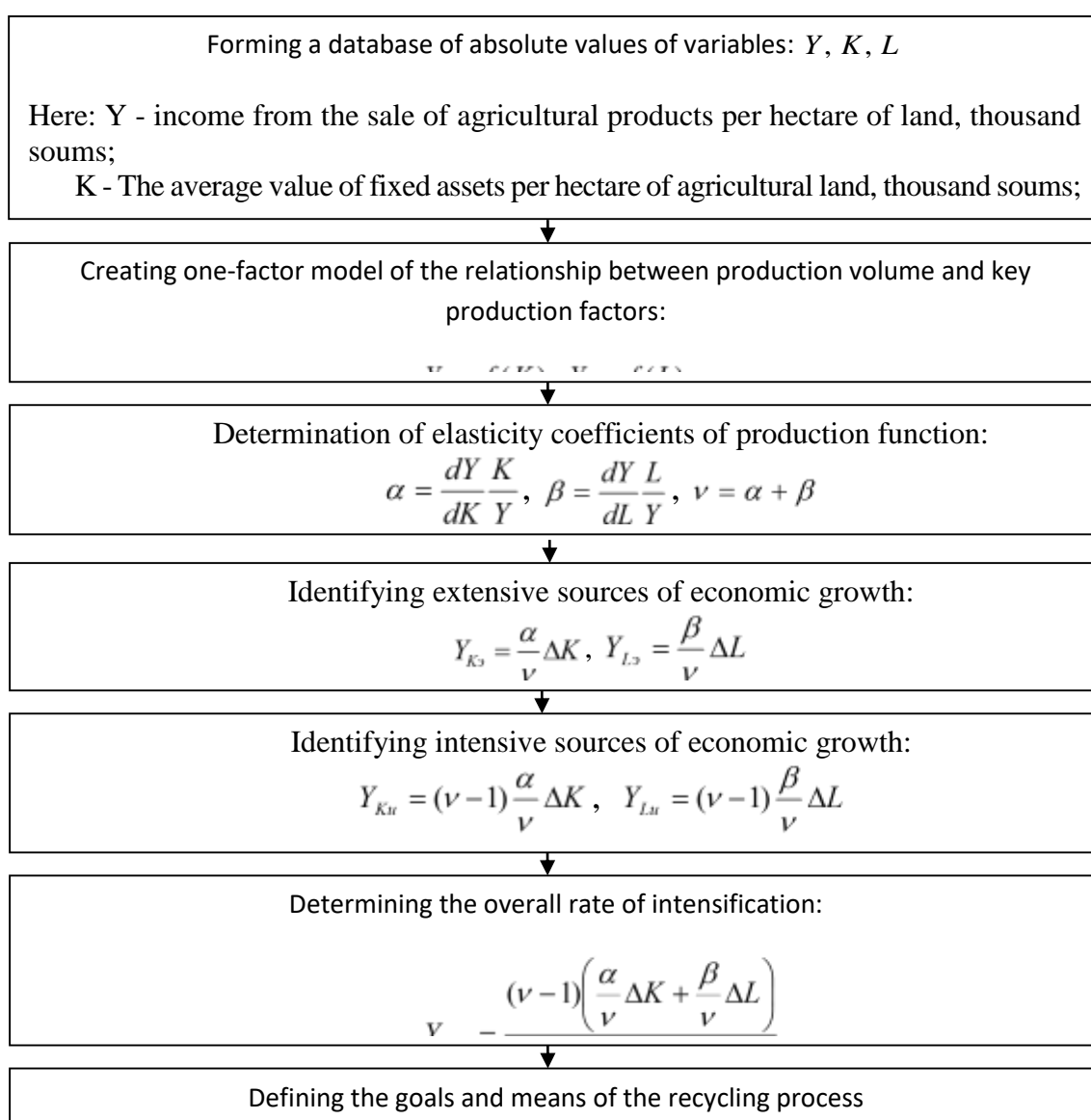
The single-factor stochastic models of the relationship between production volume and the main factors of production and the indicators on the criterion that represent their adequacy, the coefficient of determination are given below.



Graph 2. Dependence of income on capital adequacy per hectare: $Y=f(K)$



Graph 3. The dependence of income on the number of workers per hectare: $Y=f(L)$



Graph 1. An algorithm for analysing the elasticity of production functions and identifying extended production sources

The coefficients of elasticity of the function argument with respect to factors K and L are as follows:

$$\alpha = \frac{dY}{dK} \frac{K}{Y} = \frac{251.78 * 0.4345 * K^{-0.5655} * K}{109.21 * K^{0.4345}} = 0.4345$$

$$\beta = \frac{dY}{dL} \frac{L}{Y} = \frac{818.48 * 2.8198 * L^{1.8198} * L}{818.48 * L^{2.8198}} = 2.8198$$

The total coefficient of elasticity is $\nu = \alpha + \beta = 3.25$, which means that a one percent increase in the factors used in the production of the product will increase the income from agricultural production by 3.25 percent.

Identification of extensive sources of economic growth:

$$Y_{K\epsilon} = \frac{\alpha}{\nu} \Delta K \quad Y_{K\epsilon} = \frac{0.4345}{3.2543} * 9.2226 = 1.2313$$

$$Y_{L\epsilon} = \frac{\beta}{\nu} \Delta L \quad Y_{L\epsilon} = \frac{2.8198}{3.2543} * (-0.1266) = 0.1096$$

Identification of intensive sources of economic growth:

$$Y_{Ku} = (\nu - 1) \frac{\alpha}{\nu} \Delta K \quad Y_{Ku} = (3.2543 - 1) * 1.2313 = 2.7757$$

$$Y_{Lu} = (\nu - 1) \frac{\beta}{\nu} \Delta L \quad Y_{Lu} = (3.2543 - 1) * (0.1096) = 0.247$$

Determining the overall rate of intensification of the production process because of key production factors:

$$Y_{uum} = \frac{(\nu - 1) \left(\frac{\alpha}{\nu} \Delta K + \frac{\beta}{\nu} \Delta L \right)}{Y} \quad Y_{uum} = \frac{(3.243 - 1)(0.2136 + 0.0047)}{2001.684} = 0.0005$$

Initially, we determine the number of workers per hectare of land in agriculture by dividing total number of workers into available land area and determine its variation. According to calculations during 2018-2019, the average number of workers per hectare of land decreased from 1,115 to 0,988. It can be seen that number of workers per hectare has changed to -0.126 ($\Delta L = -0.126$). In addition to the decline in labour productivity, it serves as an extensive and intensive factor in reduction of production.

Fixed capital is an effective tool for the management of extended production, and the increase in the intensity of use of fixed assets in the analysed period provides a higher growth of production than the extensive growth of capital supply (from 28,29 to 37,51 million soums for per agricultural area).

The production function, in which the volume of production depends on the supply of capital and labour, is as follows:

$$Y = 6.1469K^{0.21}L^{1.62}, \quad (2)$$

Here: Y - income from the sale of agricultural products per hectare of land, million soums;

K - the average value of fixed assets per hectare of agricultural land, million soums;

L - the average number of workers per hectare of agricultural land, person.

Thus, the analysis of stochastic models of production functions shows that the production function characterized by high elasticity with respect to changes in labour supply. The most important means of managing the process of production should be to

increase the supply of labour on the basis of maximum intensive use and to increase the efficiency of the use of tools.

Along with stochastic models, a comprehensive description of production in the region's agriculture allows for the formation of a multifactor deterministic model.

Factor deterministic analysis of the production system is an effective tool for studying and modelling the relationship between outcome and factor indicators. It has the following deterministic model appearance:

$$N = \frac{P}{FA + CA}, \quad (3)$$

Here: P - profit thousand soums;

FA - The average annual value of fixed assets is million soums;

CA - the average annual value of current assets is million soums.

Using the possibility of formal separation and the possibility of expansion, the presented model can be expressed as follows:

$$N = \frac{P/R}{FA/R + CA/R} = \frac{(R - W - M - A)/R}{FA/R + CA/R} = \frac{1 - (W/R + M/R + A/R)}{FA/R + CA/R} \quad (4)$$

Here: R - revenue thousand soums;

W - The calculated wage, thousand soums;

M - expenses for raw materials, thousand soums;

A - depreciation of fixed assets, thousand soums.

By modifying the given expression directly on the quality indicators, we form a factor model of the level of processing intensity I :

$$I = \frac{1 - (R/W + R/M + R/A)}{R/FA + R/CA} \quad (5)$$

The fractional components in formulas (4) and (5) have the following economic meanings:

The fractional components in formulas (4) and (5) above have the following economic meanings: R/W ; W/R - wage return and wage capacity, respectively; R/M ; M/R - material return and material capacity; R/A ; A/R - depreciation return and depreciation capacity of production; R/FA ; FA/R - stock return and stock capacity on fixed assets; R/CA ; CA/R - current assets mobility and current assets production capacity.

Continuing our research, based on accepted methodology, the growth rate of production per unit of used resource, the growth rate of used resources and additional growth rate, as well as the degree of impact of extensive use of factors (change in their quantity) or intensive use (change in return) on production growth investigated.

Thus, the analysis of single-factor statistical models of production functions shows that the quantitative supply of labour resources is the main means of influencing economic growth processes when accomplished the necessary supply of fixed capital and its intensive use. As a result of a comprehensive assessment of the factors of production, detected the maximum increase in production volume, which corresponds to the unit of growth of funds spent on the production of key elements of technical capacity - wages and depreciation.

Conclusion. Based on the results of the analysis, we can conclude that government support for agriculture in the form of services is critical to the growth and

efficiency of small-scale agriculture in developing countries. It is necessary to develop the agricultural sector through the provision of agricultural support services. These services include irrigation, agricultural loans, subsidies, agricultural expansion, and mechanization (tractor services) for smallholders. This will improve the access of smallholders to these services to improve agricultural productivity and the living standards of the rural population.

References:

- [1]. O‘zbekiston Respublikasi Prezidentining 2017 yil 7 fevraldagi 4947-son Farmonining 1-ilovasi «2017-2021 yillarda O‘zbekiston Respublikasini rivojlantirishning beshta ustuvor yo‘nalishi bo‘yicha Harakatlar strategiyasi». (www.lex.uz)
- [2]. Sihag J., Prakash D. (2019) A Review: Importance of Various Modeling Techniques in Agriculture/Crop Production. In: Ray K., Sharma T., Rawat S., Saini R., Bandyopadhyay A. (eds) Soft Computing: Theories and Applications. Advances in Intelligent Systems and Computing, vol 742. Springer, Singapore. https://doi.org/10.1007/978-981-13-0589-4_66.
- [3]. Dean P. Holzworth., Val Snow, Sander Janssen, Ioannis N. Athanasiadis, Marcello Donatellie, Gerrit Hoogenboom, Jeffrey W. White, Peter Thorburn. Agricultural production systems modelling and software: Current status and future prospects. Environmental Modelling & Software 72 (2015) 276e286. <http://dx.doi.org/10.1016/j.envsoft.2014.12.013>
- [4]. Elliott, J., Kelly, D., Chryssanthacopoulos, J., Glotter, M., Jhunhnuwala, K., Best, N., Wilde, M., Foster, I., 2014. The parallel system for integrating impact models and sectors (pSIMS). Environ. Model. Softw. 62 (0), 509e516.
- [5]. Carberry, P.S., Liang, W.-L., Twomlow, S., Holzworth, D.P., Dimes, J.P., McClelland, T., Huth, N.I., Chen, F., Hochman, Z., Keating, B.A., 2013. Scope for improved ecoefficiency varies among diverse cropping systems. Proc. Natl. Acad. Sci. U. S. A. 110 (21), 8381e8386.
- [6]. Qureshi, M.E., Whitten, S.M., Mainuddin, M., Marvanek, S., Elmandi, A., 2013. A biophysical and economic model of agriculture and water in the MurrayDarling Basin, Australia. Environ. Model. Softw. 41, 98e106.
- [7]. Hochman, Z., Gobbett, D., Holzworth, D., McClelland, T., van Rees, H., Marinoni, O., Garcia, J.N., Horan, H., 2012. Quantifying yield gaps in rainfed cropping systems: a case study of wheat in Australia. Field Crops Res. 136, 85e96
- [8]. Prikina, L.V. Ekonomicheskiiy analiz predpriyatiya / L.V. Prikina. — M.: OOO «Izdatel'stvo YuNITI-DANA», 2003. — 407 c.

MODERN PROBLEMS OF TECHNICAL SCIENCES

UDC: 66.665.11.**LIPID MODIFICATION WITH THE USE OF VEGETABLE AND ANIMAL
RAW MATERIALS BY BLENDED METHOD**

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Аннотация. В настоящее время большое внимание при разработке пищевых продуктов уделяется на рациональное многоцелевое применение пищевых продуктов. С этой целью данная работа направлена на создание купажей масел на основе растительного и животного происхождения и изучению их свойств. Работа также направлена на получение купажей масел обладающих различными профилактическими свойствами. Купажирование растительных масел и топленых животных жиров на сегодняшний день считается одним из важных ресурсов масложировой продукции. Составлены купажи на основе

растительных масел которые дают возможность одновременного питания человека различными растительными маслами. Составлены купажи на основе растительных и животных масел дают возможность рационального использования говяжьего и птичьего масла. В состав купажа включена амарантовое масла который благотворно влияет на удаление антиоксидантов из организма человека. Для определения содержания витаминов и плотности масел применены расчёты по правилу аддитивности минуя расхода средств на лабораторные приборы. В работе при составлении купажа получен продукт масла который является основой для спредов.

Ключевые слова. Животный жир, растительное масло, купаж, антиоксидант, профилактический, аддитивность, температура плавления, температура застывания, витамин, усвояемость, рефрактометр.

Аннотация. Hozirgi vaqtda oziq-ovqat mahsulotlarini ishlab chiqarishda oziq-ovqat mahsulotlaridan ko'p maqsadlarda oqilona foydalanishga katta e'tibor berilmoqda. Shu maqsadda ushbu ish o'simlik va hayvon manbalariga asoslangan yog'larning aralashmalarini yaratish va ularning xususiyatlarini o'rganishga qaratilgan. Shuningdek, ish turli xil profilaktik xususiyatlarga ega yog'larning aralashmalarini olishga qaratilgan. Bugungi kunda o'simlik moylari va ko'rsatilgan hayvon yog'larini aralashtirish yog 'va yog'li mahsulotlarning muhim manbalaridan biri hisoblanadi. Bir vaqtning o'zida odamni turli xil o'simlik moylari bilan oziqlantirishga imkon beradigan o'simlik moylariga asoslangan aralashmalar ishlab chiqilgan. O'simlik va hayvon yog'lariga asoslangan aralashmalar mol go'shti va parranda yog'laridan oqilona foydalanishni ta'minlash uchun yaratilgan. Kupog tarkibiga amarant yog'i kiradi, bu antioksidantlarni inson organizmidan chiqarishga foydali ta'sir ko'rsatadi. Vitaminlarning tarkibini va yog'larning zichligini aniqlash uchun labo'ratoriya asboblari uchun mablag sarfini chetlab o'tib, qo'shilish qoidasiga muvofiq hisob-kitoblar o'tkazildi. Aralashtirish jarayonida yoyilish uchun asos bo'lgan neft mahsuloti olingan. Kupoglar olinishida spread moy uchun moy mahsuloti olingan.

Калит so'zlar. Hayvon yog'i, o'simlik moyi, kupog, antioksidant, profilaktik, odditivlik, erish haro'rati, qotish haro'rati, vitamin, hazm bo'lish qobiliyati, refrakto'metr.

Annotation. Currently, great attention is being paid to the rational multipurpose use of food products in the development of food products. This work is aimed at creating blends of different types of oil based on vegetable and animal raw materials and studying their properties. The research is also aimed at obtaining blends of oils with various prophylactic properties. Blending of vegetable oil and rendered animal fat is considered one of the important resources of fat and oil production today. Blends based on vegetable oil are formulated, that makes it possible to simultaneously feed a person with various vegetable oils. Blends based on vegetable and animal oils are formulated to enable rational use of beef and poultry oils. The blend contains amaranth oil, which has a beneficial effect on the removal of antioxidants from the human body. To determine the content of vitamins and the density of oils, calculations were used according to the additivity rule, bypassing the expense of funds for laboratory instruments. In the process of blending, an oil product was obtained, which is the basis for spreads.

Key words. Animal fat, vegetable oil, blend, antioxidant, prophylactic, additivity, melting point, pour point, vitamin, digestibility, refractometer.

Introduction. Currently, great attention in the development of food products is paid to the rational multipurpose use of food products. For this purpose, this work has been done to create blends of oils of vegetable and animal origin and study their properties. The work is also aimed at obtaining blends of oils with various prophylactic properties, while obtaining blends from oils available in retail chains.

Blending of vegetable oils and rendered animal fat is considered one of the important resources of fat and oil products. Due to this technological method, the optimal ratios of fatty acids of various types have been achieved and the problem of producing oils that are functional for their intended purpose and therapeutic and prophylactic blends has been solved.

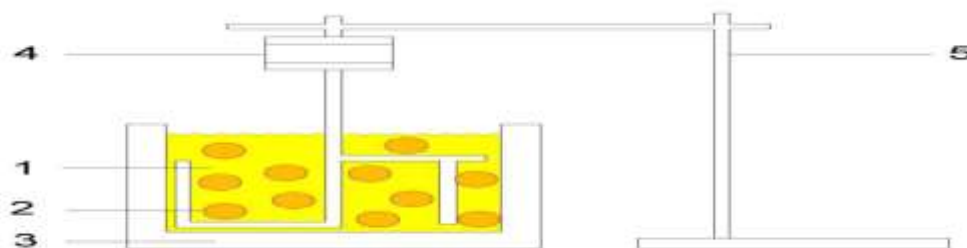
Literature Review: The advantage of this method is the production of blends of oils of various assortments, giving the products a wider range of preventive and technological properties, the rational use of animal and chicken fat [1].

When making blends, clarified chicken fat was used, since in recent years the number of poultry farms and the number of poultry livestock have increased in Uzbekistan, the products of the latter are daily supplied to retail chains. It should be noted that the population is reluctant to use chicken and beef fat, since today there is no convenient, energy-saving technology for using the above fat at home.

Research methods: To solve this problem, a technology has been developed for producing ghee from chicken and beef fat with further production of oil blends. The authors proposed a laboratory setup with an optimal mode for producing ghee from chicken and beef fat, the setup is shown in Figure No 1 [2].

Laboratory Setup of a Mechanic-Thermal Method for Obtaining Ghee from Chicken And Beef Fat

Figure No 1



Picture №1: 1. Melted chicken oil. 2. Raw chicken fat in pieces. 3. Dishes with an electric heater. 4. Stirrer. 5. Tripod.

The authors have carried out laboratory studies and determined that to obtain ghee, the raw chicken fat should be heated to 70 °C, and the raw beef fat should be heated to a temperature of 80-85 °C, since at these temperatures the optimal conditions for obtaining ghee are revealed. The melted part of the oil is collected in separated containers; the not liquesced part is transferred to the production of feed for chickens, fish and pigs. Vegetable oils that were used in the preparation of blends were obtained by using the traditional technology according to the pressing-extraction scheme.

The factor that determines the nutritional value is the inclusion in the diet of the population for balanced oil in the quantity and ratio of polyunsaturated fatty acids,

taking into account the modern requirements of a balanced diet [3]. The authors studied the content of vitamins, the density of vegetable oils and blends based on them. The results are presented in table No 1.

Table No 1

Vitamin Content, Density of Vegetable Oils and Blends Based on Them

Name of the Blend composition and oil	Vitamin A, μg	Vitamin D, μg	Vitamin E, μg	Vitamin K, μg	Density ρ , at 20 °C, g / cm^3
Sunflower oil	0	0	41,08	5,4	0,917-0,920
Linseed oil	0	0	0,5-1,2	9,3	0,926-0,930
Cottonseed oil	0	0	35,3	24,7	0,923-0,931
Amaranth oil	10,0	5,0	192,0	13,1	0,919-0,922
Sunflower oil + cottonseed oil + linseed oil (85: 10: 5)	0	0	3,7	0,4	0,920
Melted chicken fat + sunflower oil + flaxseed oil (80: 10: 10)	19,0	2,0	17,0	7,5	0,890
Sunflower oil + cottonseed oil + Amaranth oil (70: 15: 15)	1,5	0,75	36,36	30,24	0,917
Ghee Beef fat + Ghee Chicken fat + Flaxseed Oil (50: 40: 10)	12,0	1,0	14,2	12,2	0,850

Table No.1 indicates that vitamins A, D, E, K prevail in amaranth oil in comparison with other oils. The main purpose of using amaranth oil in blending oils is the content of vitamin A and squalene in its composition, which is contained in an amount of up to 8%. To determine the content of vitamins and the density of oils, calculations were used according to the additivity rule, bypassing the expense of funds for laboratory instruments.

As we know, vitamin A has many biochemically important functions in the human body. Retinol is a component of rhodopsin, the main visual pigment. In the form of retinoic acid, vitamin A stimulates the growth and development of the human body. Retinol is a structural component of cell membranes, provides antioxidant protection of the human body. Squalene is also an antioxidant that is produced by the human body on its own. Infants have the highest amount of squalene, which decreases with age and after the age of 25, the amount of squalene in the human body drops significantly. With aging, it becomes more and more important to additionally supply cells and organs with oxygen. Therefore, the work considered the possibility of obtaining blended oils, taking into account the factor of antioxidant properties of the final product, for this, amaranth oil was used as a correcting additive. Also n usage Amaranth oil is justified by the presence in its composition is not less important for the

human body vitamins A, D, E. For the organization of manufacture of blended oils designed optimal ratios of blends of vegetable and animal fat [4].

Analyzes and results.

To clarify the digestion of the obtained blends in the human body in laboratory conditions, their melting points and pour points are determined, which are given in table No. 2.

Table No. 2.

Physicochemical indicators of blends

No.	Blend composition	Blend ratio, %	Melting point of oil, °C	Pour point of oil, °C
1	Sunflower oil, cottonseed oil + linseed oil	85 : 10 : 5	22-24	-12
2	Ghee Chicken fat + sunflower oil + linseed oil	80:10:10	26-28	+24
3	Sunflower oil + cottonseed oil + Amaranth oil	70 : 15 : 15	22-24	-12
4	Ghee Beef fat + Ghee Chicken fat + linseed oil	50:40:10	32-34	+28

It can be concluded from the Table No.2 that the melting point and pour point are optimal when using these proposed blends, the blending did not affect the physicochemical properties of the oils [5].

The characteristics of the proposed blends of balanced compositions based on sunflower, linseed, amaranth and animal oils are established and given in Table No. 3. The study of the assimilation of blends was established by the method of tasting by the population and specialists.

Table No. 3.

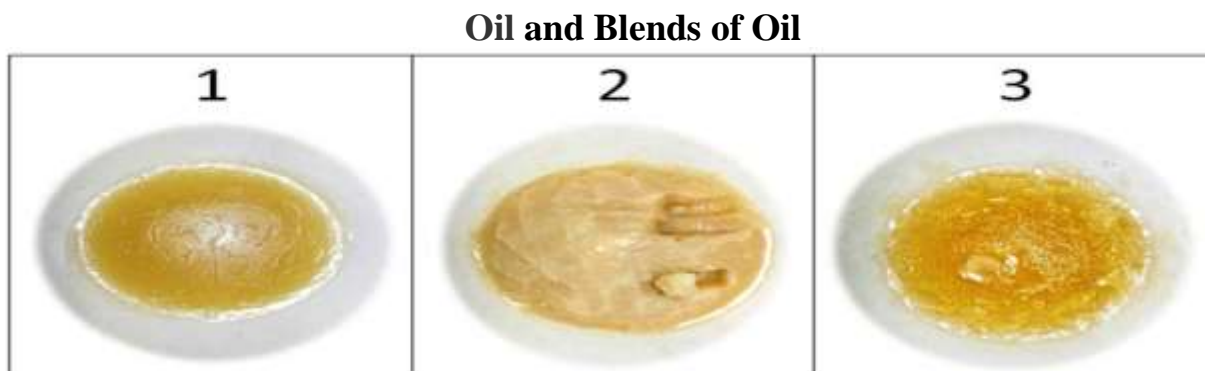
Characteristics of the Offered Blends

No.	Blend Composition	Blend Ratio, %	Purpose of the Blend	Digestibility
1	Sunflower oil + cottonseed oil + linseed oil	85:10:5	Direct consumption	Increased
2	Ghee chicken butter+ sunflower oil + linseed oil	80:10:10	Direct consumption	Increased
3	Sunflower oil + cottonseed oil + Amaranth oil	70:15:15	Direct consumption	Excellent
4	Ghee beef fat + ghee chicken fat+ linseed oil	50:40:10	Fat base for spreads, direct consumption	Increased

It can be concluded from the Table No. 3 that the obtained qualitative results are the creation of such blends that have a combination of the above properties, and can be used in industrial enterprises in the production of a wide range of fat-containing

products [6]. In those blends that contain ghee, the smell of chicken oil predominates, which requires a food flavoring. Photos of some proposed oils and blends of oils are given on Picture No. 2.

Picture No 2.



Picture No. 2:

1. A blend consisting of chicken oil, sunflower oil, linseed oil.

2. A blend consisting of beef oil, chicken oil, flaxseed oil.

3. Ghee chicken butter. All samples of oils and blends have a bright color for visibility, which has a beneficial effect on the quality characteristics of the products obtained.

Development of normative documents in the field of technology and assess the quality of offers small and Guy blends of vegetable and animal oils, the introduction of new express methods for studying them, will certainly contribute to the emergence in the market of fat products with improved fatty acid composition, medicinal properties and reduce the share of counterfeit products [7].

The authors have determined the indices of the relative light refraction of the obtained blends and oils on a refractometer at a temperature of +22 °C.

Table No. 4.

Indices of the Relative Light Refraction of the Resulting Blends and Oil

No.	Blend composition, oil name	Blend ratio, %	Refractometer indicators, Nm
1	Sunflower oil + cottonseed oil + linseed oil	85:10:5	1,4741
2	Ghee chicken fat + sunflower oil + linseed oil	80:10:10	1,4723
3	Sunflower oil + cottonseed oil + Amaranth oil	70:15:15	1,4738
4	Ghee beef fat + ghee + linseed oil	50:40:10	1,4665
5	Ghee chicken fat, stored outdoors	-	1,4683
6	Ghee chicken fat	-	1,4706

It can be seen from the Table No.4 that the chemical composition of blends is similar; therefore, the indicators of blends and oils according to the refractometer are close in values.

The authors determined the optical density indices of the obtained blends and oils on a spectrophotometer at a temperature of +22 °C.

Table No. 5.

Indicators of Optical Density of the Obtained Blends and Oils

No.	Blend composition, oil name	Blend ratio, %	Spectrophotometer indicators, Nm
1	Sunflower oil + cottonseed oil + linseed oil	85:10:5	303
2	Ghee chicken fat + sunflower oil + linseed oil	80:10:10	297
3	Sunflower oil + cottonseed oil + Amaranth oil	70:15:15	305
4	Ghee beef fat + ghee + linseed oil	50:40:10	295
5	Ghee chicken fat, stored outdoors	-	317
6	Ghee chicken fat	-	289

It can be concluded from Table No.5 that the chemical composition of the blends are similar, therefore, the indicators of blends are close by the spectrophotometer [8]. But the indicators of Ghee chicken butter, stored outdoors and ghee chicken butter differ in a wide range, this is due to the acidification of oils during the storage in the open air.

Pictures of the light spectrum of the obtained blends and oils are given in Figures No. 3 and No. 4.

Figure No. 3.

Pictures of the Light Spectrum of the Obtained Blends

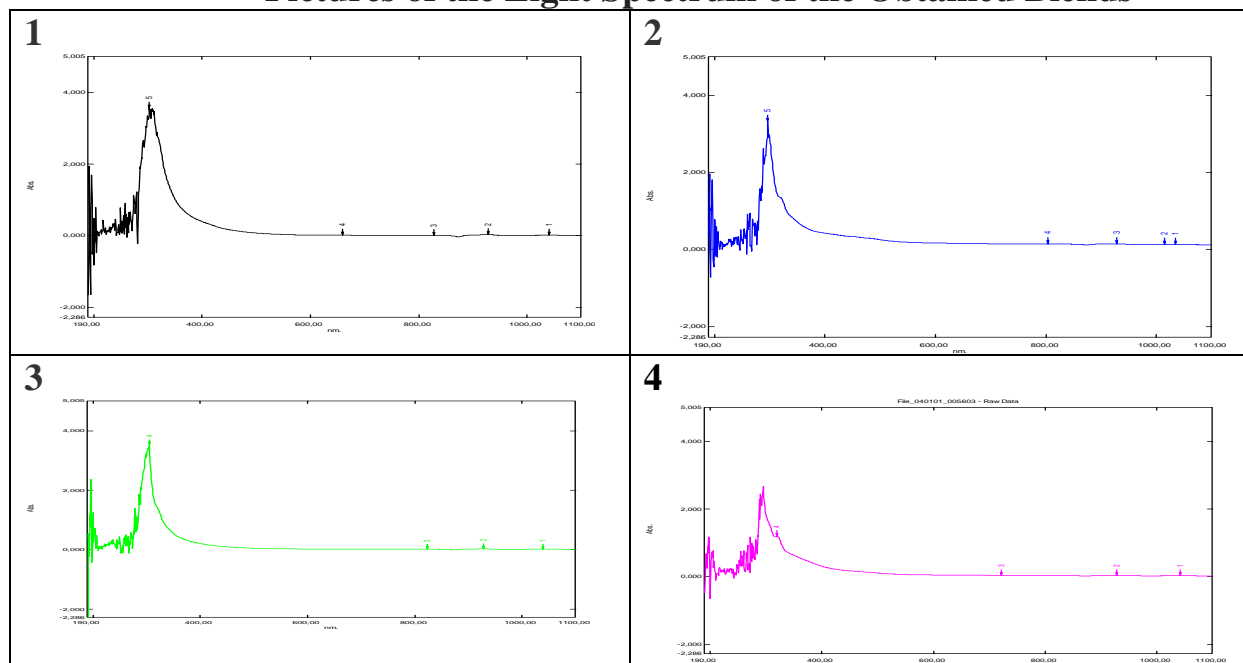


Figure No. 3. 1. Indicators of the light spectrum of blend No. 1. 2. Indicators of the light spectrum of blend No. 2. 3. Indicators of the light spectrum of blend No. 3. 4. Indicators of the light spectrum of blend No. 4. Based on the Figure No.3 we can conclude that the pictures of the light spectrum of the four blends do not differ much.

Figure No. 4.

Pictures of the Light Spectrum of Oils.

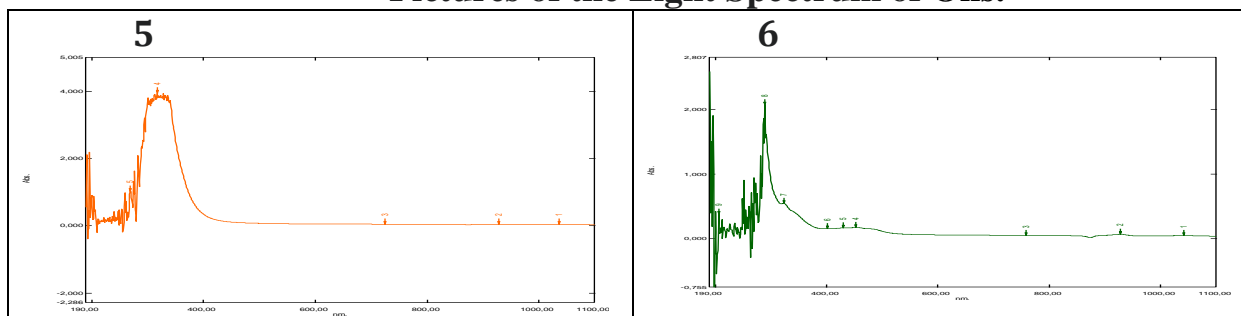
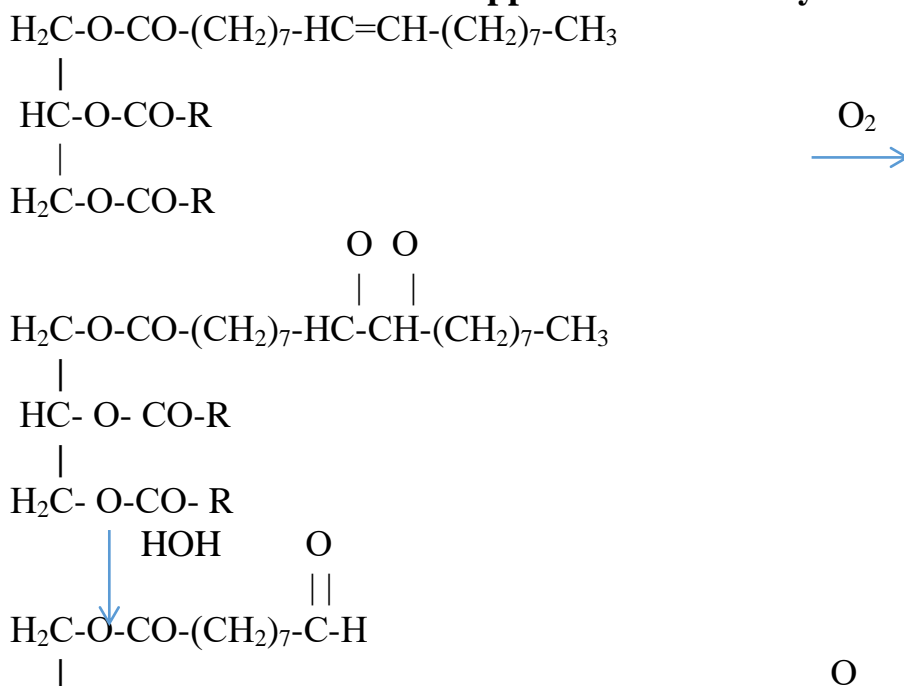


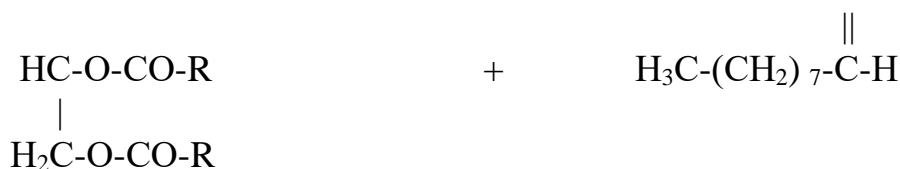
Figure № 4. Vertically: optical density indicators, horizontally: wavelength indicators. 5. Indicators of the light spectrum of Ghee chicken butter, stored outdoors. 6. Indicators of the light spectrum of fresh ghee. From Figure 4, we can conclude that the pictures of the light spectrum of Ghee chicken butter, stored outdoors and the indicators of the light spectrum of fresh ghee chicken butter have large differences, this is explained by the change in the chemical composition during the acidification of oils during storage in the open air [9].

In recent years, retail chains have not paid enough attention to the proper storage of oils. The presence of contaminants, exposure to extreme temperatures and atmospheric oxygen will shorten the shelf life and degrade the quality of blends and oils during storage. Oils should be stored packed in clean and dry rooms. Ideally, the room should be equipped with an air conditioning system to maintain a constant temperature. For high-quality storage of oils, the primary role is played not by the shelf life, but by the storage conditions of oils and oil blends. If the storage recommendations are not followed, even a freshly prepared blend of oils will go rancid in the near future. Double bonds in oil molecules lead to rapid oxidation of the oil, that is, to rancidity [10]. Oxidation of oils leads to the appearance of an unpleasant odor and taste, since aldehydes and ketones with a small bond appear in the molecules of the oil, which are given in Figure No 5.

Figure No. 5.

Reaction of the Appearance of Aldehydes and Ketones in Oils

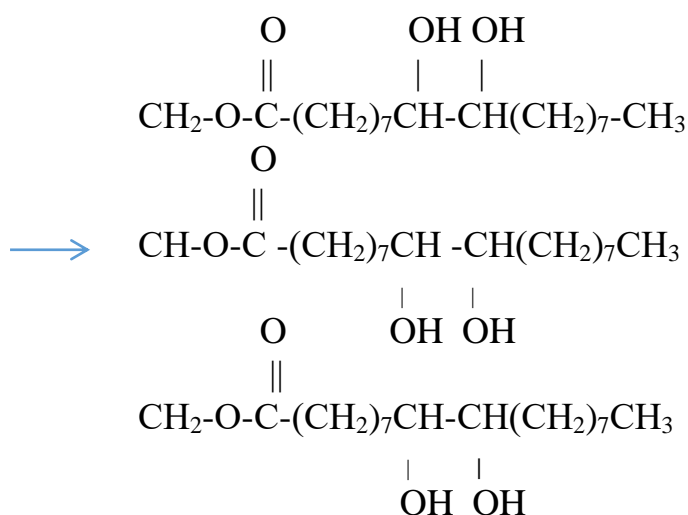
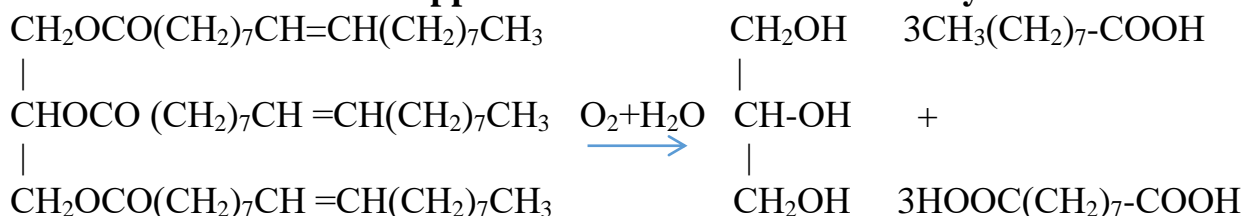




In the presence of moisture in the air, the oxidation of the oil is accompanied by hydrolysis, with the formation of fat acids and aldehydes, the reaction of which is given in Figure No.6.

Figure No. 6.

Reaction Appearance Fat Acids S and Aldehydes in Oils



Conclusion:

- 1) Compilation of blends based on vegetable oils makes it possible to simultaneously feed a person with various vegetable oils.
- 2) Compilation of blends based on vegetable and animal oils makes it possible to efficiently use beef and poultry oils.
- 3) The inclusion of amaranth oil in the blend has a beneficial effect on the removal of antioxidants from the human body.
- 4) To determine the content of vitamins and the density of oils, calculations were applied according to the additivity rule, bypassing the expense of funds for laboratory instruments.
- 5) When composing the blend, an oil product was obtained, which is the basis for spreads.

Reference:

- [1]. Yu.Kadirov, A. Ruzibayev. Yoglarni kayta ishlash texnologiyasi. Darslik. Fan va texnologiyalar (In Uzbek), Toshkent. 2014.
- [2]. Yu.Kadirov. Yoglarni kayta ishlash texnologiyasi. Laboratoriya mashg'ulotlari. (In Uzbek). Toshkent. Chulpon. 2005.

- [3].Yu.Kadirov, D.Ravshanov, A.Ruzibayev. Usimlik moylari ishlab chiqarish texnologiyasi. Darslik (In Uzbek). Toshkent. Chulpon. 2014.
- [4].A.N. Axmedov. Issledovaniye pokazateley xlopkogo masla poluchennogo metodom forpressovaniya iz nizkosortnix semyan xlopchatnika (In Russian).Universum: Texnicheskiye nauki. Issue:4(61) April, 2019. Moscow, 2019.
- [5].A.N. Axmedov. Fizikoximicheskiye pokazateli forpressovogo masla, poluchayemogo iz nizkosortnix semyan xlopchatnika.(InRussian). Kimyo va kimyo texnologiyasi. Tashkent, 2018.
- [6].A.N. Axmedov, S.A.Abduraximov. Texnologiya polucheniya rafinirovannogo otbelenogo forpressovogo masla iz nizkosortnix semyan xlopchatnika yedovaniye pokazateley xlopkogo masla, poluchennogo metodom forpressovaniya iz nizkosortnix semyan xlopchatnika.Pishevaya promishlennost (In Russian). Moscow, 2020. № 6 (61).
- [7].R.R.Akramova, D.S.Sagdullayeva, A.S.Turayev, S.A. Abduraximov, S.F.Xodjayev, F.A.Umarov. Gidrotatsiya saflorovogo masla s nalojeniyem SVCH-izlucheniya (In Russian). Universum. Texnicheskiye nauki. № 2 (59). 2019.
- [8].M.F.Radjabov, N.K.Saparbaeva, R.K.Babajanova, M.S. Khusainova, U.B. Mavlanov. Intensification of the Process of Hydration of Cottonseed Oil. ACTA SCIENTIFIC NUTRITIONAL HEALTH (ISSN:2582-1423). India. Volume 5 Issue 1 January 2021.
- [9].A.N. Axmedov. Issledovaniye izmeneniya v protsesse xraneniya semyan xlopchatnika (In Russian). Dynamics of the development of world science. Abstracts of X International Scientific and Practical Conference. Vancouver, Canada. 10-12 June 2020.
- [10].A. N. Axmedov, B.Sh. Majidov. Saqlash davrida paxta chigitining ayrim ko'rsatkichlari o'zgarishi tahlili "Sanoat va qishloq xo'jaligining dolzarb muammolarini yechishda innovatsion texnologiyalarning ahamiyati" Respublika ilmiy-amaliy konferentsiyasi (In Uzbek). Karshi, 2019.

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ISSUES OF AIR SPACE INTENSITY IN THE REPUBLIC OF UZBEKISTAN

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Аннотация: Одним из важных факторов для развития мировой экономики являются международные авиаперевозки. Появляются всё новые направления и маршруты, что приводит к возрастанию интенсивности авиаперевозок. Соответственно из-за возрастания интенсивности авиаперевозок и растёт загруженность воздушных трасс, что управление воздушным движением становится более сложным.

В статье рассматриваются вопросы интенсивности воздушного пространства Республики Узбекистан. Проанализирована загруженность и предложены пути решения данной проблемы.

Ключевые слова: загруженность, воздушное пространство, маршрут, запреты, оптимизация, пропускная способность, интенсивность.

Аннотация: Авиакатновлар жаҳон иқтисоди ривожланишининг муҳим омилларидан бўлиб ҳисобланади. Янгидан янги йўналишлар ва маршрутларнинг очилиши авиакатновларнинг интенсивлиги орттиришига сабаб бўлади. Бу эса ўз навбатида ҳаво трассаларининг тирбандлигини келтириб чиқаради ва ҳаводаги ҳаракатни бошқариш мураккаб жараёнга айланиб боради.

Ушбу мақолада Ўзбекистон Республикаси ҳаво кенглигининг интенсивлиги масалалари кўриб чиқилган, шунингдек, ҳаво трассаларининг тирбандлиги таҳлил қилиниб, муаммони бартараф этиш йўллари тавсия этилган.

Калит сўзлар: тирбандлик, ҳаво кенглиги, маршрут, тақиқлар, оптималлаштириш, ўтказиш қобилияти, интенсивлик.

Annotation: International air transportation is one of the important factors for the development of the world economy. New directions and routes are appearing, which leads to an increase in the intensity of air transportation. Accordingly, due to the increase in the intensity of air transportation and the increasing congestion of air routes, which makes air traffic control more complex.

The article deals with the issues of the intensity of the airspace of the Republic of Uzbekistan. The workload is analyzed and the ways of solving this problem are suggested.

Key words: congestion, airspace, route, prohibitions, optimization, capacity, intensity.

Introduction. In order to implement activities related to the use of airspace, there are established fields for air traffic services, airfield zones and air hubs, airline routes, itineraries and special flight zones for aircraft, areas of uncontrolled flights, prohibited zones and restricted zones, areas of test ranges, areas with an explosive danger and the other special elements which form airspace structure of the Republic of Uzbekistan. [1]

Thus, in the airspace of the Republic of Uzbekistan, which is bordered with the Republic of Kazakhstan, Kyrgyz Republic, the Republic of Tajikistan, the Republic of Turkmenistan and the Islamic Republic of Afghanistan, there are three air traffic service areas (FIR), ten airfield areas (TMA) and 12 take-off and landing zones (CTR).[2]

To date, modern comfortable airliners of Uzbekistan land and take off regularly in more than 50 cities of Europe and Asia, operate chartered flights from Alaska to New Zealand and make calls using the RNAV system. The pilots of the national air company “Uzbekistan havo yollari” mastered operation of airplanes such as A320, A320 Neo and Boeing – 757/767. Today they are learning how to control a new generation aircraft – Boeing 787 Dreamliner. These aircrafts are equipped with the necessary zone navigation devices.

Table. Traffic densities in the airspace of the Republic of Uzbekistan

№	Periods	Transit	Area of airfield (take off/landing)	Total served	Deviation (%)
1.	2011	44080	41826	85906	
2.	2012	49110	42950	92060	+ 7
3.	2013	51248	41899	93147	+ 1
4.	2014	54084	40088	94172	+ 1
5.	2015	53965	36891	90856	- 4
6.	2016	54038	34287	88325	- 2,8
7.	2017	55334	34029	89363	+ 1,18
8.	2018	62637	36618	99255	+ 11
9.	2019	58047	44011	102058	+ 2

The table shows that the traffic intensity in the airspace of the Republic of Uzbekistan has increased significantly from 2012 to 2014. Due to the global economic crisis the number of flights have been decreased in 2015.

In 2020, with the onset of the pandemics and global restrictions air carriers around the world faced following challenges:

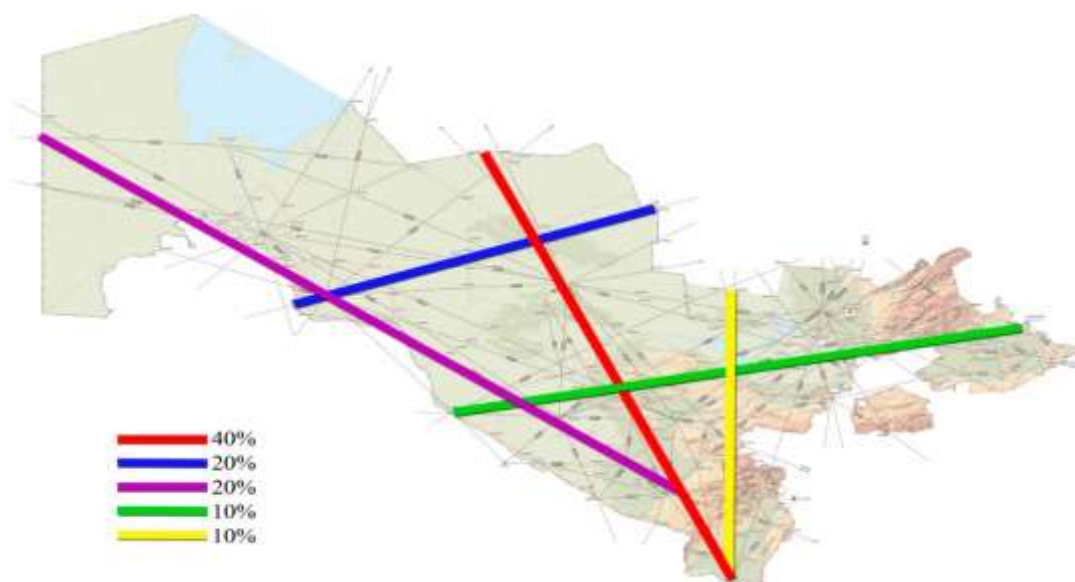
- demanded preservation of social distance that requires more space;

- restrictions of flights or closure of domestic airlines.

All these circumstances led to the decrease of passenger flow and purchasing power of the population.

However, annual growth is expected to be around 4-4.5% in 2021. Such growth requires modernization of infrastructure in air traffic control system and further development ATM procedure based on the implementation of PBN, required navigation characteristics.

After analyzing the air flow over the territory of the republic of Uzbekistan, one can observe that more than 200 airplanes make trips on an overloaded airspace route, therefore it is very difficult for air traffic controllers, especially at night. For example, at 3 a.m. in the location of TMD (Tamdibulak) air traffic controllers are loaded with the control of 20 airbuses for a per unit of time.(picture.1).



Picture.1. Loading level of domestic flights in the Republic of Uzbekistan.

Steady growth of aviation requires the increase of the air space capacity, therefore optimal use of current air space is becoming actual solution today. Operational efficiency which made it possible to develop navigation applications for using in various regions of the world and for all phases of flight has been increased at the result of area navigation methods (RNAV) enforcement.

When an aircraft flies from one point to another point over the territory of Uzbekistan there is so called notion such as required nautical characteristics.

If the “flight” plan and aircraft manual indicates the RNP 5, it means that the required navigation performance of this aircraft is 5 miles and it is allowed to stray from the axes of the itinerary for 5 miles.

There are other deviations such as RNP1,RNP2,RNP3,RNP4,RNP5,RNP10 and RNP0,3. Here numbers indicate deviation from the axes of itinerary, for example, RNP0,3 – 3 miles, fudge factor is about 600 meters and it is used in the territory of airport. RNP10 is used over the Pacific Ocean. Therefore, it is advised to use

RNP1, RNP2, RNP3, RNP4, RNP5 and RNP0,3 in the territory of the Republic of Uzbekistan.

Modern scientific research of this problem is focused on modeling real-time systems and preliminary planning of the movement of existing aircrafts.

However, in recent years, there was observed a tightening of airspace capacity requirements, at the result of which there was established some elements with a contingent nature (area navigation, conditional routes, etc.), that increase attractiveness and make the structure of aviation space more complicated.

Since 2015, there has been held works on the gradual exclusion of AHB system in the territory of Uzbekistan. If we use zonal navigation method of global positioning, such as communication satellites GPS and GLONASS Network there will not be need for such navigation systems as VOR/DME and ADSB -Automatic Dependent Surveillance Broadcast.

Typically, air traffics are presented as a list of operating procedures of vertical boundaries and navigation aids and way points. Navigation way points are presented as unique five-letter identifier or geodetic reference. Besides unique identifier and geodetic reference, the properties of navigation also includes their physical characteristics that is processed by the aircraft navigation system. Broken points of such lines indicated by the navigation tools or dots. The flight plan does not always provide information about all turning points, in order to get concrete and reliable information it is required to fulfill the request to the navigation data base.

The only important feature of navigation equipment is geodetic abstraction. As we know, airplanes fly only within air routes that are given with arbitrary broken lines. Thanks to such a request, it is possible to determine the geodetic coordinates of navigation equipment and points that are necessary for modelling air assets. However, the information about the routes of the airplanes are not sufficient enough for general planning. During the planning process, an important role is assigned to the consideration of all restrictions with the help of which it will be possible to impose bans on the use of specific volumes of airspaces.

A preliminary flight planning has several problems related to the preparation of preliminary drafts of flight plans. Correct planning of air flights and consideration of the air navigation conditions have a great impact on the safety of air flights. While making a plan of a use of airspace, an aeronautical conditions that cover all regional parameters of airspace is considered to be an integrated data base.

At the result of preliminary planning, it can be concluded that optimization of the distribution of airspace loads by sectors allows to achieve following results: visualization of air navigational condition of the region, establishment of critical directions of overload, collection of overload data base.

Conclusion. Implementation of these projects in an immediate future will lead the Republic of Uzbekistan to a qualitatively new level, ensuring its status and image in the international arena. And of course, the top priority of the airways, as it was before, is to ensure the safety of flights and passengers remaining reliability, stability and comfort.

As it was noted, the beginning of 2020 was an imposed test for the aviation due to the pandemics. Most destinations and borders of many countries were closed, the

aviation industry was and is in the deepest crisis, cost savings will be in the first place in the upcoming years. Therefore, choice of optimal routes will be a priority to save aviation fuel. Basing on this, any air carrier choose a route where the most flexible entry and exit points have already been created, so this is not only modern but also urgent economic need.

References:

- [1]. Air Code of the Republic of Uzbekistan. National database of legislation. May 24, 2019, No. 03/19/542/317)
- [2]. Plan for the introduction of performance-based navigation (PBN) in the airspace of the Republic of Uzbekistan. Tashkent – 2018
- [3]. www.uzairways.com - the official website of the Uzbekiston Havo Yollari National Airline.
- [4]. Eshmuradov D.E., Sayfullaeva N.A. Optimization of distribution of airspace loads by sectors. International scientific and practical journal. Theory and practice of modern science. Moscow.-2020.- No. 4 (58).
- [5]. Doc. 9613. ICAO. Performance-Based Navigation (PBN) Guide. 2008
- [6]. 6. Eshmuradov D.E. Navigation zone in the Republic of Uzbekistan. Monograph. T: TDTU. 2016 .-- 123 p.
- [7]. Lyudomir A.V., Orlov V.S. Simulation modeling of dynamic air situation in controlled airspace // Applied Informatics. 2014. No. 5 (53). S. 89-97.
- [8]. Gabeidulin R.Kh. Mathematical modeling of air traffic control methods taking into account the unreliability of the forecast of the air situation // Collection of abstracts of the participants of the International Scientific and Technical Conference dedicated to the 45th anniversary of the University. 2016, p. 174.
- [9]. Knyazevsky, D.A. Organization and maintenance of air traffic: textbook. allowance / D.A.Knyazevsky. - Ulyanovsk: UVAU GA (I), 2011 .-- 207 p.
- [10]. Vovk V.I., Lipin A.V., Sarayskiy Yu.N. Zone navigation. Tutorial. St. Petersburg. 2004
- [11]. Akimov Alexander Nikolaevich, Vorobiev Vadim Vadimovich, Kharlamov Andrey Sergeevich On the issue of organizing air traffic planning // Scientific Bulletin of MSTU GA. 2014. No. 206. URL: <https://cyberleninka.ru/article/n/k-voprosu-ob-organizatsii-planirovaniya-vozdušnogo-dvizheniya> (date accessed: 12/21/2020).

UDC: 581.9+581.6**PROSPECTS FOR USING THE GENE POOL OF WILD RELATIVES OF CULTIVATED PLANTS OF THE KARAKALPAK USTYURT FLORA****Azhiev Alisher**

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Аннотация: Проведена инвентаризация кормовых, пищевых, лекарственных и медоносных растений флоры Каракалпакской части плато Устюрт. Флора Каракалпакской части плато Устюрт содержит много ценных видов растений для использования человеком. В результате на территории Каракалпакской части плато Устюрт в качестве кормовых выявлены 3 видов злаков, 6 вида бобовых и 29 видов кормовых растений разнотравья. 38 вида представителей флоры употребляются, как пищевые растения. Из общего числа видов ДСКР, произрастающих на территории Каракалпакской части плато Устюрт медоносные растения представлены 23 видами.

Ключевые слова: флора Каракалпакской части плато Устюрт, кормовые культуры, лекарственные растения, пищевые культуры, медоносные растения, растительные ресурсы

Annotatsiya: Ustyurt platosining Qoraqalpog'iston qismidagi o'simliklarning em-xashak, oziq-ovqat, dorivor va elyaf o'simliklarini inventarizatsiya qilish amalga oshirildi. Ustyurt platosining Qoraqalpog'iston qismidagi o'simlik dunyosida inson foydalanishi uchun juda ko'p qimmatli o'simlik turlari mavjud. Natijada, Ustyurt platosining Qoraqalpog'iston qismi hududida 3 turdagi donli, 6 turdagi dukkakli va 29 turdagi forslarning yem-xashak o'simliklari yem sifatida aniqlandi. 38 turdagi flora oziq-ovqat o'simliklari sifatida ishlatiladi. Ustyurt platosining Qoraqalpog'iston qismida o'sadigan DSCR turlarining umumiy sonidan mellifer o'simliklar 23 tur bilan ifodalanadi.

Kalit so'zlar: Ustyurt platosining Qoraqalpog'iston qismidagi flora, em-xashak ekinlari, dorivor o'simliklar, ozuqaviy ekinlar, melliferous o'simliklar, o'simlik resurslari

Abstract: An inventory of forage, food, medicinal and melliferous plants of the flora of the Karakalpak part of the Ustyurt plateau has been carried out. The flora of the Karakalpak part of the Ustyurt plateau contains many valuable plant species for human use. As a result, on the territory of the Karakalpak part of the Ustyurt plateau, 3 species of cereals, 6 species of legumes and 29 species of forage plants of forbs were identified as fodder. 38 species of flora are used as food plants. Of the total number of

DSCR species growing on the territory of the Karakalpak part of the Ustyurt plateau, melliferous plants are represented by 23 species.

Key words: flora of the Karakalpak part of the Ustyurt plateau, forage crops, medicinal plants, food crops, melliferous plants, plant resources.

Introduction: One of the most beautiful places in Northern Uzbekistan-Karakalpakstan is the Ustyurt Plateau. The upper part of the plateau is a protected area and is a part of the Saigachy protected area, therefore the flora and vegetation are well studied [1]. But, in general, there is currently no data on the composition of the flora of the entire river basin as a territorial phenomenon with natural boundaries in the form of watershed ridges, and a historical phenomenon that developed in the unity of all phytocenoses and floristic complexes. On the other hand, despite the fact that half of the territory has a protected regime, there is no modern scientifically grounded list of plants subject to protection. As a result, despite the significant economic benefits, the increasing anthropogenic impact on nature leads to such negative results as the depletion of natural resources. Nature is multifaceted, unique in its works, polished by many centuries of evolution. Many of them have already been irretrievably lost by humanity through ignorance, and more because of the carefree confidence in the inexhaustible generosity of the flora, in the innumerability of its gifts. Therefore, the assessment of natural reserves of useful plants, the study of the dynamics of their distribution are still one of the main directions of resource research.

The object of research is the flora of the Ustyurt plateau. The features of the flora were established by means of a comprehensive analysis of its components. The scientific and theoretical basis of the work is the monotypic concept of the species. Latin names are given in accordance with S.K. Cherepanov [2].

The purpose of this work is to make an inventory of the fodder, food, medicinal and melliferous components of the flora of the Ustyurt plateau.

The reasons for the floristic richness of the territory of the Ustyurt plateau are: a special position in the northwestern part of Karakalpakstan, a dissected relief, various types of landscapes and a variety of climate-forming factors of the studied territory, which led to the exceptional originality and richness of the flora of the Ustyurt plateau.

Karakalpak Ustyurt is located in the north-west of the autonomous republic, limited by the following coordinates: 56 ° -58 ° 41' north latitude and 41°30'-45 ° 30' east longitude.

The Karakalpak Ustyurt with gentle long slopes breaks abruptly in the northeast to the Aral Sea, in the southeast to the Amu Darya delta and in the south and southwest the Sarikamysh depression.

The Ustyurt plateau has the highest absolute height of 160-300 m above sea level. (tract. Kassarma and Karabauyr), the smallest 70-80 m (tract. Zharykkudyk) in the northern part of the plateau. The Ustyurt plateau is a complex uplifted wide-wavy solid plain surrounded on all sides by quite distinct cliffs, steeper from the south and east, reaching a height of 190-256 m.

The depth of the ravines ranges from 15-20 to 100-120 m and more, especially in the northern parts of the Eastern Chink of the plateau. The ravine bottoms are not flat, but narrow, 5-8 m wide. The slopes with a steepness of 50-60° form vertical cliffs in the Sarmatian limestones.

The surface of the Ustyurt plateau is more dissected in the south and has quite calm outlines in the north. The flatness is disturbed by very gentle increases and decreases of the same nature. The northernmost strip of elevated areas runs along the edge of the northern chink. From here to the south, there is a gradual decrease in the terrain in the direction of an extensive gentle depression, which can be called the North Ustyurt. Further to the south, the terrain gradually rises in the direction of the Karabaur ravine stretching from north-west to south-east. To the north of the Karabaur ravine lies the Barsakelmes sor, up to 50 km wide, up to 120 km long, the bottom of the basin is 62 m below sea level. From Barsakelmes to the north, slight fluctuations in altitude are found in the relief, there are many shallow closed takyr-like depressions, ravines, shallow depressions, gaps, funnel-shaped pits about 20 m long, up to 10 m wide, 0.5-1 m deep. The surface is covered with fine gravel with lichens.

The Karakalpak Ustyurt with gentle long slopes abruptly breaks off in the northeast to the Aral Sea, in the southeast to the Amu Darya delta and the Sarykamys depression.

The total area of the Karakalpak Ustyurt is 7.2 million hectares or 43.4% of the total land fund of Karakalpakstan.

As a result, the flora of this study region contains many species of food, medicinal, forage, and melliferous plants valuable for humans [1, 3].

Fodder plants: Forage plants serve as food for farm animals. This is a very important type of plant resources, which is of great importance as in any country. They are a source of high-value feed for all types of farm animals. As a result of the studies [4-14], on the territory of the Ustyurt plateau, 71 species are represented as fodder, of which: 19 species of Compositae, 7 species of legumes and crucifers, 6 species of aster, 5 species of cereals and 26 species of forage plants of herbs [5, 6, 7].

The location of pasture vegetation in the study area directly depends on the complex, dissected terrain. Most often, pastures occupy the southern, South-Western, and less often South-Eastern slopes, but in some valleys located almost meridionally, meadows are located on the Eastern and Western slopes.

Summing up the results of the analysis, we can say that 71 species make up the gene pool of the main forage plants of the flora of the Ustyurt plateau.

Food plant: People use plants not only as food species, but also their nutritional properties. Depending on the area of residence, the human diet may include different percentages of plant and animal food. In this regard, the study of centuries-old national experience in the use of plant resources by various ethnic groups is of great practical and theoretical importance. Man has long used many representatives of natural flora as food, some of them introduced into culture [8]. This article contains only a short list of the most valuable and frequently used plant crops (39 species) [9].

Fruit and berry species are represented by such species as: *Crataegus korolkowii* L. Henry., *C. pontica* C. Koch, *Rosa majalis* Herrm., *Lycium ruthenicum* Murr., *Nitraria sibirica* Pall., *Capparis rozanowiana* B. fedsch., *C. spinosa* L. and others.

Some of herbaceous plants are used as vegetables raw or boiled, fried, stewed, as seasonings in salads, soups, etc. Vegetable crops are presented: *Allium caspium* (Pall.) Bieb., *A. sabulosum* Stev.ex Bunge., *Daucus carota* L., *Zosima orientalis* Hoffm., *Psammogeton setifolium* Boiss., *Lactuca tatarica* (L.) CAMey. L., *Crambe*

kotschyana Boiss., *Eruca sativa* Mill., *Melilotus albus* Medik., *Malacocarpus crithmifolius* (Retz.) C.A. Mey., *Portulaca oleraceae* L., and others.

Medicinal plants: One of the main goals of resource research is to obtain the data necessary to develop a program for the rational use, protection and restoration of medicinal plant resources.

The wild flora of Karakalpakstan is an inexhaustible source of more and more medicinal plants and medicinal products. Therefore, the study of the distribution of medicinal plants in favorable environmental conditions is one of the fundamental tasks of flora research in mountainous areas, which facilitate the organization of harvesting of medicinal plant species on a scale that does not lead to disruption of the existing vegetation cover.

From the list of medicinal plants, species that are in the Red Data Books of various ranks, in need of protection and rare plants are not subject to procurement.

The list should also exclude relics of various categories, known from one or several places or located on the border of the area - such in the flora of medicinal plants of the Ustyurt plateau is 1 species: *Malacocarpus crithmifolius* (Retz.) C.A. Mey.

Special attention should also be paid to endemic species that also need protection. In the flora of the Ustyurt plateau, this medicinal plant is *Lagochilus acutiloba* (Ledeb.) Fisch. et C.A.Mey.

Thus, the potential gene pool of medicinal plants of the Ustyurt plateau is 65 species. This is only a minimal list of medicines, since the number of plant species used by the population for medicinal purposes is much larger. Therefore, only the registered and most widely used medicinal plants mentioned in the literature are listed here.

According to the main use in medicine, various types of medicinal plants can be distributed among the following pharmacological groups:

Bitterness and other means that improve digestion: the roots of *Taraxacum bicorne* Dahlst., the aboveground part of *Artemisia terrae-alba* Krasch., the fruits of *Alhagi pseudoalhagi* (Bieb.) Fisch. and others.

Choleretic agents: fruits of *Rosa majalis* Herrm. and others.

Insecticides: roots and rhizomes of *Cynoglossum viridiflorum* PA11. and others.

Hemostatic agents: herb *Capsella bursa-pastoris* (L.) Medic., and others.

Expectorants (used in diseases of the respiratory system): roots of *Inula multicaulis* Kar. , and others.

Wound healing agents: *Plantago lachnantha* Bunge leaves and others.

Cardiovascular products: flowers and fruits of *Crataegus korolkowii* L. Henry., *C. pontica* C. Koch and others.

Antispasmodic, pain relievers: leaves and grass of *Hyoscyamus pusillus* L., and others.

Other plants of various actions: the aboveground part of *Melilotus officinalis* (L.) Pall, green non-woody branches of *Ephedra distachya* L., and many others.

Still, there is an urgent need for further, more thorough, comprehensive study of the question of medicinal plants of the Ustyurt plateau, with the joint participation of botanists, plant physiologists, ecologists and pharmacologists, which will reveal new valuable medicinal products of plant origin in the flora for domestic health care [10, 11].

Honey plants: Another valuable quality of plants for humans is melliferous plants. Most of them are medicinal and thus, transferring beneficial properties to honey, increase its quality. First-class melliferous plants are those plants in which nectar is readily available to bees and the flowering time is extended. Of the total number of species of flowering plants growing on the territory of the Ustyurt plateau, melliferous plants are represented by 26 species. Honey plants are widespread both on plateaus and crevices and ravines, but, naturally, the species composition of the melliferous flora and flowering times are not the same at different heights and in different areas of the territory. The first plants bloom at the bottom of crevices and ravines and are melliferous and pollen-bearing: *Nitraria sibirica* Pall., *Glicirrhiza aspera* L., and others. On the plateau, these species bloom a month later; the further south, the later the flowering begins. Fading species are replaced by others, and the total number of simultaneously flowering plants increases, reaching the Ustyurt plateau at the bottom of the ravines, on the slopes within the cliffs and slopes, a maximum in the second half of June [12, 13].

The melliferousness of a plant is a plant resource that should be kept in one place for as long as possible and constantly artificially pollinated, and therefore it is important to especially carefully protect this type of plant.

Conclusions: The species and genera of plants producing the greatest amount of pollen are widespread in all belts of the gorge. The difference is observed mainly in the species composition, which is different on the plateau and in the crevices.

Nature is the main source of medicinal, forage, food, and melliferous crops for humans. Assessment of natural reserves of useful plants, study of the dynamics of their distribution are one of the main directions of resource research. On the territory of the Ustyurt plateau, 71 species are represented as forage species, 39 species of flora are used as food plants, 65 medicinal and 26 melliferous species.

As a result of cattle grazing, the flora of the Ustyurt plateau is characterized rather by mixed-grass areas. Trampling and etching, and other types of increasing anthropogenic load, significantly reduce the forage advantages of meadows, and this is mainly expressed in a sharp decrease in the percentage of cereals and legumes as a result of an increase in the amount of inedible grasses and clogging of the meadow with poisonous sedge, which usually causes poisoning in animals [14].

In addition, the appearance of meadows is affected by intensive erosion processes that clog the meadows with products of rock destruction. As a result, in order to improve the feed quality of meadows, it is necessary to restrict and in some areas prohibit grazing, as well as to take measures to slow down and stop erosion processes.

References:

- [1]. Bondarenko O. N. (Korovina), Sarybaev B. Synopsis of the flora of the Eastern chink of Ustyurt. - In: Bioecological characteristics of the main plants of the Karakalpak Ustyurt. Tashkent: "FAN" UzSSR, 1973, -Pp. 194-239.
- [2]. Cherepanov S. K. Vascular plants of Russia and neighboring States. SPb.: Mir I Semya-95, 1995. 990 p.
- [3]. Brezhnev D. D., Korovina O. N. Wild relatives of cultivated plants of the USSR. L.: Kolos, 1981. -375 p.

- [4]. Forage plants of hayfields and pastures of the USSR / ed. prof. I. V. Larin, Vol. 1. Spores, gymnosperms and monocots. M.-L.: State publishing house of agricultural literature, 1950. 687 p.
- [5]. Ajiev A. B. "To study the species composition of wild relatives of cultivated plants of Karakalpakstan and Khorezm" Bulletin of science and education. 2016. No. 9 (21). - Pp. 24-28. DOI: 10.20861 / 2312-8089-2016-21-001
- [6]. Ajiev A. B. Analysis of the distribution of economically valuable species of wild relatives of cultivated plants of the Republic of Karakalpakstan / A. B. Ajiev, D. B. Bakhodirova, G. A. Nazarbayerova // Problems of modern science and education. 2017. No. 6 (88). - Pp. 14-16. DOI: 10.20861 / 2304-2338-2017-88.
- [7]. Ajiev A. B. Qoraqalpog'iston va Xorazm madaniy o'simliklarining yovvoyi ajdodlarining botanika-geografik tahlili. Khorazm Mamun Akademiyasi akhborotnomasi. 2020-9. -Pp. 9-12.
- [8]. Ajiev A.B. Qoraqalpog'iston va Xorazmning madaniy o'simliklarining yovvoyi ajdodlarining turlarining taksonomik tahlili. Khorazm Mamun Akademiyasi akhborotnomasi. 20-9. -Pp. 12-16.
- [9]. Ajiev A. B., Almenova A. P. Economic significance of wild relatives of cultivated plants from the family Fabaceae Lindl. Republic Of Karakalpakstan. Proceedings of the X international conference on ecological morphology of plants dedicated to the memory of Ivan Grigoryevich and Tatyana Ivanovna Serebryakov. Moskva. 27 - 30 nov. 2019. -Pp. 28-32.
- [10]. Ajiev A. B., Bekbergenova G. S. Study of wild relatives of cultivated plants of Karakalpakstan from the Poaceae Barnhart family. Proceedings of the X international conference on ecological morphology of plants dedicated to the memory of Ivan Grigoryevich and Tatyana Ivanovna Serebryakov. Moskva. 27 - 30 nov. 2019. -Pp. 32-36.
- [11]. Ajiev A. B., Almenova G. P., Kamilova P. Learning species of crop wild relatives plants of the republic of Karakalpakstan. Materiały XVI międzynarodowej konferencji naukowej i praktycznej. 07-15 kwietnia, 2020 roku. - Pp. 187-194.
- [12]. Ajiev A. B., Kamilova P. Study of the species composition of wild relatives of cultivated plants of the Republic of Karakalpakstan. Collection of scientific publications "Innovative development of science and education". May 2020. A series of remote conferences. Kazakhstan. 2020. -Pp. 16-21.
- [13]. Ajiev A. B. Study of wild relatives of cultivated plants of Karakalpakstan and Khorezm. Current challenges of modern science / III international scientific conference / collection of scientific papers. issue 3, Part 1. Pereyaslav-Khmel'nitsky July 21-22, 2016. -Pp. 124-126.
- [14]. Ajiev A. B. Wild relatives of cultivated plants of the Republic of Karakalpakstan and Khorezm and their economic significance. Journal of Natural Remedies. Online Journal. Vol. 21, No. 6, (2020). Pp. 100-104.

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FORMS OF EXISTENCE OF WILD RELATIVES OF CULTIVATED PLANTS IN THE FLORA OF KARAKALPAKSTAN AND KHOREZM

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Annotatsiya: Maqolada Qoraqalpog'iston va Xorazm florasining madaniy o'simliklarining yovvoyi qarindoshlari mavjud bo'lish shakllarini o'rganish bo'yicha ma'lumotlar keltirilgan. Tahlil shuni ko'rsatdiki, yovvoyi holda o'sadigan turlar orasida eng ko'p turlari yovvoyi holda ham, madaniy sharoitda ham o'sadiganlar orasida kuzatilgan - 44 tur, keyin ularning soni bo'yicha (35 tur) faqat yovvoyi tabiatda o'sadigan turlar bo'lgan. Yovvoyi tabiatda o'sadigan 21 tur, shuningdek begona o'tlar, madaniyat va begona o'tlardan o'sadigan 19 tur mavjud bo'lib, 8 tur tabiatda, madaniy, begona o'tlar va yovvoyi o'simliklarda o'sib chiqqan. Madaniy turlarning soni 43 turni tashkil etdi va eng ko'p turlar begona o'tlar-16 ga tegishli bo'lib, 8 tur o'stirilgan va begona o'tlar deb aniqlandi, 10 madaniy, begona o'tlar va yovvoyi hayvonlar, 9 turlar madaniy va yirtqich hayvonlarga ajratildi.

Kalit so'zlar: madaniy o'simliklarning yovvoyi qarindoshlari, madaniy o'simliklarning yovvoyi qarindoshlari mavjud bo'lish shakllari, begona o'tlar, madaniy o'simliklar, madaniy o'simliklar va boshqalar.

Аннотация: В статье приводятся данные проведенных исследований форм существования диких сородичей культурных растений флоры Каракалпакстана и Хорезма. Анализ показал, что, среди дикорастущих видов наибольшее количество видов наблюдалось среди произрастающих как в диком виде, так и в культуре-44 вида, далее, по своему количеству(35 видов), были виды, которые произрастали лишь в диком виде. Произрастающие в диком виде и также сорничающих было 21 вид, произрастающие в культуре и сорничающие составили 19 видов и к растениям, произрастающим в диком виде, в культуре, сорничающим и одичавшим были отнесены 8 видов. Количество культивируемых видов составило 43 вида, и наибольшее число видов принадлежало к сорничающим-16, 8 видов было выявлено как культивируемые и сорничающие, культивируемых, сорничающих и одичавших видов было 10, и к культивируемым и одичавшим нами было отнесено 9 видов.

Ключевые слова: дикорастущие сородичи культурных растений, формы существования дикорастущих сородичей культурных растений, сорничающие, культурные растения, культивируемые растения, и др.

Abstract: The article provides data on the studies of the forms of existence of wild relatives of cultivated plants of the flora of Karakalpakstan and Khorezm. The analysis showed that among the wild-growing species, the largest number of species

was observed among those growing both in the wild and in culture - 44 species, then, in terms of their number (35 species), there were species that grew only in the wild. There were 21 species growing in the wild and also weeding, 19 species growing in culture and weeding, and 8 species were attributed to plants growing in the wild, in culture, weed and feral. The number of cultivated species was 43 species, and the largest number of species belonged to weed-16, 8 species were identified as cultivated and weed, there were 10 cultivated, weed and feral species, and 9 species were classified as cultivated and feral.

Key words: wild relatives of cultivated plants, forms of existence of wild relatives of cultivated plants, weeds, cultivated plants, cultivated plants, etc.

Introduction: Our country has innumerable plant resources and many of them have not yet been touched by the hand of a breeder. When creating new varieties, breeders are increasingly turning to wild forms of one or another species.

Wild relatives of cultivated plants (WRCP) are carriers of such biological properties as resistance to extreme environmental factors (high and low temperatures, droughts, salinity, flooding, etc.), as well as to diseases, pests, etc. Therefore, further progress in breeding We cannot imagine without the comprehensive and complete use of wild relatives of cultivated plants.

Due to the fact that the genetic wealth of the planet is under threat of rapid decline, the World Food and Agriculture Association at the UN (FAS) raised the issue of organizing its conservation in territories that coincide with the Vavilov foci of origin of cultivated plants. But this does not mean that it is necessary to protect this or that hearth as a whole. It is advisable, in our opinion, to determine the places of the highest concentration of wild relatives of cultivated plants inside the focus, in which to carry out the conservation of the gene pool.

Due to the fact that the genetic wealth of the planet is under threat of rapid decline, the World Food and Agriculture Association at the UN (FAS) raised the issue of organizing its conservation in territories that coincide with the Vavilov centers of origin of cultivated plants. But this does not mean that it is necessary to protect this or that hearth as a whole. It is advisable, in our opinion, to determine the places of the highest concentration of wild relatives of cultivated plants inside the focus, in which to carry out the conservation of the gene pool.

Therefore, we based our research on an in-depth study of Karakalpakstan and Khorezm, which N. I. Vavilov attributed to the Central Asian origin of cultivated plants (N. A. Vavilov, 1935).

The nature of most of the Republic of Karakalpakstan is represented by the Kyzylkum desert, the Ustyurt plateau and the Amu Darya Delta, which are replaced by relatively wide valleys, and the plains in the North turn into the vast plains of Kazakhstan.

The Republic of Karakalpakstan has certain climatic, edaphic conditions and associated vegetation types.

Geographic analysis of wild relatives of cultivated plants of the Karakalpakstan focus shows that they are widespread in various ecological-geographical regions and types of vegetation associated with different reliefs, therefore, it is necessary to give a brief overview of the vegetation of the Karakalpakstan focus.

Literature review: The study of the flora vegetation of Karakalpakstan and adjacent lands was conducted by numerous domestic and few foreign botanists, starting from A. P. Fedchenko [2, 3], M. G. Popov [4], N. I. Vavilov [1, 5], E. N. Korovin [6], I. I. Granitov [7], R. V. Kamelin by [8], to H. F. Shomurodov, F. O. Khasanov [9], H. F. Shomurodov etc., [10] and many others, have made great contributions to the study of the flora and vegetation of the Republic of Karakalpakstan.

The vegetation of the Central Asian hearth, which includes the territory of Karakalpakstan and Khorezm, was formed during several geological epochs, which were accompanied by an intensive process of mountain formation and the gradual withdrawal of the waters of the ancient Tethys sea.

Research Methodology: The object of research is the forms of existence of wild relatives of cultivated plants in the flora of Karakalpakstan and Khorezm. Features of the flora were established by a comprehensive analysis of its components. The scientific and theoretical basis of the work is the monotypic concept of the species.

The purpose of this work is an inventory of wild and cultivated species of wild relatives of cultivated plants of the flora of Karakalpakstan and Khorezm.

The research materials were: own herbarium collections and geobotanical descriptions made during field work; herbarium stored in botanical collections (Herbarium of the Tsitsin State Library of the Russian Academy of Sciences, the Herbarium named after Prof. Yelenevsky Department of Botany of the Moscow State Pedagogical University, the herbarium of the Karakalpak Branch of the Academy of Sciences of the Republic of Uzbekistan (KB ASc RUz), the herbarium of the Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan); numerous literature data; archives of expeditions of the Karakalpak Branch of the Academy of Sciences of the Republic of Uzbekistan, different years.

The work is based on materials from herbarium collections and geobotanical descriptions from the entire study area of Karakalpakstan and Khorezm.

For the inventory of WRCF species in the flora of Karakalpakstan and Khorezm, the herbarium collections of the funds of the Institute of Natural Sciences of the KB ASc RUz, the Institute of Botany of the Academy of Sciences of the RUz, the Herbarium of the G. Tsitsin, herbarium them. prof. Elenevsky Department of Botany, Moscow State Pedagogical University - more than 2500 herbarium sheets were viewed in total. When compiling the list of WRCF, the materials of expeditions of the Institute of Natural Sciences of the KB ASc RUz were also taken into account.

The main literary sources for the compilation of the annotated list of WRCF were the Keys to Higher Plants of Karakalpakstan and Khorezm (1981, 1982); The Red Book of RUz (2009), the catalog "Wild relatives of cultivated plants in Russia" (2005), Wild relatives of cultivated plants of the flora of the USSR (Brezhnev, Korovina, 1981), Cultural plants and their relatives (Zhukovsky, 1971), Flora of Karakalpakia (Erezhepov, 1978), Wild fibrous plants of Uzbekistan (Burygin, 1942), Wild useful plants of Russia (Budantsev, Lisovskaya, 2001), State register of breeding achievements allowed for use (2014).

The object of the analysis was the WRCF species having food, forage, medicinal, decorative, melliferous and technical significance (Catalog..., 2005; State Register...,

2014). The names of taxa are given in accordance with the summary of S.K. Cherepanov (1995).

In order to study the WRCP in the composition of plant communities in the period from 2013 to 2020, 34 expeditions were carried out. In the Karakalpak Aral Sea region, field research was carried out in the desert zone on the territory of the Karakalpak Kyzylkum, Aralkum, Karakalpak part of the Ustyurt plateau (hereinafter the Ustyurt plateau), the Amu Darya Delta, the Remains of the Upland and the Khorezm region. Thus, the study areas covered all four natural regions of the Republic of Karakalpakstan and Khorezm, different in geological structure and relief, climatic conditions and the nature of vegetation.

Analysis and results: The reasons for the floristic richness of the territory of Karakalpakstan and Khorezm are: a special position in the northwestern part of the Republic of Uzbekistan, dissected relief, various types of landscapes and a variety of climatic factors of the studied territory, which led to the exceptional originality and richness of the flora of this territory.

An interesting analysis of the wild relatives of cultivated plants and from the point of view of their various forms of habitation (table).

Forms of existence of wild relatives of cultivated plants in the flora of Karakalpakstan and Khorezm

Forms of existence	Number of species	% of the total number
Wild (128) of them:		
only wild	35	20,47
wild and weed	21	12,28
wild and in culture	44	25,73
wild, in culture and feral	1	0,58
wild, in culture and weed	19	11,11
wild, in culture, weeds and feral	8	4,68
Cultivated (43) of them:		
cultivated and feral	9	5,26
cultivated and weed	8	4,68
cultivated, rival, and feral	10	5,85
rival	16	9,36

Studies of the forms of existence of wild relatives of cultivated plants have shown that in the flora of Karakalpakstan and Khorezm among wild species, the largest number of species was observed among those growing both wild and in culture, 44 species: *Ferula assa-foetida* L., *Psammogeton setifolium* Boiss., *Trachomitum scabrium* (Russan.) Pobed., *Achillea nobilis* L., *Artemisia terrae-alba* Krasch., *A. annua* L., *Lactuca serriola* Torner in L., *L. tatarica* (L.) C. A. Mey. L., *Tripolium vulgare* Nees., *Capsella bursa-pastoris* (L.) Medik., *Isatis violascens* Bunge, *Malcolmia turkestanica* Litv., *Capparis rozanowiana* B. fedsch., *C. spinosa* L., *Acanthophyllum borszczowii* Litv., *Aellenia subaphylla* (C. A. Mey.), *Anabasis aphylla* L., *A. salsa* (C. A. Mey.) Benth. Ex Volkens, *Salsola arbuscula* Pall., *S. richteri* (Moq.) Kar. Et Litv., *Haloxylon aphyllum* (Minkw.) Iljin, *H. persicum* Bunge, *Convolvulus fruticosus* Pall., *Ammodendron conollyi* Bunge, *A. longiracemosum* Raik, *Astragalus*

transcaspicus Freyn, *A. unifolialatus* Bunge, *Caragana grandiflora* (Beib) DC., *Glicirrhiza aspera* L., *Iris falcifolia* Bunge, *Peganium harmala* L., *P. maritima* L., *Poa bulbosa* L., *Secale silvestre* Host., *Calligonum aphyllum* (Pall.) Gurke, *C. caput-medusae* Schrenk, *C. colubrinum* Borzcz., *Rheum tataricum* L., *Amygdalus spinossissima* Bunge, *Crataegus korolkovii* L. Henry, *C. pontiaca* C. Koch., *Hultemia persica* (Michx. Ex Juss.) Bornm., *Lycium ruthenicum* Murr., *Typha laxmannii* Lepech.

Further, in terms of their number, which amounted to 35 species, there were species that grew only in the wild: *Allium caspium* (Pall.) Bieb., *A. sabulosum* Stev. Ex Bunge., *Ferula dubjanskyi* Korovin ex Pavlov, *F. lehmannii* Boiss., *Zosima orientalis* Hoffm., *Carthamnus gypsicola* Iljin, *Inula multicaulis* Kar., *I. caspica* Blume., *Cynoglossum viridiflorum* Pall., *Alyssum marginatum* Seud. ex Boiss., *Isatis minima* Bunge, *Lepidium perfoliatum* L., *Leptaleum filifolium* (Wild.) DC., *Aellenia glauca* (M. Bieb.) Aellen, *Ae. Iliensis* (Lipsky) Aellen, *Agriophyllum latifolium* Fisch. et Mey., *A. Squarrosus* (L.) Moq., *Atriplex cana* C. A. Mey., *Ceratocarpus arenarius* L., *Kalidium caspicum* (L.) Ung. – Sternb., *Kochia iranica* Bornm., *K. odontoptera* Schrenk., *Salsola dendroies* Pall., *S. foliosa* (L.) Schrad, *S. gemmascens* Pall., *S. incanescens* C. A. Mey., *Suaeda prostrata* Pall., *Convolvulus hamadae* (Vved.) V. Peter., *Lagochilus acutiloba* (Ledeb.) Fisch. & Mey., *Nytrariya sibirica* Pall., *Malacocarpus crithmifolius* (Retz.) C.A.Mey., *Bromopsis inermis* (Leys.) Holub., *Stipa barchanica* Lomonosova, *Limonium gmelinii* (Willd.) O. Kuntze, *Ceratocephala testiculata* (Crantz) Bess.

21 species of wild-growing relatives of cultivated plants from the studied flora were attributed to the forms of existence of plants that grew in the wild and also weed, and included: *Daucus carota* L., *Crambe kotschyana* Boiss., *Lepidium latifolium* L., *Kochia prostrata* (L.) Schrad., *Salsola nitraria* Pall., *Suaeda altissima* (L.) Pall., *Carex pachystylis* J. Gay., *Plantago lachnanta* Bunge, *Agropyron fragile* (Roth.) P. Candargy, *Anisantha tectorum* L., *Beckmannia eruciformis* (L.) Host., *Bromus japonicus* Thunb., *B. racemosus* L., *Elymus racemosus* Lam., *Lolium multiflorum* Lam., *Polygonum amphibium* L., *Rumex halacsyi* Rech., *R. marschallianus* Reichb., *Ranunculus sceleratus* L., *Datura stramonium* L., *Zygophyllum oxianum* Boriss.

Wild, cultivated and weed species from the studied wild relatives of cultivated plants of Karakalpakstan and Khorezm amounted to 19 species: *Sagittaria trifolia* L., *Bidens tripartita* L., *Cichorium intybus* L., *Imperata cylindrica* (L.) Beauv., *Ephedra distachya* L., *Equisetum ramosissimum* Desf., *Alhagi persarum* Boiss. Et Bushe, *A. pseudoalhagi* (Bieb.) Fisch., *Melilotus albus* Medik., *Trigonella grandiflora* Bunge, *Fumaria vaillantii* Loisel., *Hibiscus trionum* L., *Agropyron repens* (L.) Beauv., *Aegilops cylindrica* Host., *Digitaria sanguinalis* (L.) Scop., *Phalaroides arundinaceae* (L.) Rauschert, *Polygonum aviculare* L., *P. persicaria* L., *Tamarix hispida* Willd.

Plants growing in the wild, in culture, weed and feral were assigned 8 species: *Elaeagnus turkomanica* N. Kozl., *E. orientalis* L., *Melilotus officinalis* (L.) Pall., *Mentha asiatica* Boriss, *Abutilon theophrasti* Medik., *Althaea broussonetiifolia* Iljin, *Plantago major* L., *Solanum nigrum* L.

Only one species appeared to grow wild, in culture and run wild, this *Onobrychis micranta* Schrenk.

The number of cultivated species from our list was 43 species, and the largest number of species belonged to weeds - 16: *Cynanchum sibiricum* Willd., *Xanthium strumarium* L., *Eruca sativa* Mill., *Chenopodium album* L., *Ch. filicifolium* Smith, *Ch. glaucum* L., *Ch. murale* L., *Ch. strictum* Roth., *Calystegia sepium* (L.) R. Brown, *Cynodon dactylon* (L.) Pers., *Echinochloa crus-galli* (L.) Beauv., *E. oryzoides* (Ard.) Fritsch, *Setaria italica* (L.) Beauv., *S. viridis* (L.) Beauv., *S. verticillata* (L.) Beauv., *Tribulus terrestris* L.

There were 10 cultivated, weed and feral species: *Amaranthus albus* L., *A. retroflexus* L., *Glicirrhiza glabra* L., *Trifolium repens* L., *Hordeum bogdanii* Wilensky, *Sorghum halepense* (L.) Pers., *Portulaca oleraceae* L., *Hyoscyamus niger* L., *H. pusillus* L., *Urtica dioica* L.

We classified 9 species as cultivated and feral: *Medicago lupulina* L., *Saccharum spontaneum* L., *Rosa majalis* Herrm., *Haplophyllum ramosissimum* (Pauls.) Vved., *Populus ariana* Dode, *P. diversifolia* Schrenk (*P. euphratica* auct.), *P. pruinosa* Schrenk, *Salix songarica* Anderss., *S. wilgelmsiana* Bieb.

8 species were identified as cultivated and weed: *Taraxacum bicorne* Dahlst., *Brassica juncea* (L.) Sczern., *Sinapis arvensis* L., *Sisymbrium loeselii* L., *Convolvulus arvensis* L., *Melo agrostis* (Naud.) Pang., *Dactylis glomerata* L., *Rumex drobovii* Korov.

Conclusion/Recommendations: Nature is the main source of medicinal, forage, food, and honey crops for humans. Assessment of natural reserves of useful plants, study of the dynamics of their distribution - one of the main directions of resource research. Out of the total number of species of wild relatives of cultivated plants growing on the territory of Karakalpakstan and Khorezm, honey plants are represented by 46 species. The gene pool of medicinal plants in this area is 123 species. This is only a minimal list of medicinal plants, since the number of plant species used by the population for medicinal purposes is much higher. There are 142 species and 79 species of flora that are used as food plants. (A. B. Azhiev et al.) [12, 13 14].

Trampling and etching, and other types of anthropogenic load increasing every day, significantly reduce the fodder value of meadows, and this is mainly expressed in a sharp decrease in the percentage of cereals, legumes, as a result, an increase in the amount of inedible forbs and contamination of the meadow by invasive poisonous species, which usually cause poisoning in animals.

References:

- [1]. Vavilov, N.I. 1935. Botanical and geographical bases of breeding (The doctrine of the source material in breeding). - In the book: Theoretical foundations of selection. M. ; L. : Selkhozdat. vol. 1. Pp. 17-74.
- [2]. Fedchenko, A.P. 1872. Brief report on travels to the basin of the Upper Zaravshan in June 1870-Izv. Common Lovers of natural science, anthropology and ethnography, M. vol. 9, no. 1. Pp. 79-86.
- [3]. Fedchenko, A.P. 1873. Notes on Magianskiy Bekstvo. -Mat. according to the statistics of the Turkestan region. SPb., issue. 2. Pp. 53-67.
- [4]. Popov, M.G. 1927. The main features of the development of the history of the flora of Central Asia. - Bul. Sredneaz. Gos. universitet. Tashkent.No.15. Pp. 239-290.

- [5]. Vavilov, N.I. 1931. Wild relatives of fruit trees in the Asian part of the USSR and the Caucasus and the problem of the origin of fruit trees. Tr. by app. Bot., Gene. and villages. vol. 26, no. 3. Pp. 85-107.
- [6]. Korovin, E.P. 1961. Vegetation of Central Asia and Southern Kazakhstan. Tashkent: ASci UzR. SR. book. 1. 452 p.
- [7]. Granitov, I.I. 1967. Vegetation cover of the South-West Kyzyl Kum. Tashkent: "FAN" UzSSR. v. 2. 419 p.
- [8]. Kamelin, R.V. 1973. Phylogenetic Analysis of the Natural Flora of Mountainous Central Asia. L. : Nauka. -335 p.
- [9]. Shomurodov, Kh.F., Khasanov, F.O. 2014. Forage plants of the Kyzyl Kum Desert. Arid Ecosystems. volume 20, no. 3 (60). Pp. 94-101
- [10]. Shomurodov, Kh.F., Saribaeva, Sh.U., Akhmedov, A. 2015. Distribution and current state of rare plant species on the Ustyurt plateau in Uzbekistan. Arid ecosystems, volume 21, no. 4 (65). Pp. 75-83
- [11]. Cherepanov, S.K. 1995. Vascular Plants of Russia and Neighboring States. SPb. : Mir and family-95. 990 p.
- [12]. Korovina, O.N., Bakhiev, A., Tajitdinov, U. T., Sarybaev, B. 1982. Illustrated key to higher plants of Karakalpakstan and Khorezm. Tashkent.: "Fan" Uz USSR, 1982, v. 1. 225 p.
- [13]. Korovina, O.N., Bakhiev, A., Tajitdinov, U. T., Sarybaev, B. 1983. Illustrated guide to higher plants of Karakalpakstan and Khorezm. Tashkent. : "Fan" Uz USSR 1983, v. 2. 201 p.
- [14]. Red Book of the Republic of Uzbekistan. Vol. 1. Plants and mushrooms. Tashkent, 2009.
- [15]. Catalog of the VIR world collection. 2005. Wild relatives of cultivated plants /T.N. Smekalova, I.G. Chukhina; ed. N.I.Dzyubenko. - SPb.: GNTs RF VIR, 2005. 54 p.
- [16]. Brezhnev, D.D. 1981. Wild relatives of cultivated plants of the flora of the USSR /D.D. Brezhnev, O.N. Korovina. - L.: Kolos, Leningrad. Department. 376 p.
- [17]. Zhukovsky, P. M. 1964. Cultivated plants and their relatives /P. M. Zhukovsky. L.: Kolos. 791 p.
- [18]. Erezhepov, S.E. 1978. Flora of Karakalpakstan, its economic characteristics, use and protection. Tashkent "Fan". 296 p.
- [19]. Burygin, V.A. 1942. Wild fibrous plants of Uzbekistan. Publishing house UzFAN. Tashkent. 27 p.
- [20]. Budantsev, A.L., Lesiovskaya, E.E. 2001. Wild useful plants of Russia /A.L. Budantsev, E.E. Lesiovskaya. SPb.: Publishing house of SPKhFA. 663 p.